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

1 March 1989

EXAMINER HEARING

IN THE MATTER OF:

Application of Curry and Thornton for an unorthodox oil well location and a non-standard proration unit, Chaves County, New Mexico.	CASE 9617

BEFORE: Victor T. Lyon, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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For Santa Fe Exploration Company:	Ernest L. Padilla Attorney at Law PADILLA & SNYDER P. O. Box 2523 Santa Fe, New Mexico 87504
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I N D E X

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E X H I B I T S

MR. LYON: Call next Case 9617.

Application of Curry and Thornton for an unorthodox oil well location and a non-standard proration unit, Chaves County, New Mexico.

Appearances?

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm Campbell & Black, P. A., of Santa Fe. We represent Curry and Thornton and have two witnesses.

MR. PADILLA: Mr. Examiner, my name is Ernest L. Padilla, Santa Fe, New Mexico, for Santa Fe Exploration Company and we have two witnesses.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin, Kellahin & Aubrey. I'm appearing in opposition to the Applicant on behalf of Exxon.

I'd like to have one witness sworn.

MR. LYON: Will all the witnesses stand and raise your right hands?

(Witnesses sworn.)

MR. LYON: Do we have opening

statements?

MR. CARR: Mr. Examiner, I have a brief opening statement.

Curry and Thornton are before you today seeking approval of a nonstandard 160-acre proration unit in the North King Camp Devonian Pool. They're also seeking approval of an unorthodox oil well location.

Special pool rules were promulgated for this pool in December of 1988 in Case 9529 by Order R-8806. This was the application of Santa Fe Exploration Company, and as a result of that case 160-acre spacing or proration units were created as the standard and the setback for wells in the pool was increased.

The data presented at that time showed a fault running north/south through the Section 9 of Township 14 South, Range 29 East.

The placement of this fault was to the west of the acreage owned by Santa Fe Exploration Company and this exhibit itself shows substantial reserves between the fault and their lands and it is in this area that Curry and Thornton hold a lease.

Curry and Thornton are not here before you today trying to get closer to offsetting production because they are doing it to get into the reserves of another, they're here because there are only cer-

tain places with -- on their lease where they can drill and complete a well that will enable them to produce their just and equitable share of the reserves in this pool, reserves which underlie their tract, reserves which, consistent with the definition of correlative rights, they are entitled to an opportunity to produce without waste.

We'll call two witnesses. One will give you a geologic interpretation of the reservoir. The second will go from this and recommend a penalty that should be imposed on the Curry and Thornton well which we propose to drill.

My first witness is Mr. Jack Ahlen.

MR. LYON: Are there other opening statements?

MR. PADILLA: Mr. Examiner, we'll waive our opening statement until the presentation of our testimony.

MR. LYON: Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, my client, Exxon, is a working interest owner in the discovery well. They have a percentage interest in this well and supported Santa Fe Exploration's efforts to establish field rules for this Devonian Pool.

That was accomplished by the

Commission by the order to which Mr. Carr references and as a result of that technical presentation the Commission adopted for this deep oil production, 160-acre spacing. As a result of that technical information it was determined. at least for a temporary period, the science was such and the proof of our case will be that these wells are capable of draining large areas.

The Commission was very generous and flexible in determining a drilling window for standard wells in this pool and they provided flexibility by requiring wells to be no closer to the outer boundary of the 160 than 660 feet.

They also specifically provided that in Rule Number 4 of the rules to which Mr. Carr quotes, that no two wells in the same pool should be located closer than 1,320 feet.

The proof will also be, Mr. Examiner, that the acreage involved is all Federal acreage on both sides of the (unclear). The acreage in the southwest quarter is acreage that Curry and Thornton acquired after the adoption of the rules of the Division for the pool. They came into this field wide open. Their eyes were not closed as to what the pool rules were or what the proof at the hearing had been. The technical evidence at that hearing and the technical evidence now will demon-

strate to you that a significant, overwhelming portion of the spacing unit in the west half of this section is not productive. It's on the opposite side of a fault which has been clearly established by geologic data.

In addition, Curry and Thornton acquired their interest in this lease after the dry hole that appears in the southwest quarter of that section, which condemns a significant portion of that proration unit.

Our proof will be, contrary to Mr. Carr's assertion, is that the only hope for Curry and Thornton to have commercial production out of this well is to take that production from the Santa Fe Exploration/Exxon properties.

We believe that this is a case in which you are required to deny the application even at an unorthodox location. There are two parts of the puzzle we wish to discuss with you. One will be the novel and unusual shape and configuration of the spacing unit. They've simply stacked four 40-acre tracts on top of each other and then presume to argue that they're going to adequately and efficiently develop that nonstandard proration unit when the truth of the matter is that that surface location is but 165 feet away from the common lease line with the Exxon/Santa Fe Energy -- Santa Fe Exploration well.

So we will ask you, Mr. Examiner, in the first order to deny the application; however, in the event you decide to approve this application, we will ask you, sir, to integrate into the penalty factor a penalty that takes into consideration not only the unorthodox location of this well but the inherently novel issue of having significant portions of this west half of the section condemned by a dry hole and a fault that runs perpendicular north and south through the properties.

We will present three witnesses to you on that situation, a geologist and two engineers, to discuss for you the technical information available to us and why we believe that in our best judgment you ought to deny this case.

MR. LYON: Thank you, Mr. Kellahim.

MR. CARR: May it please the Examiner, inasmuch as much of the case today is based upon what transpired in Case 9529, we would request that the record of that proceeding be incorporated into this hearing.

MR. LYON: It will be so incorporated. You may proceed.

JACK AHLEN,

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name for the record, please?

A Jack Ahlen.

Q Mr. Ahlen, where do you reside?

A In Roswell, New Mexico.

Q By whom are you employed and in what capacity?

A I'm employed by Curry and Thornton as a consulting geologist for the purpose of presenting evidence in this case.

Q Have you previously testified before this Division or one of its examiners and had your credentials as a geologist accepted and made a matter of record?

A Yes, sir.

Q Are you familiar with the application filed in this case on behalf of Curry and Thornton?

A Yes, sir.

Q Are you also familiar with the North King Camp Devonian Pool?

A Yes, sir.

Q Have you made a study of the formation, the Devonian formation, in this area and prepared certain exhibits for introduction in this case?

A Yes, sir.

MR. CARR: We tender Mr. Ahlen as an expert witness in petroleum geology.

MR. LYON: Mr. Ahlen's qualifications are acceptable.

Q Mr. Ahlen, would you briefly state what Curry and Thornton seek with this application?

A They seek exception to Rule 2 and Rule 4 of the previously issued orders in the North King Camp Pool. They seek a 160-acre proration -- the exception to the 160-acre proration unit, being a square. Instead they seek application for the east half of the west half to be the proration unit.

They also seek an exception to the rule of 660 spacing from the outer boundary. They request a distance of 165 feet from the east line and 1980 from the south line of said Section 9 of 14, 27 --14, 29.

Q And why are they seeking this exception?

A In order to get into the reservoir itself, Curry and Thornton seek a location which can adequately drain their equitable share of the reservoir.

If a location, a standard location would place them at the location of the previously drilled dry hole, the Phil Tex Honolulu Federal, or west of the fault that has been mapped in the location by Santa Fe Energy's geophysical surveys.

Q Mr. Ahlen, would you refer to what has been marked for identification as Curry and Thornton Exhibit Number One, identify this for Mr. Lyon, and explain what it is and what it shows?

A Exhibit Number One is a land map. It's a xeroxed copy of the Midland Map Company land map slightly enlarged to show the area of interest in Section 9, 14 South, 29 East.

Q It shows the discovery well for the North King Camp Pool, located 1980 from the south and east lines of Section 9. It shows the previously existing Phil Tex Honolulu Federal, which is 1980 from the south and west line, as well as the Santa Fe No. 2 Holmstrom, which is located in Section 16, 660 from the north and 1980 from the east.

The other deep hole on this part of the map is located in Section 2, the Franklin et al Harris State, which also went to the Fusselman.

There are no -- excuse me, the Devonian. There are no other deep wells illustrated on this map.

This map also shows the 160 acres outlined in the southeast quarter of Section 9 as the standard unit. It also shows the stand-up 160 proration unit in the east half of the west half of Section 9 and the approximate proposed location for the Curry and Thornton well.

Q On this map there also is a standard unit available in the northeast of 9, is that not correct?

A That is correct. There is a standard, normal location capable of being drilled in the northeast 160 acres of Section 9.

Q And is that acreage controlled by Santa Fe Exploration?

A To the best of my knowledge, it is. It is shown that way on the (unclear).

Q Would you identify what has been marked as Curry and Thornton Exhibit Number Two, please.

A Exhibit Number Two is an order of the Division, Case Number 9529, Order R-8806, which promulgates the rules for this pool.

Q What are the spacing requirements as contained in those special pool rules?

A 160-acre spacing roughly in the form of a square.

Q And what are the setback requirements as set forth in those rules?

A 660 feet.

Q 660 feet from --

A From the outer boundary of the -- of a proration, any proration unit.

Q Why could Curry and Thornton not drill a well in the west half of 9 at a standard location?

A The fault as mapped by geophysics and -- is located less than 660 feet from the easternmost line of the Curry and Thornton acreage.

Q The well at this location, in your opinion, is necessary to get into the reservoir? Is that what you stated?

A That is correct.

Q Are there any other benefits from locating it at this particular location?

A The particular location that we have chosen steps it east of the fault primarily to eliminate drilling problems, as well as potential problems, reservoir problems, in the immediate vicinity of a fault. If, in some cases if you drill in the immediate vicinity of a fault, recementation of the fault's scarp itself causes a much more impermeable reservoir. It's about a 50/50 shot but it's an additional risk that we do not care to assume.

Q What measures does Curry and Thornton plan to undertake to assure that a bottom hole location

would be in fact no closer than 165 feet to the lease line?

A During the drain of the well deviation surveys will be taken at regular intervals to ensure that the well is not drifting to the east. If such is the case, they will take the necessary deviation correction measures to eliminate that problem.

Q And surveys that you take will not only measure deviation but the direction of that deviation, is that correct?

A That is correct. That is what a deviation survey is.

Q So you will be able to assure that you do not encroach more than what you -- hopefully, will be approved for a bottom hole location.

A That is correct and those surveys will be made available to the Commission at their request.

Q Mr. Ahlen, would you refer to what has been marked as Curry and Thornton Exhibit Number Three and identify that, please?

A Exhibit Number Three is a copy of a previously presented exhibit during the Santa Fe hearing in November on what was called the North Lucky prospect. It is the Devonian seismic map that was presented as Exhibit Number Four in that case.

I have enlarged the exhibit double so

that one can look at the map and eyeball the contours a little easier. It shows the structure contours as interpreted from the geophysical data. It also shows a major down to the west fault cutting almost straight north/south in the west half of Section 9.

Q Based on the information that you had to review in confirming this exhibit, did it appear to you to be a reasonable interpretation of the reservoir?

A This is indeed a reasonable interpretation of the reservoir based on the data available at the time.

Q Could you explain what problems are posed for Curry and Thornton by the pool rules that were promulgated in December when you relate those rules to this map, to this plat?

A Yes. If you will note, a fault is located in the west half of Section 9 and to the east of the dry hole that is already drilled there by Phil Tex in 1961. There is no legal location that Curry and Thornton can make that would penetrate the reservoir such that they could recover their reserves.

Q Would you now refer to what has been marked as Curry and Thornton Exhibit Number Four and identify that, please?

A Exhibit Number Four is a structure con-

tour map that I made of the North King Camp Pool, showing the discovery well, the No. 1 Holmstrom, the old Phil Tex well, the Holmstrom No. 2 Well to the south in Section 16.

I show the fault. I actually made a tracing of the -- I increased the size of previous Exhibit Number Three such that I could put the fault exactly where it's shown on the seismic map.

I've also drawn a line which represents the centerline of Section 9, running north/south. You will note that part of the reservoir that is the producable reservoir lies to the west of Section -- of the centerline of Section 9, representing part of the leasehold interest of Curry and Thornton that would not be drained by a normally located well.

I have also estimated an oil/water contact at a datum of -6075 based on testing that was conducted in the old Phil Tex Well, as well as the Holmstrom No. 2, as well as the No. 1 discovery well.

Oil had been produced down to a total depth in the No. 1 Holmstrom well to a datum of -6016. I estimate water was encountered in the Phil Tex well at -6131 and water was tested below 6130 in the No. 2 Holmstrom Well. I've placed that oil/water contact approximately one-half of the distance within that unknown section where the oil had been produced above and water produced

below.

Q Now based on this interpretation have you been able to estimate the number of productive acres that exist in the southeast quarter of Section 9 and compare those to the number of productive acres in the east half of the west half of this section?

A Yes, I have.

Q And what are those figures?

A I estimate that the productive acres above the oil/water contact in the southeast quarter is roughly 95 acres.

In the east half of the east half, approximately 60 acres.

Q In the east half of the west half?

A East half of the west half, excuse me, yes.

Q And this is based on the interpretation that was offered by Santa Fe Energy in the November hearing.

A I have constructed this map based primarily on their seismic map but altering that interpretation such that the subsurface datum of the No. 2 Holmstrom is honored with my subsurface contours. It's exactly the same on the north, northeast quarter of 9 but I've altered the contours such that they'll fit the data to the south.

Q All right, let's go now to Exhibit Number Five and I'd ask you to identify that and explain how it differs from the preceding exhibit.

A Exhibit Number Five is a takeoff from previously existing Number Four, in that it is a subsurface structure map not utilizing the geophysical data that says there's a fault in the west half of Section 29; rather using accentuated dip, steep dip, eccentric on the west side. It's quite common in this part of Chaves County, to have a Devonian pool that is -- that has this type of structure. An example would be the -- the White Ranch Devonian Pool to the north about ten miles. It has a structure that's almost exactly the same.

Q And this particular map is based on well control data in the area.

A Well control data only.

Q Using this approach have you been able to estimate the number of productive acres under the southeast quarter of Section 9 and compare those with the productive acres in the east half of the west half of that section?

A Again it's approximately 95 acres in the southeast quarter and 60 acres in the east half of the west half.

Q All right, now let's move to Exhibit

Number Six and I'd ask you to identify that, please.

A This is also a map which I have constructed. It honors the seismic data that had been previously introduced in the previous case; has the down to the west fault as indicated on the original seismic work.

It honors the No. 2 Holmstrom datum. If you will compare this with my previous Exhibit Number Three, the seismic map, you'll note that the seismic did not tie in the No. 2 Holmstrom Well. The datum of the No. 2 Holmstrom Well is -6113 and if you estimate the datum of the Holmstrom Well from that geophysical map, you'll come up with a potential for the No. 2 Holmstrom to be located at a datum approximately -5975. It missed that mark by approximately 135 feet.

This particular map. I introduced a velocity gradient such that the two wells would tie on the seismic map. That velocity gradient was applied arithmetically between the two wells, the Holmstrom 1 and No. 2, and then extended northward for the rest of Section 9.

Essentially what it does is tilt the previous seismic picture down to the south and lift it slightly to the north such that the center of the structure is now slightly to the north of the previous location.

Now that's based on the least amount of information available, of course. I have not had access to

the seismic lines and so this is merely a straight line extrapolation.

Q Now, utilizing this new data in making this extrapolation, was there anything in that data that would tend to make you believe that the fault should move one way or the other?

A No.

Q Based on this extrapolation did you estimate the number of productive acres in the west half -- in the east half of the west half and compare those with the number of productive acres in the southeast quarter?

A Yes, sir, I did.

Q And what were those figures?

A They're slightly different. Approximately 100 acres in the southeast quarter and 90 -- and 65 acres in the east half of the west half; a slight increase in the number of acres because it tilted the structure up to the north and the oil/water contact then moved out of the east half of the northeast half of the west half of Section 9.

Q Based on your interpretation of the reservoir are there any spacing units in this pool that would be completely underlaid with productive acreage?

A No.

Q Would you refer now to what has been

marked as Curry and Thornton Exhibit Number Seven? Would you identify that, please?

A This is an east/west cross section between the Holmstrom No. 1 Well, the discovery well, and the old Phil Tex Well on the west. I have shown the fault. It's a structure cross section such that it is datumized (sic).

I show the lower part of the section, the Devonian, Woodford, Mississippian and the lower part of the Pennsylvanian on the electrical logs. I have made the correlation markers showing the top of the Devonian, the top of the Woodford, the top of the Mississippian Lime, and the top of the Mississippian Chester formations. They correlate between the two wells very easily.

I have drawn the fault as shown on the Santa Fe Exhibit Number Four, my Exhibit Number Three, at its location on the map. It is scaled. You'll note that the thin line immediately to the right of the electric log showing the Honolulu Well represents a stick diagram of the Honolulu Well; the thin line just to the left of the Holmstrom Well represents the location of the Holmstrom No. 1 and the proposed location is also a thin line located approximately halfway between those two.

I've also noted the location of the property line at the surface and then projected it to the sub-

surface.

Our proposed location should intersect the reservoir above the oil/water contact as shown on this cross section. We will intersect the oil/water contact. The top of the formation and the total depth of the well will be no closer than 165 feet from the property line.

You'll note that I have also placed the estimated oil/water contact below the 6000 -- -6000 foot sea level datum. It represents that part of the oil column that is producing, being produced by the Holmstrom No. 1 Well. You'll note that there is no obstacle for the Holmstrom No. 1 Well to produce oil from the Curry and Thornton lease at the present time. That property line is purely imaginary and drainage according to previous testimony will drain as far as that property line and beyond.

Curry and Thornton will be prevented from draining their proportionate share of their oil from this reservoir unless they can get a well into the reservoir at this approximate location.

Q So it's your testimony that they need a well to the west of the property line and to the east of the fault.

A Yes, sir.

Q Without that well will they have an opportunity to produce the reserves that underlie their

lease?

A They will not. Now, you'll note also that at a 330 location we would probably intersect the fault with the wellbore. That introduces very significant drilling problems in attempting to keep the well drilling straight. Usually you'll intercept relatively steep dip in the vicinity of a fault and it will tend to kick the well off from the vertical and you'll have a very difficult time going through your reservoir.

So we propose moving it to 165 feet from the top of the line to avoid that particular risk, which would significantly increase the cost of the well.

Q Would you identify what has been marked as Curry and Thornton Exhibit Number Eight?

A This is an affidavit that offset operators have been notified of this hearing.

Q And attached to that affidavit are there copies of notice letters and return receipts?

A Yes, sir.

Q In your opinion, Mr. Ahlen, will granting the application of Curry and Thornton be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes, sir, I believe it will.

Q Will there be an engineering witness

called in this case who will testify as to an appropriate risk penalty?

A Yes, sir.

Q Were Exhibit One through Eight either prepared by you or compiled under your direction and supervision?

A Yes, they were.

Q Can you testify to the accuracy of Exhibits One through Eight?

A Yes, sir.

MR. CARR: At this time we move the admission of Curry and Thornton Exhibits One through Eight.

MR. LYON: Is there objection?

MR. PADILLA: No objection.

MR. CARR: That concludes my examination, direct examination of Mr. Ahlen.

MR. LYON: The exhibits will be admitted.

Mr. Padilla.

CROSS EXAMINATION

BY MR. PADILLA:

Q Mr. Ahlen, what precedent to you -- can you cite to the Examiner concerning the nonstandard prora-

tion unit that you have outlined in your Exhibit Number One?

A What precedent can I cite?

Q Yes, sir.

A It's common for the Commission to grant unorthodox locations. I've presented testimony previously on many different cases.

Q I'm asking about the nonstandard proration unit.

A I don't have any precedent in mind.

Q You stated that it would cost a lot more money to located the well at 330 feet from the line because the fault would kick the drill bit, I suppose, to -- would it kick it to the east or would it kick it to the west?

A Depends upon individual dip segments at the particular location that the bit is penetrating. Whenever the bit strikes steeply dipping sediments, it tends to deviate the bit as well as the drill -- drill string, toward the higher end and it would tend to kick the well closer to the -- probably, in this instance, the gross effect would be to kick it to the east.

We want to control that.

Q How much more money would it cost to drill the well at a 330 foot location than at a 165 foot location?

A I do not have the AFE information with me.

Q Well, you testified that it would cost a lot more. Can you estimate that for me, please?

A 15 to 20 percent.

Q And you don't know what the cost of the well is going to be.

A I could only make a rough estimate.

Q Can you do that for me, please?

A Approximately, on a dry hole basis, $400,000.

Q And a completed well basis?

A Another 120,000.

Q Plus another 100 -- plus another 15 percent --

A Yes, sir.

Q -- you'd estimate for drilling the well slower, maybe, possibly, or how -- why would it cost more?

A First of all, you -- if you have a pumping well you want to limit the deviation from -- from vertical, such that you don't have any pumping problems.

Then, secondly, you want to control the location, the bottom location of the well, so you'd have to set -- set plugs such that you'll kick the well back to vertical.

Q As I understand your testimony, you're not really stating that you can't make a well at the 330 foot location, are you?

A I'd say it would be much, much more difficult, yes.

Q You haven't answered my question. Can you make a well at 330 -- at a location 330 feet from the line?

A I'd say it would be very close to the fault and it would be much more difficult to make a well at that location.

Permeability may be impaired. You may not adequately drain all of the acreage that Curry and Thornton has under lease.

Q Your testimony hasn't indicated that you're not -- that -- that -- you will miss the -- the fault at 330 feet, won't you? Do you know that?

A We do not know that. The fault that is shown on this map is an interpretation of the basic data that has not been available to me or to Curry and Thornton.

Q Mr. Ahlen, how did you draw your Exhibit Number Four, can you tell me that? How did you draw the fault on the Exhibit Number Four?

A I made an enlargement of Exhibit Number Three, which is a copy of the previous exhibit. I laid a

piece of tracing paper over -- over that, which is exactly the same scale as you see on Exhibit Number Four, and drew it directly from the previously existing map.

That is how I positioned the fault, based on the sworn testimony that had been previously presented.

Q Is it your testimony that the southwest quarter of Section -- of the section is totally unproductive except east of the line of the fault?

A Yes, sir.

Q And you base that on the previous dry hole.

A As well as the fault indication on the seismic line. We also have information from hearsay from another company that has an east/west line to the north of here and they verify the presence of a fault.

Q What you're saying is that there's no hydrocarbons west of the fault.

A Yes, sir. The drill stem test in the Phil Tex Well recovered no oil. It recovered water only.

Q You're basing your opinion strictly on that dry hole.

A Yes.

MR. PADILLA: I'll pass the witness, Mr. Examiner.

MR. LYON: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Ahlen, let me start with you, sir, with Exhibit Number Seven, if I might.

A Yes, sir.

Q Am I correct in understanding the display that between the east side and the west side of the fault there is enough vertical displacement in the fault to totally separate out the Devonian formation that produces on the east side of the fault from the formation on the west side of the fault?

A Yes, sir, that's my interpretation.

Q And that on the downthrown side of the fault we've got one well test in that southwest quarter in the Honolulu Well?

A Yes, sir, --

Q And that --

A -- Honolulu Federal.

Q And that tested wet on a drill stem test in the Devonian formation.

A That is correct. I have noted that on

the map on the cross section here. They recovered 630 feet of sulphur water with a shut-in pressure of 4,025 pounds when they drilled that well.

Q Now, as a geologist, then, you have concluded that there appears to be no opportunity for either fluid or hydrocarbon or pressure communication across the fault between the two areas.

A There's no hydrocarbon on the west side in the Devonian formation.

Q When did you, sir, first begin working on the geology for your client?

A Approximately four weeks ago.

Q Are you aware of when Curry and Thornton first acquired their interest in the property in the west half of Section 9?

A Only through this hearing.

Q In looking at the location of the fault, am I correct in understanding you have reviewed the geologic displays that Santa Fe Exploration presented to the Division that resulted in the pool rule order that was issued by the Division?

A Yes, sir.

Q Have you independently verified and examined any of the seismic data that was utilized for the preparation of that display?

A I have not. It has not been available to me.

Q Has your client acquired other seismic information to help confirm the location of that fault?

A They're in the process of acquiring such information.

Q What is the current status of their efforts to acquire that additional seismic information?

A The basic data has been acquired, is currently being processed.

Q When do you anticipate having that data available to you from which you can then, or a geophysicist can then analyze and determine with that additional information whether or not the fault ought to be moved?

A In the near future.

Q Would you have a projection of -- is this a seismic company that's been contracted with to run an additional seismic line?

A Yes, sir.

Q And what is the current status of their efforts, sir?

A It's in the Processing Department being processed by a computer.

Q And based upon your experience how long does that normally take to finish that process and give you

useful data that you can then examine and analyze?

A It can be anywhere from a couple of days to a week.

Q In addition to the couple of days or a week, once you get that information how long does it take you as an expert to analyze that information?

A Perhaps a day.

Q Other than obtaining the additional seismic information from this new seismic line, are you aware of any other available conventional geology date or seismic information that could be utilized to locate the fault line?

A The well site -- the well data that I've already presented on the exhibits, yes, sir.

Q Other than what we've talked about there's nothing else.

A No.

Q Let me see if I understand three different displays that you have prepared, Exhibits Four, Five, and Six, and perhaps we can take them in order, sir, and start with Exhibit Number Four.

This display has simply taken a reproduction from the seismic structure that was presented by Santa Fe Exploration Company?

A Yes, sir.

Q And on that interpretation, then, you have added your opinions about the estimate oil/water contact in the reservoir?

A Yes, sir.

Q Did you do anything else on this display?

A Yes, sir, also integrated the Holmstrom No. 2 Well to that seismic information that was previously (not clearly understood).

Q And that is the Holmstrom No. 2 Well that was drilled after the presentation of the seismic data to the Division that resulted in the pool rule order.

A Correct.

Q When I look at the display am I correct in understanding that the discovery well is 660 feet from the east boundary of its spacing unit?

A No.

Q Where is the discovery well in relationship to its 160-acre tract?

A It's on the -- in the extreme northwest corner of the proration unit.

Q Okay, and when we look at the western edge of that 160 acres, the western edge of the southeast quarter of 9 --

A Yes, sir.

Q -- how far is the discovery well away from that boundary?

A 660 feet.

Q When we look at that boundary, then, that separates the southeast quarter from the southwest quarter --

A Uh-huh.

Q -- and we move west to the -- the Honolulu Well.

A Yes, sir.

Q That well was also located 660 from the common line between those two governmental quarter sections.

A That is correct.

Q In examining the fault you have not chosen to reorient or adjust the fault when you integrated the Holmstrom geologic data into your analysis, did you?

A That is correct.

Q You left the line where it was.

A Yes, sir, I did.

Q When I look, when I draw a horizontal line that intersects the discovery well and the Honolulu Well, all right, if I draw that line --

A East/west, you mean.

Q East/west.

A Okay.

Q What is going to be the footage between the common spacing unit line and the fault? What's that distance?

A It would probably lie 400 to 450 feet west of the common boundary line.

Q Does that, in your opinion, represent the limits of your estimate of the location of that fault at that point?

A Based on the seismic map that's previously been presented. As you'll recall, I have not seen the raw data.

Q Within -- within that range, then, it could be as close -- the fault could be as close as 400 feet to the common spacing unit line or as much as 450 feet?

A That's a guess as to which location, yes.

Q Am I correct in understanding that in response to Mr. Padilla's question that the anticipated total dry hole cost for the well was $400,000?

A I --

Q Did I misunderstand?

A I thought I said 450 on the dry hole basis.

Q Let me ask you the numbers again. It's 450 on a dry hole basis?

A Probably 135 more completed.

Q Does that AFE with those costs currently include --

A I don't have an AFE.

Q I'm sorry. Does that estimate of those approximate costs include the cost to control and survey the well?

A No, sir, that's a trouble-free well.

Q So the 15 percent we talked about, the range of 15 percent --

A 15 to 20 would be in excess of that.

Q And what do you get with the 15 or 20 percent additional monies? What is the (unclear)?

A We get a straight hole.

Q And in order to get a straight --

A A vertical hole.

Q -- in order to get a vertical hole what is required for the drilling of that well?

A Periodic checking of the deviation and the deflection of the hole.

Q Do you propose to run a continuous survey during the drilling?

A A regularly spaced survey, not a contin-

uous survey.

Q There is a difference, isn't there?

A Oh, yes.

Q You propose to run periodic surveys of the bottom hole location of the well at various stages in the drilling of that well.

A That is correct.

Q At what various vertical footage intervals will you conduct the surveys?

(The next answer and question are incomplete due to turning of tape.)

A At a convenient place; probably where we --

Q -- the common boundary line between spacing units and to keep you east of the fault in the Devonian, right?

A Yes.

Q Can you accomplish that objective by starting at a surface location that is 165 feet from the common line and then steer that well as you drill it and get to a bottom hole location that would be 330?

A It's much easier to start directly over where you want to be at the bottom of the hole; significant

improvement in technology.

Q But technology does exist where you could drill at the surface location requested and steer that to a bottom hole location that's other than vertically underneath the surface location.

A Technology is capable of drilling a horizontal hole today. We certainly don't intend to do that.

Q I understand. Do you have any idea of the range of difference in cost to do the vertical hole versus the steered bottom hole location?

A I do not.

Q In looking at Exhibit Number Four, am I also clear in understanding that is a structure map on the top of the Devonian?

A Yes, sir.

Q Have you prepared a gross pay isopach for this reservoir?

A I have not.

Q Have you prepared a net pay isopach for the reservoir?

A I have not.

Q Have you prepared a net pay productive acreage map for the reservoir?

A I have not.

Q When you responded to Mr. Carr that the southwest quarter of Section 9, using this structure map, has 95 acres --

A No, the east half of the west half of the southwest quarter.

Q All right, let me start over.

A Okay.

Q I misspoke.

A Okay.

Q The southeast quarter, let me direct you on the southeast quarter.

A Okay.

Q The 160 underneath the discovery well, when we look at that acreage am I correct in remembering that you told us that was 95 acres?

A Yes, sir.

Q Is that simply 95 surface acres contained within the area that is above your estimate of the oil/water contact and still within that 160-acre spacing unit?

A That is correct.

Q And similarly, then, when we go to the west half of the section, and we look east of the fault but staying in the west half, you came up with an area of 60 acres.

A Yes, sir.

Q And that is also going to the fault on one side and the spacing unit on the other and then looking to that area that has -- is above the -6200 contour line on the structure.

A -6075.

Q You've adjusted that also for the oil/water contact.

A Yes, sir, sure have.

Q When we look -- let me ask you to separate out the east of the west half so that we divide it into the southwest quarter.

A All right.

Q That you believe is east of the fault and west of the spacing unit. How many acres are in that portion?

A About half of that 60.

Q So it's approximately half divided north/south?

A Yes.

Q And when we look at Exhibit Number Six, this is what I'll characterize as a finished map. You've integrated all the data from the different sources and come with this as --

A With my best solution.

Q This is your best solution. Have you prepared any other maps other than the ones that you've displayed for us today?

A No.

Q Do you know, sir, whether at the time that Curry & Thornton acquired their lease the field rules were in place for this pool?

A I do not know.

Q In examining the available data, Mr. Ahlen, do you see any geologic information that would geologically preclude the well located as you propose it to not be in communication with the discovery well?

A It should be in communication just as the discovery well is in communication with the Curry & Thornton acreage.

Q Have you proposed a solution to resolve the inequity of the fact that your well is located only 165 feet from the common line as opposed to the discovery well being 660 feet from that common line?

A There will be another witness that will discuss that.

Q And as best you know, that's an engineering solution?

A Yes, sir.

Q Did you participate as a geologist in

that discussion?

A As a geologist briefly in it, yes, but without recommendation.

Q So you have no recommendation as to whether a penalty, and if a penalty is imposed, what that penalty ought to be?

A It think it would be reasonable for a penalty to be assessed.

Q Thank you.

MR. KELLAHIN: No further questions.

CROSS EXAMINATION

BY MR. LYON:

Q Mr. Ahlen, I would like to ask you a few questions.

A Yes, sir.

Q You have Exhibit Three, which, as I understand it, was Exhibit Four in the earlier case.

A Yes, sir.

Q Now that exhibit, that's not your exhibit.

A It is not.

Q And Exhibit Four, this -- this is your structural interpretation.

A Yes, sir, and I've also incorporated the information from the previous Exhibit Number Three.

Q Right, and you've added the water/oil contact. I notice that you closed the -- some contours differently than they did on theirs.

A If you'll note that the Holmstrom No. 2 Well is located on my plat, Exhibit Number Six, it has a subsea datum of 6113, requiring the contour to be closed off against the fault.

Q Right, so --

A On the previous exhibit it was introduced prior to the drilling of the Holmstrom No. 2 and the thought was that probably the structure continued above the oil/water contact in a southerly direction.

Q So you've incorporated that additional information into your exhibit.

A Yes, sir.

Q And Exhibit Five is your interpretation without the fault.

A Yes, sir.

Q And Exhibit Six is an interpretation incorporating the seismic information as well as the Holmstrom well.

A As well was putting a velocity gradient into the system to tie the Holmstrom No. 2 and No. 1 Well,

and then I have included that velocity gradient in the north half of Section 9, as well; approximately 135 feet for the half mile distance.

Q So Exhibit Number Six represents your best interpretation of the structural configuration of the reservoir at this time.

A Yes, sir, it does.

Q Now, do you think that it would be possible for Santa Fe Exploration to drill a well in the northeast quarter?

A Certainly, that should be their next order of business.

Q Would you attempt to make an offset if they drill another well?

A Not under current spacing rules. It's -- it would not be allowable.

Q Well, on your interpretation the property line dividing the two leases is not exactly parallel to your fault trend.

A That is correct.

Q And the distance as it goes north, then the fault becomes a little farther away from the half section line.

A Yes, sir.

Q Why would it not be desirable for -- for

Curry and Thornton to move their location north where you could stay the same distance from the fault but you could get farther away from the property (unclear)?

A That would be more speculative adding additional risk to the drilling of the well. The location as we have spotted it is along the seismic line that previously was interpreted to be on the high side of the fault.

If we should move it to the north, then it would add an increased risk to the drilling of the well.

Q But you're moving farther away from the fault --

A Well --

Q -- or you wouldn't increase your --

A -- hopefully, yes.

Q -- risk if you kept the same distance.

A Yes, sir.

Q I believe that's all I have.

MR. LYON: Mr. Carr, do you have anything further?

MR. CARR: No, we have nothing further of Mr. Ahlen.

MR. LYON: Mr. Ahlen may be excused.

MR. CARR: Mr. Aycock.

WILLIAM P. AYCOCK,

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name for the record, please?

A William P. Aycock.

Q Mr. Aycock, where do you reside?

A Midland, Texas.

Q By whom are you employed and in what capacity?

A I'm employed by Curry and Thornton in the capacity of consultant with regard to the pending non-standard proration unit and unorthodox well location application.

Q Have you been employed as a reservoir engineer?

A Yes.

Q Have you previously testified before this Division and had your credentials as a reservoir engineer accepted and made a matter of record?

A For practically nineteen years, yes,

sir.

Q Are you familiar with the application filed in this case on behalf of Curry and Thornton?

A Yes, I am.

Q Are you familiar with the North King Camp Devonian Pool?

A Yes, sir.

Q Have you studied this area and prepared certain exhibits for introduction in this case based on this study?

A Yes, I have.

MR. CARR: Are the witness' qualifications acceptable?

MR. LYON: Mr. Aycock is qualified.

Q Mr. Aycock, initially would you advise the Examiner what you were asked to do when you were employed by Curry and Thornton in this matter?

A I was asked to give them an estimate, my estimate of the risk of developing their lease at this or any other location that I might choose to recommend.

I was asked to assist in the evaluation of the penalty that would be appropriate, as it was obvious that a penalty would be due to the fact that there was a dry hole that had already been drilled on the southernmost

80 of their two 80 acres that are located in a north/south direction.

Q Were you asked to estimate the reserves under their tract?

A Directly or indirectly, yes.

Q And were you asked to also advise them on an appropriate production if these reserves were to be effectively and efficiently obtained?

A Yes.

Q Would you refer to what has been marked for identification as Curry and Thornton Exhibit Number Nine, identify that first and then review the information depicted on this particular exhibit?

A Let me look at Jack's so I can get the corresponding figure number off of Jack's so I won't mix them up any further than I have to, Bill, and I'll do that.

Okay, Exhibit Number Nine was prepared from Mr. Ahlen's Exhibit Number Four and it -- all I did was to take his map and in place of the oil/water contact at -6075 I substituted a zero line and in place of the others I submitted the -- I substituted for the subsurface elevations the difference in the elevation of each of the contour lines at -6075 to get a gross isopach map.

Q All right, are you ready to move to the next exhibit?

A Yes.

Q Would you identify Exhibit Number Ten, review that and compare it to Mr. Ahlen's prior exhibit?

A Exhibit Number Ten was likewise prepared from Mr. Ahlen's Exhibit Number Five by going through a similar process; that is, for the contour line is labeled on his Exhibit Five, estimated oil/water contact, -6075, zero; for his contour line that is labeled -6050, 25; and for his contour line that is labeled -6075.

Q All right, now are you ready to go to the next exhibit?

A Yes.

Q All right, let's review Exhibit Number Eleven and indicate which exhibit that is based upon.

A Exhibit Number Eleven was likewise prepared from Mr. Ahlen's Exhibit Number Six by the simple expedient of doing the same thing, that the zero contour is the estimated oil/water contact; the 25 foot is the same as the -6050; the 75 foot contour is the same as the -6000; and the 125 foot contour is the same as the -5950.

Q All right, now, Mr. Aycock, if you would, I'd like to direct your attention to Curry and Thornton Exhibit Number Twelve and I'd ask you first of all to describe what that exhibit is designed to show.

A Exhibit Number Twelve is a compendium of

the numerical results that were derived from planimetering these three exhibits; i.e. Nine, Ten and Eleven and with regard to specifying the southeast quarter, the east half of the west half comparison on Exhibit Twelve, and you'll notice that there are three cases specified at the bottom, Case A, B and C.

Q Do these Case A, B and C figures relate to the prior exhibits?

A They relate to the prior exhibits and to Mr. Ahlen's maps which were the basis for the whole thing.

Q Okay, let's --

A Case A is -- would relate to Mr. Ahlen's Exhibit Six.

Case B would relate to Mr. Ahlen's Exhibit Four, and Case C would relate to Mr. Ahlen's Exhibit Five and to my exhibits that were derived therefrom.

Q All right. Now would you review the information contained on Exhibit A?

A Under Mr. Ahlen's best -- or I won't say best -- his most apparently accurate case, his attempt to be the most accurate case, which was the use of a linear velocity gradient between the Holmstrom Federal 1 and the Holmstrom Federal 2, to make the original seismic work that was presented by Mr. Holmstrom in the hearing in November tie to the Devonian top that was determined by well log on

the Holmstrom Federal 2, would be case A, and in that case I estimated there were 104 productive acres; that is, acres inside the zero contour line, in the southeast quarter of Section 9.

There are 59.8 productive acres located between the fault, the property lines and the oil/water contact. In the case of -- of that, for that case the whole thing would be productive because you're limited by the property lines, not by the oil/water contact.

The total of those two was 163.8 acres. The ratio between the productive areas for the east of the west half in the southeast quarter is .575. In other words, if I divide 59.8 acres by 104 acres I come up with .575.

If I apply that number to the 515 barrel allowable, which was bestowed by virtue of the temporary field rules which were enacted in December, I would come up with 296 barrels of oil per day being the allowable that would be projected to the proposed location were it to be successful.

Q Now conversely, if we were to go up to the number .575 after the -- in the ratio column, that could be converted to a 57-1/2 percent production of the --

A Well, the penalty would be one minus that, is what -- you'd only be getting 57-1/2 percent of

what the allowable would be based on productive acreage comparing the acreage that's actually -- apparently productive in the southeast quarter and what appears to be productive in the east half of the west half.

Q All right, would you go on with this exhibit, please?

A Going on to Case B, which was the seismic structure which was with the subsurface tie to the Santa Fe Exploration Holmstrom Federal 2, I estimated there are 103 productive acres in the southeast quarter and 47.7 acres in the east half of the west half that are productive; however, in this case it's a little bit different in that we are limited by -- on the north by the zero contour line; on the west by the fault; that is, we're talking about the east half of the west half now; on the east by the property line and on the south by the property line. The total of those two is 150.7 acres productive. The ratio between 47.7 and 103 is .462. When the .462 is applied to 515 barrels a day it comes up -- the number is 238 barrels of oil per day.

Likewise, on Exhibit C, which you may recall is the subsurface interpretation only, and in that case for the east half of the west half you are limited mostly by the zero contour line and for a very short distance on the extreme southeast corner of the east half of

the west half by the property line. There I estimated there are 97.8 productive acres, or acres above the zero contour line for the southeast quarter and 53.4 acres for the east half of the west half, for a total of 151.2 acres. The ratio between the 53.4 for the east half of the west half and the 97.8 for the southeast quarter is .546. When .546 is applied 515 barrels a day the resulting allowable for the -- calculated allowable for the proposed location were it to be a successful well, would be 281 barrels of oil per day, and in the extreme righthand column for this area basis I have the mean values of all three of the methods that were derived from Mr. Ahlen's maps. In other words, the mean value of the productive acreage or acreage inside the zero contour line for the southeast quarter is 102 acres. For the east half of the west half it's 53.6 acres. The total is 155.6 acres. The ratio of 53.6 to 102 is .525, which when applied to 515 barrels per day results in 271 barrels of oil per day for a prospectively successful well located in the east half of the west half.

I did exactly the same thing with regard to the volume, the gross acre feet volume, on all three cases, and would like for me to read those numbers into the record also?

Q I think they're contained in the exhibit. If you would, perhaps, summarize Case A and then just

note the total --

A For Case A I came up with 6817 gross acre feet under the southeast quarter and 5859 gross acre feet under the east half west half for a total of 12,676 acre feet.

The ratio between 5859 for the east half west half and 6817 for the southeast quarter is .859. When .859 is applied to a 515 barrel per day allowable the allowable that would be projected for the prospectively productive location in the east half of the west half is 443 barrels of oil per day.

Without reciting in detail those from Cases B and C that applied on a gross acre foot volume, the mean values for the southeast quarter would be 5885 gross acre feet.

For the east half of the west half, 3829 acre feet.

The total of those two is 9714 acre feet.

The ratio between 3829 for the east half of the west half and 5885 for the southeast quarter is .651 which when applied to a 551 barrel of oil per day allowable would result in an allowable for a prospectively productive well in the east half west half of 335 barrels of oil per day.

Q Now, Mr. Aycock, would you go to the second page of this exhibit and explain how this presentation differs from the one on page one of the --

A It basically differs only in that the northeast quarter and the southeast quarter of Section 9 have been combined and labeled the east half simply because they are under the discretionary control of Santa Fe Exploration and they have the right to develop them separately from the proration unit that's currently assigned to their existing Holmstrom Federal No. 1 in the southeast quarter. So therefore, I felt that it would be of interest to compare what the position of the two operators would be at full development or full assignment of the acreage.

The Case A, B and C are the same as have been previously recited.

On an area basis for Case A, when going through the same type of numerical exercise as I've previously described, you would come up with a ratio of .273 between the east half west half and the combined east half, which when applied to an allowable of 1030, because remember, the pool rules are 551 barrels per day for 160, so if we have two 160's included together in the east half, then we would also have two times 551, or 1030. Under that case it would be 281 barrels of oil per day, which is slightly less than if we took the same case of comparing only the

southeast quarter and the east half west half, which would be expected that it would be less since we are now comparing it to a larger number.

The same -- the same process for Case B results in 298 barrels of oil per day versus 238 when comparing only the southeast quarter and east half west half.

For Case C, 339 barrels per day, which would compared with the previous 281 where we compared the east half west half with the southeast quarter only, the mean value would now be 303 barrels of oil per day as compared to 271, which was previously developed on the comparison of only the southeast quarter and that portion of the east half west half which would be productive.

On a volume basis, going through the same exercise, the answers would be for Case A, 374 barrels of oil per day; for Case B, 338 barrels of oil per day; for Case C, 347 barrels of oil per day; and for the mean value, 358 barrels of oil per day.

Q Now, Mr. Aycock, you have figures here that are based on acreage and also figures based on volume. Do you have an opinion as to which is the better approach to take in evaluating a penalty?

A As I understand the statute that governs ownership of minerals in the State of New Mexico, and I'm not trying to be an attorney because I have enough diffi-

culty in practicing the profession at which I am supposed to be proficient, I understand that it is a -- it is a modified ownership in place situation in which you are supposed to be afforded the right to recover what you originally had recoverable under your tract and if that is the case, then I would think a volume basis would more nearly reflect what the relative ownership would be than would a simple area basis.

Remember, the area basis is delineated by a zero contour line and I'm not being critical of the way Mr. Ahlen did it, but remember, there is oil always down structure of that zero contour line. That zero contour line is based on a sufficient water saturation so that oil will no longer flow. It does not mean that there is no oil present down structure of that; it simply means that it's not producable by normal methods.

Q Now, Mr. Aycock, are you prepared to make a recommendation to the Examiner as to the penalty that should be imposed on the well that is proposed by Curry and Thornton?

A Yes. I think under Case A on my second page, which compares the total east half with the east half west half, depending upon where the -- my preferred method would be, as I stated, to use the volumes, and in that case it would be 374 barrels of oil per day, but if the Commis-

sion felt that equity could be maintained on an area basis, then the consistent number would be 281 barrels of oil per day.

Q And this is a percentage of the 515 barrel depth bracket allowable?

A Of .363 for the volume basis and .273 for the area basis. In other words, the penalty, if you want to look at it as a fraction, would be one minus those numbers.

Q Now, Mr. Aycock, are you aware of any precedent for penalizing a well based on the productive acres available to it?

A Yes, I am.

Q And what is that precedent?

A Well, the precedent is Case Number 7304, which is contained in Order Number R-6792.

Q Did that Case involve a well in a Devonian pool?

A Yes, it did.

Q And did it also involve a fault, as in this one?

A Yes, it did.

Q And in that order did the Division decide that when you have evidence on productive acre feet that that was superior to a surface acreage approach?

A Yes, it did.

MR. CARR: May it please the Examiner, we would ask that you take administrative notice of Case Number 7304, Order R-6792 and the findings contained in that order.

MR. LYON: Is there objection?

MR. KELLAHIN: Can you withhold ruling on that until we have a chance to look at this, Mr. Examiner?

MR. CARR: I would note that we're not moving its admission into evidence. We're simply asking that you take notice of it as precedent in this case, which I think you're free to do regardless of whether somebody likes it or not and you can give is whatever weight you want to give it, but we believe it's precedent and would ask you to take note of it.

MR. PADILLA: If I may voir dire on this request.

MR. CARR: Well, I don't think it's appropriate when we're not offering it into evidence. You can voir dire on evidence but you don't have a right to sit around and just interrupt the direct case and voir dire.

We'd ask you to give it whatever weight you think is appropriate and we'd ask you to

look at it because we believe it's precedent.

MR. LYON: I see no problem with taking judicial notice of the order that you've recited. It will be done.

Q Mr. Aycock, what is the reservoir drive mechanism in this reservoir?

A It is -- has not yet been defined to my knowledge but it would be surprising if it were anything less than an effective water drive.

Q And with an effective water drive in this reservoir, based on your study of it, will the wells in this pool ultimately recover all the producable reserves in the pool?

A The likelihood is that the existing well would recover all the reserves given time enough.

Q Are additional wells necessary in this pool if in fact the owners in the pool are to be able to receive their reasonable shares of the production from the pool?

A From the physical standpoint?

Q Yes, sir.

A No, they are not. It would not be necessary to drill them if the ownership problem has been resolved or could have been resolved.

Q In view of the fact that the ownership

cannot be resolved or is not resolved, are additional wells necessary if in fact Curry and Thornton are to be able to produce their share of the reserves in the reservoir?

A Yes.

Q In your opinion would a well at the proposed location penalized as you recommend enable Curry and Thornton to recover its share of the reserves in the pool?

A If they have a successful well, which I think is a highly -- I think that it's -- it's a very high risk location, the one that they propose. If they're allowed to drill it at that and they get a straight hole no closer than, it's still a very high risk well.

Q And why do you think it is such a risky venture?

A Because in my experience every place in these transitional environments that you have either steep dip or limiting faults you have significant either post -- I can't tell you whether it occurs before the fact or after the fact, but in any event you come out with whether you have steeply dipping beds or you get into the drag zone created by the fault that was an adjustment to the accumulating overburden, you have altered reservoir properties which are generally much less favorable than they were in the unaltered space. If they should penetrate a zone which

is in that configuration, they will either get in all probability a dry hole or a noncommercial well, in my opinion.

Q Mr. Aycock, do you believe that this is an appropriate location for a well from which to drain the reserves under the Curry and Thornton tract?

A Yes, it is one of several locations that could be used.

Q Do you believe that this would be an effective point from which to drain those reserves?

A Yes.

Q In your opinion is --

A May I modify that statement? Pardon me for interrupting you.

I don't think it's possible from the physics of the situation to guarantee that you will only drain your lease. I think the best that can be done is to adjust the participation equity so everybody recovers a volume of oil that is equivalent to what he originally had recoverable under his lease, but as far as actually draining only the oil that's under your lease, the existing well is -- is in all likelihood not doing that now and I don't think it would be physically possible to accomplish that at all in a reservoir of this type.

Remember this reservoir has within what-

ever area is of commercial quality, Mr. Weaver and Mr. Prestridge testified in the previous hearing that there was significant permeability in both the horizontal and vertical directions; that they had micro-seismograms all the way down to the bottom of the interval that they had penetrated with high porosity at the bottom of the hole as near as they could tell, but their porosity tools wouldn't penetrate to the bottom of the hole but their Schlumberger micro-seismograms indicated there were vugs and fractures to the bottom of the hole and that there was -- as I recall, Mr. Weaver said we have a pretty good section down there, so based upon that there is a high degree of pressure and fluid continuity vertically and horizontally.

Q Do you believe a well at the proposed location with an appropriate penalty would be able to recover Curry and Thornton's just and equitable share of the production under their tract?

A It wouldn't be able to recover their just and equitable share if you took into account the drainage that's already occurred from the discovery well, but from the practical sense, yes.

Q From this point forward.

A Yes.

Q Does Curry and Thornton request that the order be expedited?

A Yes.

Q And why is that?

A Because they would like to, assuming that their request is successful, they'd like to be able to participate in the -- in their proportionate part of the common reservoir.

Q And what will delay result in?

A Additional drainage the Holmstrom Federal 1 that's uncompensated by any drainage on the east half west half.

Q In your opinion will granting this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes, I believe it will.

Q Were Exhibits Nine through Thirteen prepared by you?

A Yes.

MR. CARR: At this time we'd move the admission of Exhibits Nine through Thirteen.

MR. PADILLA: Which is Exhibit Thirteen, Mr. Carr?

MR. CARR: I'm sorry, it's Exhibit Nine through Twelve.

MR. LYON: Is there objection?

MR. CARR: Thirteen was Page 2 of 12 and I put them together.

MR. LYON: Without objection Exhibits Nine through Twelve will be admitted into evidence.

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

MR. LYON: Mr. Padilla?

CROSS EXAMINATION

BY MR. PADILLA:

Q Mr. Aycock, first let me ask, you've stated that, in your direct testimony, that Order Number R-6792 is precedent for this situation. Can you tell us, sir, what the well locations were in that case?

A I probably can if I look through here. I remember the facts if you want a recitation of the facts.

ARCO drilled a well and crossed the fault and they backed up and wanted to -- to re-drill the well and stay on the productive side of the fault. The fault in this case was on the east.

Q How -- what was the spacing in that case?

A 320 acre spacing.

Q Was the -- was a penalty based on --

take into consideration 320 acres?

A May I read you the --

Q Just answer my question. Was the penalty based --

A It was based on net acre feet.

Q Based on spacing, isn't that correct?

A The way I --

Q Of 320 acres.

A The way I understand Finding Number 14, it was based strictly upon net acre feet, Mr. Padilla.

Q Did that case involve a nonstandard proration unit of the kind suggested for approval in this case?

A Pardon me, I'm not -- I didn't --

Q Well, in this case you're including the entire east half of the west half as the proposed proration unit.

Did this particular case involve that type of situation?

A Not in exactly the same way. It was nonstandard after part of it was cut off, as to a 320-acre.

Q Didn't this case involve allocating the productive acreage in a 320-acre standard proration unit?

A It was originally a standard proration unit but the point is once the fault was crossed and that

part was removed, it was was no longer a 320-acre proration unit. That part had been condemned that was across the fault, is the point I'm trying to make.

Yes, it was originally a 320-acre standard proration unit but -- but when the -- when the fault was penetrated to the east, if you deduct that portion that was condemned by the fault and the crossing of it, then you no longer had an orthodox or a standard proration unit.

Q Well, it just simply determined how much productive acreage was on the 320-acre proration unit --

A That's right and it was no longer a 320-acre proration unit. That's correct.

Q And this case didn't involve a situation where you crossed into another proration unit as you are in the -- climbing into the northwest quarter in this case.

A Is that a question?

Q Yes.

A Climbing into the northwest quarter -- I'm sorry, I can't -- I don't understand the -- what you're asking me, Mr. Padilla.

Q Okay, let me make myself a little clearer, then.

This case didn't involve a nonstandard proration unit, isn't that --

A Not going in, it didn't. It was only a nonstandard unit when they crossed the fault and condemned approximately the eastern third of it, to the best of my recollection.

Q Now that eastern third of it was not allowed to -- by virtue of being unproductive, was not allowed to participate, is that --

A That's correct according to Finding Number Fourteen, which uses a net acre feet correction method to determine what they'll be allowed to produce, that's right.

Q And isn't that -- the penalty was strictly based on productive acreage?

A It's based on net acre feet, as I understand it, Mr. Padilla.

Q Well, net acre feet or --

A Yes, it was based on net acre feet. If you'd like for me to read Finding Number Fourteen, I'll be delighted to do so.

Q You don't have to, Mr. Aycock.

At the beginning of your testimony you indicated that you have made an estimate of reserves, isn't that correct?

A I was asked to do so.

Q Did you make an estimate of --

A I did not because there is significant variation. There's no data and variation within that as to both the porosity and the appropriate connate water saturation, so I chose to stick with gross acre feet because whatever those -- whatever the changes would be, barring data that would allow you to apply it differently to the area, it would all be applied the same way. In other words, if you -- if you evaluated it all with a mean water saturation and a mean porosity, whatever deductions would be made would be made proportionately to the entire amount and since they -- since Mr. Weaver and Mr. Prestridge testified in the previous case that they did not have complete data, the porosity tools would not penetrate to the bottom of the hole, and they thought they had, as I believe I recited, a pretty good section down there but they did not know how good it was, they simply knew that they had fractures and vugs and they knew that they had portions of it with porosities as high as 7-to-9 percent, I felt like picking a number would be like me putting 7 here and 9 here and playing pin the tail on the donkey and say where do I go between that. I don't know with the quality and quantity of the data how it could be intelligently done.

It could be done by some sort of an analogy, but once again, that would not be specifically applicable, perhaps, to this, so I did not do an estimate

of original oil in place for that -- for that reason.

Q The tabulation shown on Exhibit Twelve is based on productive acreage, correct?

A The top half of it's based on productive acreage and the bottom half is based on gross acre feet.

Q Mr. Aycock, did you make an estimate of how much productive acreage was on the east half of the southwest quarter?

A The east half of the southwest quarter?

Q Yes, sir.

A No, I did not.

Q Did you make a separate estimate of what the productive acreage was in the northwest quarter of the northwest quarter, or the east half of the northwest quarter?

A No, I did not.

Q Wouldn't that be appropriate to do by virtue of the current spacing rules of having to dedicate a legal subdivision equal to 160 acres?

A Well, I mean the application, as I understood it for this client, was with the proposed proration unit as is indicated on my Exhibits Nine, Ten and Eleven.

Q You have --

A And I was not asked to differentiate between the north half of the east half of the west half and the south half of the east half of the west half.

Q If we take a look at this, your, say, Exhibit Number Nine, or even any one of those Nine, Ten or Eleven, you could generally conclude that on an eyeball basis that the productive acreage in the east half of the southwest quarter and the east half of the northwest quarter are approximately equal?

A The east half of the -- are you -- okay, you're talking about the -- okay. Well, if you take the fault that is running in approximately a north/south, slightly west of north direction, then to the extent that that controls, you're going to have more productive acreage in the north half of the east half of the west half than you are in the south half of the east half of the west half.

Is that your question? Did I answer it? I was attempting to. I'm sorry if I didn't.

Q As far as a legal subdivision, you just recited the two legal subdivisions. I'm talking strictly about the east half of the southwest quarter or the east half of the northwest quarter.

A Okay, well, you asked me if on an eyeball basis they would be approximately the same and my an-

swer is in the subsurface case they appear to be approximately the same but in the cases that are limited by the fault, which runs slightly west of north and south, there would be more productive acreage in the north half of the east of the west half than in the south half of the east half of the west half.

Q Would it be an impossible task to have you compute the acreage, productive acreage in the east half of the northeast quarter and in the east half of the southwest quarter?

A No, it could be done.

Q If we look at your figures here taking the first page of your Exhibit Twelve, and taking Case A, where you show the east half of the west half having 59.8 acres, and then Case B, 47.7, and Case C, 53.4, ultimately winding up with an average of 53.6, you could also have another break down there, could you not, showing the productive acreage in the southwest quarter and the northwest quarter?

A You could break it down any way you wanted to. It's just a mechanical matter to break it down.

Q I'd like for you to assume that you do have equal acreage, productive acreage, in the northwest quarter and the southwest quarter. Your figure of 59.8 would be cut in half, would it not, if you make that as-

sumption?

A You mean if you took only -- only one-half of it?

Q Yes.

A You took only the north half of the south half? Yeah, it would be half of that.

Q Isn't that more accurate considering the existing spacing regulations?

A Well, perhaps as a hypothetical thing, but I was not asked to tell a client how bad it would look. I was asked to show him -- to develop numbers that would relate to them what under their leases could be reasonably presumed to be productive based upon the evidence that the Commission has accepted as fact, has been sworn to and the Commission has accepted.

Q Aren't you really failing to consider an additional well on the west half of this Section 9 that should be drilled up there to adequately develop the acreage that Curry and Thornton has?

A I would not have any basis for recommending such a well, Mr. Padilla.

Q You are taking into consideration the two proration units on the east half totaling 160 acres, are you not, on the substantially squares?

A Well, they're 160-acre surface. They're

not anything like that on a productive acreage basis. When you say what I'm taking into account, in what regard do you mean am I taking them into account?

Q Well, aren't you --

A I attempted to take them into account based upon the evidence that showed what was -- could presumably, realistically, be considered productive, not some arbitrary surface acreage because it wouldn't appear to me to be consistent to take surface acreage in the east half of Section 9 and take only subsurface acreage that was -- or acreage projected to the surface that could be reasonably assumed to be productive for the east half of the west half. I felt that would be an inconsistent approach.

Q But based -- well, let me -- let me back up a minute now.

The second line of your Exhibit Twelve ends with the words consistent allowables. What does that mean? Is that the depth bracket allowable?

A No, it's allowables consistent with productive acreage. That's the consistency that says if I have in Case A 59.8 productive acres under the east half of the west half and 104 productive acres under the southeast quarter, and the southeast quarter is given 515 barrels of oil per day, that by taking the ratio of 59.8 to 104, which is .575, I have a penalty factor which can then be applied

to the 515 barrels per day and says consistent with the productive acreage that is probably existent in the southeast quarter based upon the best evidence that we have at this time, as well as the east half/west half and the Commission has, by the request of Santa Fe Exploration, has given a 515 barrel depth allowable for the southeast quarter and by doing that and saying that only has 104 acres, and the east half of the west half has 59.8 acres, then based upon that logic, then the east half of the west half ought to get 296 barrels of oil per day.

Q Okay, but we go then, you're multiplying -- you're using a multiplier of 551 barrels --

A 515.

Q -- 515. You're using a multiplier of 515, shouldn't you proportionately reduce the allowable in the field by the number of productive acres in the -- in that particular proration unit?

A Well, as I understand it, that's not the way the proration rules that are in force and effect are applied.

Q I understand --

A If I misunderstand it, then I'm -- I'm guilty of gross error.

Q No, I understand that, but don't your figures reflect that, that you actually should be multiply-

ing times a proportionate reduction of -- based on --

A Mr. Padilla, if you're just asking me if I'm going to tell the Commission how to prorate New Mexico and how they ought to make their findings, I'm not of -- I'm not, I have no inclination to do so and would not feel qualified to do so.

Q Well, Mr. Aycock, I don't want to quarrel with you. I'm just simply asking you, shouldn't you have a proportionate reduction on the depth bracket allowable if you're going to make this kind of an adjustment?

A As I understand it, the review of temporary field rules that are already provided for in 1990, will accomplish just that, among many other things.

Q Let me ask you, at the top of the page, the second page on your Exhibit Twelve, I don't understand the end of that second line you have 1030 barrels per day. Why do you multiply that times 2?

A Because the current well has the southeast quarter assigned to it, 160 surface acres, and has an allowable of 515. If we talk about full development under this hypothesis where the whole east half would be assigned an appropriate allowable based on two wells, then it would be 2 times 515 or 1030.

Q Do you know what the Holmstrom Federal No. 1 Well is currently producing?

A Somewhere around 275 barrels a day. I can -- I could get you the figures, if you want them. I have them.

Q Your proposal for the allowable would -- actually exceeds the current production of the Federal -- Holmstrom Federal No. 1, isn't that correct?

A Yes, sir, that 's a voluntary move on the part of the operator. I wouldn't question it at all. That's his prerogative. I don't think the Commission tells him how little he can produce; they just tell him how much he can produce.

MR. PADILLA: I'll pass the witness, Mr. Examiner.

MR. LYON: Mr. Kellahin?

MR. KELLAHIN: Thank you.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Was one of the tasks that your client asked you to accomplish was to find various choices for locations by which they might drill and develop the non-standard proration unit that is the subject of the discussion this afternoon?

A In the sense of a qualitative discussion, yes.

Q One of the locations that you were asked to evaluate is the current proposed location, was it not?

A Correct.

Q I believe in response to either Mr. Carr or Mr. Padilla you said that this was one of several locations.

A That's right.

Q What were the other locations that you examined?

A Oh, from 660 feet to 990 feet north of the proposed one.

Q Why was that location considered as a possible location from which to drill and then develop the remaining reserves from the spacing unit?

A It was not considered by the client. It was simply suggested by me as a possibility.

Q Other than the proposed location and this suggested location, did you have any others?

A No.

Q What was your reason for suggesting the location in the northwest portion of the spacing unit?

A To eliminate to the degree that is possible inter-well interference that might lead to losses in productivity for either the existing well or the proposed well.

Q When we talk about examining the available data it appears from your examination and the examination of others, that we have good reservoir permeability so that we can expect drainage areas to be large.

A I qualify my answer and say yes, if you define large as large with comparison to the size of the reservoir as we understand it.

Q In examining the technical information that was presented in the November hearing did you see the display that Santa Fe Exploration introduced to show the anticipated drainage radius of wells in the pool?

A Are you talking about the exhibit that was in the form of a square that had 1987 point something feet as indicated? Yes, I saw it.

Q Do you have any disagreement that that is an anticipated reasonable range of drainage?

A Do I have a -- do I have a reason absolutely or based upon the interpretation that was presented in the hearing?

Q Well, I'm asking you to exercise your own independent judgment --

A I have a severe --

Q Excuse me, Mr. Aycock, let me finish my question.

Q Okay.

Q Do you have a --

A Pardon me.

Q -- professional opinion as a reservoir engineer that is different from the conclusions testified to by the engineers in that prior case?

A Yes.

Q What is the nature of the difference of opinion?

A The radius of drainage as proved by their drill stem test is nowhere near what they testified to.

Q What do you in your professional opinion conclude to be a reasonable radius of drainage?

A Well, the maximum would probably be roughly a third of what they -- what they testified to.

Q And a third of the 1900 figure is something in excess of 600 feet?

A Correct.

Q Am I correct in understanding your testimony awhile ago that you anticipated the discovery well to in fact be draining the spacing and proration unit of your client?

A Yes.

Q And so therefore the drainage area must be something in excess of 660 feet.

A That's correct. I think I also testified that --

Q I don't have a question pending for you to answer, Mr. Aycock.

A Okay.

Q When we look at the proposed location, it is 165 feet from the common spacing line, spacing unit line between the two owners, is it not?

A It is.

Q it's reasonable then to assume and conclude that we are going to have your proposed well if drilled and completed, in a position where it will drain across the spacing unit line of its own spacing unit.

A I believe I previously so testified, yes, sir.

Q There is nothing contained within your proposed penalty factor in Exhibit Number Twelve that takes that factor into consideration, does it?

A What factor is that, Mr, Kellahin? The fact that one well is 660 feet from the common boundary and the other is 165 feet?

Q Yes, sir.

A No.

Q When did you first commence working on this project for your client, Mr. Aycock?

A Approximately three weeks ago.

Q Are you aware of any of the ownership positions of the various interest owners in this immediate area?

A I have not been -- I've had a difficult enough time discharging the responsibility that was requested of me without getting into land and legal, and all that. No, I do not.

Q You don't personally have any interest in the --

A No, sir, I do not.

Q -- outcome of the hearing other than to, hopefully, be paid for your endeavors.

A None whatsoever, except to render professional advice.

Q Have you made any investigation or study to try to determine what might be the optimum or most efficient rate of production for the reservoir?

A Not really because I don't have the basis. The operator, current operator has that data and I don't have it. The only well test I have is the one that they submitted in November and that's not sufficient to conduct that type of study, in my opinion.

Q The answer is no?

A The answer is no.

Q Have you made a study to determine where the likely interface is between drainage and counter-drainage is between the two wells if your client's well is drilled and completed as you propose?

A As I believe I testified previously, I don't think that's possible to do and I think the best that could be done would be to try to institute a formula that would allow everybody to ultimately recover his -- his -- a proportionate share equivalent to what he originally had under his leases of the total that is recoverable.

Q Have you made any analysis of the data from the discovery well to determine what area that it is actually draining and producing?

A I suspect it's -- based upon the testimony that was rendered at the November hearing, I would be surprised if it's not draining the entire reservoir because they showed a pressure build-up test in which the pressure after several thousand barrels of production essentially returned to the original pressure rather quickly, so it would appear that there's drainage taking place over a large area with the amount of oil that had been withdrawn.

Q Are you aware of the current producing rates of the discovery wells?

A The C-115 for January is the only -- is

the latest, most current information that I have.

Q And what are those rates?

A In January they reported an oil production of 7684 barrels; a gas production of 186 MCF; no water production, and the well produced for 31 days.

Q Have you determined at what point in time the discovery well stopped being a top allowable well for the pool?

A It never has been a top allowable well for the pool.

Q What is the highest producing rate on a daily basis for the discovery well?

A 270 barrels of oil in November, based on the C-115 data.

Q 271.

A 270, pardon me.

Q 270 a day, and this is February of --

A Nope, this is November of 1988.

Q November of 1988.

A I have the C-115's or the data from them for September, October, November, December, and January of 1987 -- I mean '89, excuse me.

Q And in examining that data the highest producing rate, then, is for a date in November and it shows 270 barrels of oil per day?

A Yes, sir. They produced 8 -- they had an allowable of 8250 barrels signed by Mike Williams. They actually produced 8100 barrels, which is a difference of 150 barrels. The ratio between 8100 and 8250 is .982, which says that they had a deficiency of approximately 1.8 percent less than the allowable that they were given for the month of November. They produced it for 30 days and if you divide 30 into 8100 you get 270.

Q All right, look at Exhibit Number Twelve, Mr. Aycock. What is your final recommendation as to a penalty rate on a daily basis for your client's well?

A It would be from the second page and it would be either 281 or 374, based on Case A, whether the Commission chose to honor the area or the volumes.

MR. KELLAHIN: No further questions.

MR. LYON: Anything further, Mr. Carr?

MR. CARR: Nothing further, Mr. Lyon.

MR. LYON: Mr. Aycock may be excused.

Do you have anything more?

MR. CARR: That concludes our direct presentation.

MR. LYON: Thank you. Let's take about a five or ten minute break.

(Thereupon a recess was taken.)

MR. LYON: Mr. Padilla, are you ready to proceed?

MR. PADILLA: Mr. Lyon, at the beginning of this hearing I waived my opening argument until this time.

I just would like to state that we will show and present evidence here showing that the allowable factor based on 160-acre spacing and on the current rules and regulations applicable to this pool should be considerable less than what has been presented by the applicant.

In fact, we will show that the allowable factor should be 9 percent and should be on the basis of an allocation between the southwest quarter and the northwest quarter. We believe that that is the only appropriate way of doing it in this case.

So with that I will call Mr. Charles Holmstrom.

CHARLES HOLMSTROM,

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

DIRECT EXAMINATION

BY MR. PADILLA:

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

A Charles Holmstrom.

Q Where do you live?

A Midland, Texas.

Q And where do you work?

A In Midland, Texas.

Q Doing what?

A Geophysical consulting.

Q Mr. Holmstrom, were you the geophysical witness in the hearing establishing this pool in November of 1988?

A Yes.

Q And you have previously testified before the Oil Conservation Division as a geophysicist?

A Yes.

Q Have you made a study of the pool in preparation for this case?

A Yes.

MR. PADILLA: Mr. Examiner, we tender Mr. Holmstrom as an expert geophysicist.

MR. LYON: Mr. Holmstrom is qualified.

Q Mr. Holmstrom, would you refer to what we have marked as Exhibit Number One and tell the Examiner what that is?

A Exhibit Number One is the Devonian seismic map that has been modified after the drilling of the No. 2 Well.

Q Where is the No. 2 -- where was the No. 2 Well drilled?

A The No. 2 Well was 660 from the north and 1980 from the east of Section 16, 14 South, 29 East.

Q Now when you say it's a modification, it's a modification of what?

A It's a modification of the Devonian map and the only new data that I had to construct this map was the well data from the No. 2 Well. I had no additional seismic data and the only area of the map that has been changed or was intended to be changed was in -- primarily in Section 16.

Q And tell us about that change.

A With the drilling of the No. 2 Well that was lower than I predicted on the first map, after review-

ing the seismic data I interpret a small fault down to the southwest near shot point 150 on Santa Fe Exploration Line 2.

Q What -- what is the significance of this exhibit? I mean how -- how does it relate to the application made by Curry and Thornton?

A Well, as I understand, the -- the southwest -- the southeast part of the southwest quarter would not be productive because of this small cross fault that goes through that area the way Interpret it.

Q Now, have you had a chance -- you've been in this hearing room throughout this hearing, is that correct?

A Yes.

Q Does -- did the applicant take into consideration this productive acreage that no longer in your opinion exists here?

A The applicant's interpretation of the subsurface geology did not take this fault into account. They didn't -- they didn't interpret the structure as faulted through that area.

Q Do you think it's important to take that into consideration?

A Yes, if you base the -- the productive acreage on the up-thrown part it becomes important.

MR. PADILLA: Mr. Examiner, I believe that's all I have.

MR. LYON: Mr. Carr?

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Holmstrom, how long have you been working on this project?

A Oh, I've worked on it off and on for probably three years.

Q And --

A Not -- not continuously but maybe a week every two or three months or --

Q You in fact own an interest under the east half of Section 9, do you not?

A I own no interest in any of these wells.

Q In any of them at all.

A I'll tell you a story about this.

Q Well, I really would just like to have an answer to my questions.

A I'll tell you that story if you're interested.

Q I'm not interested.

A Okay.

Q All right. Now, when you --

A I have no interest in any wells on the map.

Q All right. Neither do I. Very good.

Now, when we -- you've been working on this for several years, did you say?

A Yes.

Q You've been working for Santa Fe Exploration --

A Yes --

Q -- during that time?

A -- the whole period of time, and that's another long story.

Q And during that long period of time various seismic lines have been run across this area, is that correct, or were they already -- did you already have that information when you started working?

A When I originally came -- became involved in this I reviewed the line that is marked D-1078.

Q And which one is that? That's the one that goes --

A It's a diagonal line that runs from the northwest corner of Section 9 and it runs down into Section -- in the northeast of Section 27 --

Q All right.

A -- and it --

Q And that's D-78 down in the Section 27 and --

A Yes, D-78 and also the line that is marked GS-1282 that runs east/west through Section 14, 15, 16 and 17.

Q When did the line SF-1, when was that actually run?

A '87, I believe that's it, 1987.

Q Have you had the data from that seismic line available to you since 1987?

A Yes.

Q Now, when we look at the line that is SF-2 that runs north/south sort of through the center of Section 9, when was that one actually run?

A I believe it's about six months following the second line.

Q And you've had that data from sometime in, what, late '87, early '88?

A Yes.

Q Now, when you testified as the hearing in -- the base exhibit as prepared for the hearing that was held in the latter part of 1988 when Santa Fe was seeking special pool rules for this pool, is that correct?

A Yes, it is.

Q And at the time of that hearing you had

all of the seismic data that is depicted on this exhibit.

A I had everything, all the data that are shown on this map.

Q Now, SF-2, the line that runs north/south through Section 9, you had that shot line but you were unable to see this new fault with that shot line, is that correct?

A I didn't, that's correct. I didn't interpret that fault as being there.

Q No, the diagonal line, D-1078 that runs sort of diagonally almost parallel to this fault line, was there anything on that seismic shot line that would indicate the fault?

A That line is very poor quality.

Q Okay. Now, if we take a look at GS-1282 that goes through the center of Section 16 running east/west, that traverses the southern portion of what you've depicted as the new fault line, --

A Yes.

Q -- is that correct?

A Yes.

Q And yet with all of this seismic you were unable to pick up any -- any indication of that fault for the hearing that was the end of last -- held during the end of last year.

A That's right, I didn't interpret that area as being faulted.

Q Now, the reason for now projecting the fault is because of new data from the No. 2 Well. Where is that No. 2 Well?

A It's -- the No. 2 Well is 1980 from the north -- excuse me, 660 from the north and 1980 from the east of Section 16.

Q Of 16? It has the number 61 -- -6107 right beside it, is that correct?

A Yes, that's correct.

Q And it's from that data alone that you were able to now interpret this fault.

A That's right.

Q That well didn't cut the fault, did it?

A No.

Q Okay. Now, if we go back and look at the data from that well alone, it is from that data alone that you're able to orient the fault exactly in that angle?

A This is -- this is my best interpretation --

Q And is --

A -- how I would orient the fault, yes.

Q Now, based on -- I mean and it is possible that another geophysicist could take this seismic

data and that data and orient that at a different angle, isn't that correct?

A That's correct.

Q And if it was at a different angle it might not even condemn any of the acreage in the south half of Section 9. That is correct, isn't it?

A If he oriented it a different way, yes.

Q And other than that there's no change and other than this new seismic line this is exactly the exhibit that was previously presented.

A Yes.

Q And if that fault line is where it is, it also goes across the southwest corner of the southeast corner of the proration unit dedicated to the discovery well in this pool, is it not?

A That's right.

Q And it also might condemn some of that acreage, isn't that correct?

Now, when you came in and developed your data on Section 9, you were working for Santa Fe Exploration, correct?

Were you aware that they owned only the east half of Section 9?

A Yes.

Q And you were aware when you placed your

line that there was some of the formation on the acreage to the west that was not owned by Santa Fe Exploration, isn't that also correct?

A Yes.

Q And if -- you're not representing that there are not reserves over there that can be produced, is that -- you're not intending to do that, are you, Mr. Holmstrom?

A No, sir. I'm representing where the fault is that is to my best interpretation.

Q And at the time you were testifying in 1988 you were aware there were reserves to the west of the acreage owned by Santa Fe Energy -- or Santa Fe Exploration.

A Yes, I didn't -- I didn't think about it in those exact terms.

Q And you didn't attempt to map them, I presume, other than just what we see here.

A No, I didn't map anything other than what -- what you see.

Q Are you the guy who would isopach these? I don't know, is that what you would do as a geophysicist? Would you be called upon to do a gross isopach map of this structure?

A This map was made by a method from

isochrons.

Q And does it show the thickness of the formation?

A The isochron that I made was from the Abo; the total thickness from the Abo to the Devonian. I didn't -- I didn't separate and make an isopach of the zones.

Q Okay, and you didn't isopach the producing interval there, did you?

A No.

Q Questions concerning drainage are probably directed to an engineer, not to you, is that correct?

A Yes.

MR. CARR: I have no further questions.

MR. LYON: Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, I apologize to Mr. Carr. I should have taken the opportunity after Mr. Padilla's direct case to state my questions.

MR. CARR: That's all right, Tom.

MR. KELLAHIN: Can I go ahead?

CROSS EXAMINATION

BY MR. KELLAHIN:

Q I'd like to examine with you, Mr. Holmstrom, on your Exhibit Number One what I'll characterize as the original fault line.

A Yes.

Q I'm not interested in the new line that you've displayed on the exhibit.

When we look at the original line, do you find any subsurface information that shows you the fault or have you relied simply upon the seismic data to interpret the fault?

A Seismic data. I have no subsurface data that indicates the fault.

Q When we examine Mr. Holmstrom -- I mean examine with me, Mr. Holmstrom, Mr. Ahlen's structural cross section, Exhibit Seven, and I'll show it to you, do you agree with Mr. Ahlen's conclusion that based upon the structural cross section you find total displacement of the Devonian section as you move across the fault?

A Yes, I don't disagree with that.

Q Do you see in any of the log information available from the Honolulu Well drilled by Phil Tex that that shows the fault was cut with that wellbore?

A No, I don't. I don't see this.

Q When we go to your seismic control --

A Yes.

Q -- I want to examine the relationship of the Phil Tex dry hole, the discovery well, the intersection of the seismic lines through that area, the proposed unorthodox location and the fault, just right along that line, draw a line east to west that intersects all those points, okay, when we move from the dry hole in the western portion of the section, through the fault to the unorthodox location, and finally to the discovery well.

Mr. Ahlen concluded for us that in his opinion the degree of variance in the location of the fault at that point in direct relationship to the dry hole was some distance between 400 and 450 feet from the common spacing line, unit line, with the discovery well's proration unit.

All right. My question for you, sir, what, in your opinion, is the likely location of the fault at that point on the map?

A Well, I think the likely location is where I have it drawn on the map.

Q And what footage location is that from the common spacing unit line with the discovery well; in other words, from the -- I don't have a ruler (not clearly understood) --

A From -- you want to know the distance from the fault --

Q Let me do it the other way around. Looking at the western boundary of the 160-acre spacing unit that consists of the southeast quarter, that western boundary, move west and tell me how many feet I have to go before I hit the fault.

A I measure 420 feet.

Q What, in your opinion is the likely range of reason with regards to the movement of that line along that point? You said 420 feet. Is that an absolute number or is there a range in which that might be?

A That's a range. That's not -- that's my best interpretation but it has a range.

Q Well, let me give you a follow up question.

What is the seismic information available from the different seismic lines run through there that causes you to have confidence and to what degree of confidence about the location of the fault at that point?

A The appearance of the seismic data gives me the confidence of -- of what it was, but I wouldn't advise my clients to drill too near a fault trace --

Q All right, that's my next question.

A -- because of the inaccuracy of the

tool.

Q My question is whether you would concur with Mr. Ahlen that you must be 165 feet from the common spacing unit line in order to give you the degree of flexibility to avoid the fault or whether or not you could move farther to the west.

A Oh, I think you could move some to the west.

Q Do you have an opinion as to where you could locate yourself to be the maximum distance you could be away from the spacing unit for the discovery well and yet not put yourself at great risk in relation to the fault?

A I haven't -- I haven't worked on that problem enough to give you a good answer, I don't feel like.

Q All right, thank you.

A You're welcome.

MR. CARR: I'd like to follow up on that. Since Mr. Kellahin went out of turn I would request permission to do that.

MR. LYON: I'd like to ask a couple questions.

MR. CARR: Yes, sir.

CROSS EXAMINATION

BY MR. LYON:

Q Mr. Holmstrom, what is the approximate displacement of the major fault that is not in controversy?

A 150 feet.

Q About 150 feet.

A Yes.

Q What is the displacement of the new fault in the area?

A It's very nearly the same amount of throw.

Q Well, correct me if I'm -- if I'm wrong, but -- okay, I see I am wrong. Yeah, all right, but it seems a little strange that -- that having looked at the seismic data in there that you would not have picked up this fault.

After the dry hole was drilled did you go back and review the seismic data and verify that -- that fault?

A After the second well was drilled I reviewed the data. I testified that the first map that I gave you fellows was the best I could do. That well proved that it was not and after the well was drilled I reviewed the data just to explain as best I could how that second

well turned out as it did.

Q And then with -- with the knowledge that you have -- that --

A The north/south --

Q -- as you have, it gave you a little more insight into the data so that you could make an interpretation there was actually a fault.

A Yes, sir. The north, the north/south line in the area in the south part of Section 9 and the north part of Section 16 is less quality than the east/west line that's marked SF-1. Poorer, poorer quality, I'll say, basically (unclear).

MR. LYON: That's all I have. Mr. Carr?

MR. CARR: Just a couple of questions.

RECROSS EXAMINATION

BY MR. CARR:

Q Mr. Holmstrom, if we look at the information you actually have concerning the new fault that you placed on this exhibit, the only actual control you have is where that fault intersects SF -- Line SF No. 2, isn't that correct?

A That's correct.

Q And if we look at the amount of east/west control that you have, you really don't have anything between the SF No. 1 that runs east/west across and the GS-1282 that runs east/west across, isn't that right?

A Right.

Q So there's very limited control that you can look to in terms of exactly how you're going to to angle that fault in there, isn't that true?

A No, I wouldn't agree with that.

Q Okay.

A I'm basing the way I place that fault with previous work that I've done and --

Q Based on this --

A Not -- not on this deal, and on anomalies that had a similar appearance.

Q Okay, but you don't have anything on this field that would give you -- other than just experience with similar structural --

A With the -- from past experience.

Q All right. Now, to follow-up on something Mr. Kellahin asked you, he was trying to make you or get you to say how close you could get to where you have placed the fault in Section 9 and locate a well there if you were Curry and Thornton, and you declined to do that.

I'd ask you simply, if you were to produce reserves in that space between the lease line and the fault, the first consideration is that you have to get a well when you drill it, isn't that right?

A Yes.

Q Okay.

MR. CARR: That's all I have.

MR. LYON: Mr. Padilla?

REDIRECT EXAMINATION

BY MR. PADILLA:

Q Mr. Holmstrom, when did you first draw this modification of this, this new fault on your Exhibit Number One?

A December; December of '88.

Q Was that after you drilled the --

A After the second well was drilled, yes.

Q What did you do then? Did you go back and try to figure out why you were wrong?

A Yes.

Q You didn't draw this line, this new fault in preparation for this case.

A No. I have a record that it was done in December of '88, before I knew about this exercise.

MR. PADILLA: I believe that's

all I have, Mr. Examiner.

MR. LYON: Anything further of this witness?

He may be excused.

MR. PADILLA: Mr. Examiner, we'll call Mr. Buddy Sipes.

L. D. SIPES, JR.,

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

DIRECT EXAMINATION

BY MR. PADILLA:

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

A L. D. Sipes, Junior.

Q Where do you live, Mr. Sipes?

A 1400 Princeton, Midland, Texas.

Q What do you do for a living?

A I am the president of a small operating company called Chisos Operating, Inc., and also do an occasional special assignment for clients in a consulting basis.

Q In what -- are you a petroleum engineer?

A I am a petroleum engineer.

Q Mr. Sipes, you've testified before the Oil Conservation Division before, have you not?

A Yes, I have.

Q And your credentials as a petroleum engineer have been accepted as a matter of record?

A That is correct.

Q Have you made a study of the issues involved in the application of Curry and Thornton with respect to their request?

A Certain aspects of it, yes.

Q Let me ask you, what is your understanding of their application?

A Their application, as I understand it, is for an unorthodox location 165 feet from the -- from the lease line, specifically being 165 feet from the east line of the east half of the west half of Section 9.

Q Mr. --

A Also --

Q Before you proceed, Mr. --

MR. PADILLA: Let me tender Mr. Sipes as an expert petroleum engineer at this point, Mr. Examiner.

MR. LYON: I consider Mr. Sipes to be so qualified.

Q Go ahead.

A Also included in the application is a nonstandard proration unit which includes the east half of the southwest quarter and the east half of the northwest quarter of Section 9.

Q Okay. Can you tell us in general, Mr. Sipes, about the producing capabilities of the Holmstrom Federal No. 1 Well, which is the discovery well in the pool?

A The Holmstrom Federal No. 1, according to the information I have studied, indicates that it's a very high capacity well. The test upon completion showed it to have very good permeability. They've also run a PVT analysis on the oil and they have produced it for several months now.

During this time production has -- has been basically less than 300 barrels a day with very little water produced and very little gas produced.

Q Mr. Sipes, let me refer you to what we have marked as Santa Fe Exploration Exhibit Number One and have you tell the -- Mr. Lyon what that is.

A This is an exhibit listing by date the production from the Holmstrom Federal No. 1, operated by Santa Fe Exploration.

Specifically on September the 12th, 1988, its first day of production and it begins there and

continues through on a daily basis to February the 22nd, 1989.

It shows specifically that whenever the well was completed that it produced 250 to 300 barrels a day with no water; started producing and was reported to have a small amount of emulsion in that production beginning October the 15th, 1988, and that small amount of emulsion continued for some period of time. Then there was a period when they did not produce any, or did not report any water production. Water production then started in significant amounts, in my opinion, on the first day of February, 1989.

MR. PADILLA: Mr. Lyon, I misspoke. I meant to have Mr. Sipes refer to this as Exhibit Number Two instead of Exhibit Number One, so I'd like the record to reflect Mr. Sipes is really speaking from Exhibit Number Two instead of Exhibit Number One.

MR. LYON: We'll correct the record.

Q What is the significance of the water with regard to the producing capabilities of this well?

A It indicates to me that even if these reduced or these producing rates, which are substantially less than top allowable, that this well is already beginning to cone water into the wellbore where it had been

produced.

Q Would it be your recommendation that the producing capabilities of the well be reduced in order to prevent the coning of water>

A It's my recommendation that they continue to keep very close watch on this well and to monitor the water production very carefully with the idea in mind that at some point when enough data are accumulated there may be a recommendation to the point of reducing the producing rate in order to avoid coning water and the ultimate result being the premature abandonment of the well due to it watering out and thereby causing physical waste.

Q What would be the nature of that recommendation? Would that involve changing the current rules? Is that --

A It could be the recommendation to change the top producing rate in the -- in the field to a lesser amount, depending on -- depending on circumstances or at the alternative simply taking a lesser competitive position within the reservoir and reducing unilaterally this one particular well, although I would not advise it because of the competitive nature it appears in this reservoir for the future.

Q Mr. Sipes, in your opinion will producing a well at the -- as proposed by Curry and Thornton and

to produce it at the rate that they are -- that -- at the rate that Mr. Aycock has suggested, would that do damage to the pool considering the known information now?

A It's a possibility that it could. We do not have enough information at this time to say categorically that it would.

Q Let's go on now to what we have marked as Santa Fe Exploration Exhibit Number Three and have you tell Mr. Lyon what that is.

A Exhibit Number Three is a modification of the structure map which was presented by Mr. Holmstrom, modified to the extent that we have labeled here and marked the lowest known oil level, which is -6016 feet, which is the bottom of the producing interval in the Holmstrom No. 1, and the highest known water level, which is -6107 at the top of the Devonian. That is the level, highest level at which water has been tested in the -- in the area, approximately, giving account for a two foot difference between the Honolulu Federal No. 1 and the Holmstrom No. 2.

Q Mr. Sipes, notice a legend at the top of this exhibit labeled productive acres. Can you tell us about those figures that you have up there?

A Yes. In the east half of the west half of Section 9 in the area of the two standard proration units, one being the southwest quarter and one being the

northwest quarter, I have calculated or determined the amount of productive area that is between the midpoint of the section or along the east line of the east half of the west half and the fault.

According to my calculations, my determinations, I find that within the area of the reservoir east of the two faults, which has been proven to be productive, there are in the southwest quarter only 14.5 productive acres between those two lines.

I also find -- and that's above the lowest known oil. I also find that in the northwest quarter there is approximately 11 productive acres in that strip down to the lowest known oil.

Above the highest known water level, which is -6107, I find that in the southwest quarter there's approximately 14.5 acres productive and down to the highest known water, which is -- cuts off a little bit of that strip, I find that there's 27 productive acres.

Q Now why did you segregate or distinguish between the southwest quarter and the northwest quarter?

A Because each of those represents a standard proration unit according to the current rules.

Q Is it you opinion that the current rules should be followed and that -- well, is it your opinion

that the current rules be followed?

A Yes.

Q Mr. Sipes, do you have anything further concerning -- well, let me back up a minute. What -- what do these figures of productive acreage calculate to with respect to a penalty?

A Looking at the number of productive acres relative to a 160 acres, the southwest quarter would have 9.1 percent of it's productive area, of its area productive.

In the northwest quarter it would vary from 7 percent calculated above the lowest known oil and 17 percent above the highest known water.

We do not have any information at this time that would help us to identify the oil/water contact and therefore I've used these two brackets to show the magnitude of the change between those two depending on where the oil/water contact is ultimately established.

Q Now taking your 9 percent, 9.1 percent figure for the southwest quarter, that would be multiplied against the top allowable, is that the way that figures?

A That is correct.

Q And the total amount of daily production would be approximately, a little over 45 barrels a day, is that -- is that the way that calculation is made?

A Yes, it is.

Q And for the northwest quarter you would do the same thing.

A Yes, that's correct.

Q Mr. Sipes, do you have anything further concerning this Exhibit Number Three?

A No, sir.

Q In your opinion would your proposed penalties protect the correlative rights of Curry and Thornton?

A Yes, it would, in my opinion.

Q Mr. Sipes, given the kind of -- well, let me -- let me ask the question this way.

Mr. Ahlen testified earlier that the deviation would probably be from west to east in this well. Do you agree with that?

A Yes, I do.

Q Could there be considerable deviation involving the drilling of this well?

A It would depend upon the angle of the beds that are encountered as well as many other variables and depending on the variables, yes, it could be substantial relative to the 165 feet.

Q You were also present during Mr. Ahlen's testimony, were you not?

A Yes.

Q He testified that it would be harder to drill the well at a -- closer to the fault. Do you agree with that?

A Yes, it would be from a mechanical point of view but it is possible.

Q What are the factors involved in drilling the well closer to the fault as opposed to the proposed location?

A It would depend to a great deal upon the angle of the beds which we encounter and at one fairly low angle the bit would have a tendency to drift to the east up dip.

If it was very steeply dipping beds there's a possibility that it would -- it would go to the west.

Q What kind of a recommendation would you have with respect to requirement of a directional drilling survey on this?

A It would be my recommendation that a continuous directional survey be required if it's drilled any closer than a standard location from the lease line.

MR. PADILLA: I believe that's all I have, Mr. Examiner. We tender -- we offer Exhibits One through Three.

MR. LYON; Exhibits One through Three, are there objections?

MR. CARR: No objection.

MR. LYON: Exhibits One through Three will be admitted.

Mr. Kellahin?

MR. KELLAHIN: Thank you.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Sipes, are you a registered professional engineer in any state?

A In what states?

A Texas.

Q Would you -- have you had an experience as an expert witness in similar matters for other clients in various states involving the determination of where to locate wells and how to orient spacing units?

A Yes, I have.

Q In practicing your profession do you have on occasion -- had experience with controlling wellbores and avoiding drift of wells in drilling? Is that one of the things that you've had experience with?

A Not experience in doing it myself but experience in studying those problems after the fact, as a

general rule.

Q Are you familiar with Devonian reservoirs that are similar to the one that we see here in Chaves County, New Mexico?

A Yes, sir.

Q It is an unusual occurrence in Devonian reservoirs of this depth to see faulting influence the productive limits of the reservoir?

A It's not uncommon, although many of the reservoirs are simple anticlines.

Q You were here when Mr. Aycock testified about his various examinations of possible ways to balance the equities among the parties and I believe you were looking at a copy of his Exhibit Number Twelve as he testified, were you not, sir?

A Yes, I was.

Q I believe ultimately Mr. Aycock came to the conclusion that he had proposed to the Examiner one of two choices on the second page, which I've simply circled.

It shows in one instance he was suggesting that this well with a spacing unit in which there are 40-acre tracts, four stacked on top of each other, and with a proposed well location 165 feet from the common line, that that situation and the equities involved could be balanced with the adjoining spacing unit which was a standard

quarter section, governmental section, with a well at a standard location, and he chose to balance that, then, by suggesting the Examiner adopt some producing limitations that would allow his well to produce at rates of 280+ per day. Have you examined that?

A I have looked at this, yes.

Q In your opinion as a professional engineer, Mr. Sipes, do you concur in Mr. Aycock's conclusion that his method is the method of choice by which to balance the equities of the parties in this case?

A With the little amount that's known about this reservoir at the present time I do not feel like that we can go in and determine relative limits.

For example, on the east side of the reservoir with the trained accuracy, precision, if you will, that we can on the west side because of the amount of information we have between the two current -- between the Phil Tex Well, the Honolulu Federal No. 1, and the discovery well in the field. We don't know where the well, for example, in the southeast quarter of the Section 9 actually has 104 acres that is productive. We don't have enough information to -- to define that limit, that well; whereas, it appears that on the west side, that we do have a significant amount of information; there is little disagreement as to where that limit is.

Q In examining the information on the production history for the discovery well am I correct in understanding that the upper ranges of the daily producing rate for that well was 280 or 270+ barrels of oil per day?

A Yes, that's correct.

Q Am I also correct in understanding that it has never produced at the top depth bracket allowable of 515 barrels of oil a day?

A That is correct.

Q Mr. Sipes, you're an expert, obviously, and you've had certainly much more experience than many of us in trying to resolve these issues, how do you suggest we provide a penalty on this well that the applicant proposes to have approved and yet balance the equities and concerns of your client?

A In my opinion it should be done on productive acres at this point and the numbers which I have presented on Exhibit Three I would recommend as a basis, using the standard proration unit in the southwest quarter for a calculation of the penalty to be assessed a well drilled in the southwest quarter.

Q Would you do the calculation for me and tell me what the net result is on a limitation in terms of barrels of oil per day for the applicant's wells?

A That would be approximately 45 barrels a

day for the applicant's well under the circumstances of the productive acres right here.

Q Your client is producing in a current range of what volume of oil on a daily basis?

A About 250, 260 barrels of oil per day.

Q Would that producing level in comparison to your proposal of the applicant's well be in a ratio that you think would avoid the ability of the applicant's well to set up drainage whereby he produces a significant portion of your client's reserves across the spacing unit line?

A It very well could provide some competitive advantage to them, since my client has chosen to limit his top producing rate.

Q In either one of Mr. Aycock's proposed levels of producing rate, and using your client's current producing rate, where do you as an engineer conclude would be the interface of the drainage/counterdrainage between the two wells?

A It would be a little more than halfway on the -- on a line between those wells or approximately 400 feet from -- from the proposed well.

Q That drainage facies between the two wells, then, will take place some 200 feet within your client's spacing unit line?

A Yes, it would be, approximately, and that's very rough.

MR. KELLAHIN: Nothing further, Mr. Examiner.

MR. LYON: Mr. Carr?

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Sipes, you're not testifying that there are no reserves under the tract that is owned by Curry and Thornton, that's correct, isn't it?

A That's correct.

Q And you're not testifying that they shouldn't be able to to produce what's under their reservoir, are you?

A No.

Q And if they produce what's under their tract you wouldn't anticipate any harm to Santa Fe Exploration, would you?

A That is correct.

Q Now, when you studied this reservoir, you were focusing on the Holmstrom Federal No. 1 Well, isn't that correct?

A That is.

Q Is that the only producing well in the

reservoir?

A Yes, it is.

Q Now, you testified a few minutes ago in response to a question from Mr. Kellahin that your client, Santa Fe, chose to limit the top producing rate.

My question is, is the Holmstrom No. 1 producing at its capacity or is it producing at some rate that the operator of the well considers to be prudent?

A It's producing at less than capacity and at a rate that the operator is controlling.

Q And that is because of water.

A It is because of a decision which they've made. They made that decision before water production showed up.

Q And so they were already cutting it back before the water production showed up in this particular wellbore?

A That's correct.

Q The -- the water that has developed during this month is something which has occurred after that decision was made.

A Apparently so, yes.

Q Did you review the record of the prior hearing?

A No, I did not.

Q Okay. Do you have an opinion as to whether or not this particular well, the Holmstrom No. 1, if produced at a proper rate would drain a large area in this reservoir?

A I would agree with Mr. Aycock that probably one well in this reservoir would drain the entire reservoir given time.

Q Now, the allowable in this pool, the depth bracket allowable, is 515 for a standard unit, isn't that correct?

A That is correct.

Q And your client has not ever produced his well up to that amount, is that also correct?

A That is correct.

Q Now, when you listened to Mr. Aycock's testimony, was it your understanding that he was stating that Curry and Thornton would produce at a higher rate or that they were just seeking an allowable limit?

A It was my understanding that they were -- they were speaking -- Mr. Aycock was speaking strictly from a standpoint of allowed production.

Q Now if we talk about allowed production, are you aware of the rules governing the number of oil wells that may be drilled on a spacing or proration unit in New Mexico?

A I'm not certain I'm quite with you on that or if I understand the question, I don't know.

Q Okay. If a nonstandard unit was created in the east half of the west half of Section 9, would you believe that more than one well would be economic on that, on that acreage?

A I'll answer that question, Mr. Carr, if you can define economic for me.

Q Do you believe that you could pay out the cost of the well plus -- or pay out the cost of both of the wells with the reserves that exist under the east half of the west half?

A Using some very tentative numbers, probably.

Q But it would be close.

A Probably so, yes.

Q One well on that spacing unit would be from an economic point of view a better way to go in your opinion, would it not?

A Yes.

Q Have you considered that an additional well be drilled in the northeast quarter of Section 9?

A I've made no recommendations to my client.

Q Have you been asked about that at all?

A No.

Q Do you have an opinion about that at all?

A No.

Q I'd like to go to your Exhibit Number Two.

The box in the upper right --

A Excuse me.

Q I'm sorry, Exhibit Number Three. We've been to Exhibit Number Two.

Exhibit Number Three in the upper right-hand corner has a box and under these you've indicated productive acres. My question is are those surface acres that you're talking about?

A Yes, they are.

Q Okay, and you accepted both of the faults as depicted on this plat which I assume is the plat prepared by Mr. Holmstrom.

A Yes, it is.

Q You indicated that you were recommending that the current rules be followed; i.e. no exception granted, and that there would be two separate spacing units, one in the northwest corner of Section -- northwest quarter of the section and one in the southwest quarter. That was your recommendation?

A That was not my recommendation?

Q I thought you stated that you thought the current rules should be followed in that regard.

A I suppose -- yes, I did.

Q And that there should be two spacing units, one -- each of those being standard 160.

A That would be the result of that, yes.

Q Would it be your opinion that the current rule should be followed as to well location requirements?

A It would be my recommendation although I recognize that there is some productive area on the -- on the west half of the section.

Q And that couldn't be recovered with a well drilled at a standard location, could it?

A Not drilled at that particular point north/south, although according to the map which has been accepted, I believe, by both sides at this point, further north in the section it might be possible to drill at a regular location.

Q Based on this map you would think that it could be 660 from the east line at a standard location and drain the reserves under the west half of the section. Is that your testimony?

A My testimony is that there could be a

well drilled at a legal location.

Q And do you have an opinion as to whether or not that well could produce the reserves under the west half of that section?

A I do not have any opinion on that at this time.

Q Thank you. That's all.

CROSS EXAMINATION

BY MR. LYON:

Q Mr. Sipes, I'd like to ask you a few questions.

A Yes, sir.

Q Your Exhibit Number Two is your tabulation of the actual producing rates of the wells since inception.

A Yes, it is.

Q And the restricted rate, if I understand your testimony, was not as a result of your recommendation but was the decision made by your client.

A By the working interest owners of the well. That's my understanding.

Q Now, you indicated in your testimony that data is being gathered; that it may be advisable when you have sufficient data to come in and ask for a re-

stricted rate more on the order of an MER (sic) in Texas.

A That would be my -- that would be the inference of what I said, yes, sir.

Q Now, you've mentioned that there's an indication of some water drive, perhaps, maybe some water encroachment based on your data, that you have observed some water in there early and I think indicated it may be an expectation of water if -- if excessive rates are -- are employed in the well.

A Let me -- let me correct any misunderstanding, sir, and that is I don't believe I made any reference to a water drive in any of my testimony. I simply mentioned the fact that shortly after the well was put on production we began to produce a little water in the form of an emulsion; that that volume of water has now picked up and we're producing in addition to the oil some 10+ barrels of water per day.

That, in my opinion, represents some early indication of coning of water into the -- into the wellbore.

Q Yes, that was my understanding of what you testified.

Now, let's go to the proposed location and I think you would agree that we have a formation that has a rather good permeability.

A Yes.

Q That it has capability of draining a relatively large area.

Now, I think the discovery well, its drainage pattern is most likely to be a circle, is that not right?

A It will be up until it reaches the boundaries of the reservoir or some artificially imposed boundary due to interference with another well.

Q Right. Now the proposed location being close to a fault, that drainage area can't be circular very long, can it, because it's restricted by the -- by the fault.

A That is correct.

Q Would -- do you think that there would be a different MER for that well as opposed to the discovery well because of that reef? If you went --

A Yes, I think that there would be a from a -- from a -- from a physical, theoretical point of view. There would be lesser rate which would most efficiently produce the reserves.

Q Okay, that's all I have. Thank you.

MR. LYON: Do you have any recross or redirect?

REDIRECT EXAMINATION

BY MR. PADILLA:

Q Mr. Sipes, in answer to a question by Mr. Carr, he asked you about payout of a well in the northwest quarter and a well in the southwest quarter.

And in that vein he asked you whether that assumed, or the question, I believe, assumed a reserve calculation. You haven't made a reserve calculation, have you?

A No, I had not.

Q So you don't know the economic -- you can't make an economic analysis as to payout without further information.

A It would take a considerable amount of work to get it any further than a rough answer, which I tried to provide Mr. Carr.

Q Nothing further.

MR. LYON: Mr. Kellahin?

MR. KELLAHIN: No, sir, nothing.

MR. LYON: Mr. Carr? All right, the witness may be excused.

Do you have any further witnesses?

MR. PADILLA: Yes, I do. I

have -- I'm going to call Mr. McAlpine, who hasn't been sworn in at this time.

(Mr. McAlpine sworn.)

WILLIAM A. McALPINE,

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

DIRECT EXAMINATION

BY MR. PADILLA:

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

A William A. McAlpine, Jr.

Q Where do you live?

A Roswell, New Mexico.

Q What is your capacity with Santa Fe Exploration Company?

A I'm the President of Santa Fe Exploration.

Q And you've testified in that capacity before, have you not?

A Yes, sir.

Q I just have a few questions for you, Mr. McAlpine.

Q Do you know when Curry and Thornton obtained their lease?

A The records in the courthouse reflect that the lease was dated January the 30th, 1989.

Q Was it a lease or an assignment? They obtained their lease --

A It -- it was an assignment. The original lease was granted June the 1st, 1987.

Q Okay. When was --

A From -- do you want to know from who to who or --

Q I don't -- I don't need to know that. I'm just simply asking you when Curry and Thornton obtained their interest.

A It was dated January 30th, 1989, and made of record February the 2nd, 1989.

Q Okay. Mr. McAlpine, do you have any knowledge with respect to why you or Santa Fe Exploration has produced the well at the rate of around 700 -- 270 barrels a day?

A Well, we were apprehensive that we would encounter water and consequently after a review with a number of engineers no one seemed to know the proper rate at which to try to produce this well and we arbitrarily have stayed with the current choke size.

Q Are you afraid that if you increase the production you might have a water problem?

A Unquestionably we would.

Q Was that a consideration in the deliberations that you had with your engineers?

A Originally, yes; even before we had water, we -- we really didn't know at what rate it should be produced.

MR. PADILLA: I believe that's all I have, Mr. Examiner.

MR. KELLAHIN: No questions.

MR. LYON: Mr. Carr?

CROSS EXAMINATION

BY MR. CARR:

Q Mr. McAlpine, when you drilled the discovery well in the southeast of Section 9, you didn't own anything in the west half, did you?

A No.

Q And when you came before this Commission seeking a pool rule change based on the seismic and technical data you had, you knew there were reserves west of your property, didn't you?

A I was familiar with the map as presented by Mr. Holmstrom.

Q And you knew you didn't own those reserves, did you?

A That's correct.

Q And they were owned either by Curry or Thornton or somebody before that, isn't that right?

A The United States government and the people that have an override in our well own the lease.

Q And were you offered that acreage by those people who --

A We were.

Q And you declined, didn't you?

A That's correct.

Q And then someone else picked it up.

A Yes.

Q And you don't own it, do you?

A That's correct.

Q And if there is not an unorthodox location the reserves under that tract will be produced by your well and they won't share in it, isn't that right?

A Say that again.

Q I mean if there is not an additional well drilled over there in the west half, ultimately the wells you have in the east half can produce those reserves, isn't that right?

A Our well can produce to the royalty

owner. The royalty owner is the same one, the United States Government. They'll get the same amount irregardless of whether this well is drilled.

Q But the working interest --

A As will the overriding interest owner and I'm of the opinion that the people that went in and bought the lease had full knowledge of all these rules and our data when they bought the lease.

Q Do you own the working interest under the west half of 9

A No, sir.

Q And are you disputing that there are reserves over there?

A No, I'm not.

Q And the working interest owner over there should be entitled to them, should they not?

A I think that's a matter of law. I don't know whether they should or shouldn't.

Q You don't have an opinion on that?

A No.

Q If there's no other well over there, your well would drain those reserves, isn't that correct?

A Yes, sir.

Q Now, you're the individual who was the applicant that requested the 515 allowable, isn't that

right?

A We did strictly on a depth basis. We had the -- we declined to ask for the wildcat allowable that would have taken us to 575 or some higher figure than the -- than the depth.

Q But you were the applicant --

A The Santa Fe Exploration Company, yes.

Q And that's what resulted in this high allowable.

A Yes.

Q And that also resulted in setback requirements, did it not?

A Yes.

Q And those setback requirements make it impossible for the people in the west half to drill a well in the reservoir unless they get an unorthodox location.

A Yes.

MR. CARR: I have no further questions.

MR. LYON: Anything further from this witness?

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. McAlpine, in response to Mr. Carr's

questions, at the time that you had your attorney file for an Oil Conservation Division case to establish a pool for the discovery well and set up special rules, did you exercise the obligation to notify all of the offsetting owners --

A Yes, sir.

Q -- responsible for participating in the decision for this Division about how the rules of the game would be played and made?

A We did, and our attorney has return receipts that those were delivered to the people, I believe.

Q And did any of the owners in the west half of the section appear and oppose your application in any way?

A No.

Q Thank you.

MR. LYON: Anything further?

MR. PADILLA: Nothing further.

MR. LYON: The witness may be excused.

Are you ready, Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, on behalf of Exxon I'd like to call Mr. Bill Duncan. Mr. Duncan has already been sworn as a witness.

W. T. (BILL) DUNCAN,

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

DIRECT EXAMINATION

BY MR KELLAHIN:

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

A William Thomas Duncan, Junior, and I'm employed by Exxon as a reservoir engineer.

Q Mr. Duncan, on prior occasions have you testified as a reservoir engineer before the Oil Conservation Division of New Mexico?

A Yes, I have.

Q1 And on behalf of your company have you been present during the entire presentation of this case before the Examiner today?

A Yes, I have.

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

MR. LYON: Mr. Duncan, are you a registered professional engineer?

A No, I am not.

MR. LYON: Mr. Duncan is qualified.

MR. KELLAHIN: Mr. Examiner, we'd like you to take administrative notice of a case that's captioned Application of Texaco, Inc., for an unorthodox oil well location. It's Case Number 8993 and it's Order No. R-8339 entered by the Division on October 30th, 1986.

The request to take administrative notice is similar to the one that Mr. Carr has provided for you in the ARCO case. The purpose of the Texaco order is to illustrate to you that at various points in time the Division has used various penalty formulas for well locations and this particular one includes not only a penalty factor for the nonstandard proration unit, if you will, or the nonproductive acres portion of the spacing unit, it incorporates a footage factor into it because of the unorthodox location of that well, and we would ask that you take notice of this order.

MR. LYON: I will do that.

Q Mr. Duncan, have you had an opportunity to review the Texaco order that I've just described?

A Yes, I have.

Q And based on that order and the facts presented in the case before the Examiner today, have you made a calculation of what the penalized allowable will be for the proposed unorthodox location well of the applicant?

A If it were a penalty adopted under the same mechanics as Order R-8339, I've put that into an exhibit entitled Exhibit Number One for Exxon that describes how that penalty would work with the numbers for this particular situation.

Q Before we discuss the actual calculation describe for us generally the method chosen by the Division in Order No. R-8339 to impose the penalty in that particular case.

A In that case the productive acreage within the proration unit was compared to the proration unit size. Then that dividend was multiplied by the percentage distance that the well was unorthodox compared to an orthodox distance.

Q In following that method, how have you taken the specific facts of this case and then applied that as a penalty for this well?

A Okay.

Q Is that shown on Exxon Exhibit Number one?

A Yes, it is.

Q All right.

A Exhibit One has three dots on the left-hand side of the exhibit. The uppermost dot shows productive acres in the east half of the west half and I've shown

the range of values proposed both by Curry and Thornton and Santa Fe.

Curry and Thornton showed a minimum of 47.7 acres and a maximum of 59.8 acres on Exhibit Twelve.

And Santa Fe showed a minimum of 25.5 acres and a maximum of 41.5 acres on Exhibit Three.

The second dot shows that the proposed well will be 75 percent closer to the lease line than permitted. That's simply 175 feet compared to 660 feet, excuse me, 165 feet compared to 660 feet.

The third dot shows how this acreage factor would be calculated. The acreage factor is the productive acres divided by the proration unit size, in this case it's 160 acres. That is multiplied by 1 minus the distance, the ratio of the distance to the lease line.

I've shown in tabular form the penalized allowable which would result from each of the various productive acreage values proposed by Curry and Thornton and Santa Fe.

The first column shows productive acres. The middle column shows the acreage factor. The penalized allowable is shown in the third column.

The total penalized allowables range from 21 barrels of oil per day to 48 barrels of oil per day. Now those penalized allowables are assuming that they

are applied against a 515 barrel per day top allowable.

Q Either Mr. Aycock or Mr. Sipes proposed a penalty formula that took into consideration a factor or a parameter that accounted for the unorthodox location of the well itself, is that not correct?

A That's correct.

Q What advantage does your proposed penalty calculation have over the other suggested penalties that have been presented to the Examiner today?

A Obviously this penalty does compensate for the distance that this well is to the lease line.

Q What is your ultimate conclusion to the Examiner as to what the penalized allowable rate for the well ought to be?

A The penalized allowable shown on this exhibit varies from 21 to 41 barrels per day and a rate in this range would probably be adequate compensation.

Q In your opinion would that allow the well to be drilled at the unorthodox location that the applicant has sought so that he would have the opportunity to produce the remaining share of reserves underlying his spacing unit and yet at the same time apply a rate restriction on that well so as not to give the applicant an unfair competitive advantage over a well that adjoins in the same reservoir that's located at a standard location?

A As I understand it, if the order were adopted similar to Order R-8339, the location would be approved but a penalty would be assessed to compensate for drainage.

Q And in your opinion as an engineer would this penalty that you're proposing be one that would allow the applicant his opportunity to recover his share of the hydrocarbons but at the same time protect yours and Santa Fe Exploration's correlative rights in that same reservoir?

A This is a penalty that was adopted to accomplish those objectives and it probably would better than any proposed so far.

Q In the absence of the adoption of a penalty as you have proposed, do you have any alternative recommendation to the Examiner with regards to the drilling of this well at this location?

A No, I do not.

MR. KELLAHIN: That concludes my examination of Mr. Duncan, Mr. Examiner.

We would move the introduction of his exhibit which is marked Exxon Exhibit Number One.

MR. LYON: Exhibit One -- is there objection?

MR. CARR: No objection.

MR. LYON: Exhibit One is ad-

mitted.

MR. KELLAHIN: That concludes our direct examination.

MR. PADILLA: I have no questions.

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Duncan, did you prepare Exhibit -- I think this is Number One?

A Yes, sir, I did.

Q And when did you do that?

A In the last hour, hour and a half.

Q Have you made a study of this reservoir in preparation for your testimony here today>

A No, I have not.

Q So this is based primarily on the penalty approach that was taken in Order R-8339, which Mr. Kellahin has asked Mr. Lyon to take notice of, is that correct?

A This is taking the Order R-8339 rationale and applying it to this situation.

Q And when you say applying it to this situation you're talking about just the east half of the west half. You've looked at that, the data that was pre-

sented here today, and came up with this penalty recommendation.

A I looked at the Order R-8339 and determined -- tried to determine the meaning of each of the findings, and determine the appropriate values included.

Q Now, in doing this you didn't consider total reserves in this particular reservoir, did you?

A No, I did not.

Q And you didn't take in the fact that other spacing units, in fact every other spacing unit in the pool, is not fully productive. You didn't consider that, did you?

A Neither did Order R-8339.

Q And you -- did you consider that one well could drain the entire pool if produced over a long period of time?

A No, I didn't, but I believe that's a similar -- no, I did not.

Q And not having made a study, just trying to put the facts into this order, can you testify to this Examiner that implementing use of this formula will enable Curry and Thornton to recover their just and equitable share of the reserves from this pool?

A I can say that this order, method, does come up with a type penalty which would allow them an op-

portunity.

Q But do you know if that opportunity will be great enough to let them ultimately recover the share of the reserves that are under their tract as that relates to total reserves in the pool?

A No, I do not.

MR. CARR: That's all I have.

MR. KELLAHIN: Nothing further.

MR. LYON: Do you have any further witnesses?

MR. KELLAHIN: No, sir.

MR. LYON: I have no questions.

If there is nothing further, the witness may be excused.

Do you have any closing statements?

MR. PADILLA: Mr. Examiner, this case is an unusual case because of the fault that both parties, or all parties seem to agree that exists.

Primarily and first of all, I want to address the fact that Curry and Thornton knew what the spacing rules were at the time that they bought their lease. They had full knowledge, or at least had notice of

what -- or should have had notice of what the -- what those spacing regulations were.

The fact that they bought a sliver of production is not Santa Fe Exploration's fault. Now they're trying to encroach at a distance of 165 feet from the Santa Fe's lease line. They are further trying to make a proration unit of 160 acres that is almost unprecedented.

The only precedent that I know of that exists with regard to a proration unit of this nature and this kind, when you cross quarter section lines, where you have 160 acre spacing that exists in the Texas-New Mexico border where you may have a legal subdivision consisting of the north half and then four lots being the south half of the section.

Other precedent that I have seen exists in northwest New Mexico where you've run up against the Navajo Meridian and New Mexico principal Meridian, those exceptions have been made and recognized, but by and large you don't see this kind of proration unit where somebody comes in and says, well, you know, we want to do this because we want to recover a fair share of hydrocarbons. No one really quarrels with that.

By the same token the testimony presented by the applicant would suggest that

they would be allowed to produce their well at a rate far in excess of what is even being produced by Santa Fe Exploration at this time. Santa Fe Exploration is producing the well in a prudent manner and have -- and they're not producing the well at top allowable. I don't know what Curry and Thornton have with respect to how they're going to produce their well, but none the less it seems to me that once you get into a competitive situation out there you're going to have a lot of waste because both sides are going to be compelled to start producing their wells in order to recover the hydrocarbons as fast as we can.

Now, Santa Fe will probably be forced at this time to come in with -- and amend the proration or the spacing rules in order to reduce the top allowable in order not to essentially mess up the reservoir by producing the wells out there, or this particular well, anyway, and a well that they may drill in the northeast quarter at excessive rates in order to recover the -- anything Curry and Thornton is (unclear) and the -- but we come down in a nutshell of allowing a well, we're not quarreling with whether or not they ought to be allowed to drill the well. We're really quarreling with whether or not it -- at what rate they should be allowed to produce the well and to what extent.

Now -- and also with regard

to the location, they have not really satisfied me that a location at 330 from the lease line is -- would be sufficient in order to prevent and allow their -- their fair share of production.

This question of saying, well, we -- we don't want to do continuous drilling survey because that's more expensive is one of the risks that they assumed when they came in this field, when they bought their lease. They saw the fault and I assume that they had knowledge of drilling and they should have to pay the piper if it requires that a continuous drilling survey be conducted.

But in total I think that the Division should look at this thing as being a southwest quarter proration unit or northwest quarter proration unit and the acreage, the productive acreage for each one of those, each one of those proration units should be calculated separately so as not to allow this type of a lopsided deal where somebody essentially is allowed to drill one well for two as opposed to Santa Fe having to drill two wells in order to meet the competition.

We request that the application be denied for a nonstandard proration unit and that Curry and Thornton be required to comply with the regulations that are currently existing for this pool and that

the southwest quarter should be dedicated to their well and that the productive acreage in accordance with Mr. -- a penalty be assessed in accordance with what we have presented by way of Mr. Sipes' testimony.

Thank you.

MR. LYON: Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, I appreciate your patience with us this afternoon and indulgence about this matter and I will not presume to try to tell you how you ought to handle the technical portion of this case because that's certainly well within your expertise and not mine.

I will tell you this is certainly not the first, and won't be the last, case that we argue before you on location penalties. I have shopped through my little black book this afternoon to find the Texaco order and I will tell you that in the fifteen years that I've practiced before this Commission and Division we have tried virtually every conceivable way to structure a penalty and I'm not sure any of them work. There's a book full of them and you're welcome to shop through it.

The fact of the matter is the Commission has always gone to extraordinary lengths to allow an operator to drill a well even at unorthodox locations and the trade off was that in order to get that loca-

tion the applicant would have to concede a producing rate or concede some portion of the reserves so that the advantage he gains with his location will not be suffered by the adjoining owners and we have tried double circles, we've tried single circles, we have tried combinations of things that included gross acreage, net productive acreage, and simple arithmetics of showing well locations in relation to standard locations.

The net result is nothing ever seems to work very well. It causes me to believe that the way you stop some of these type of cases is to find a case like this one and simply deny it and that's fair, particularly in view of the fact that the southwest quarter of this section has had an opportunity to produce the reserves underneath that tract and this is not some magic understanding of the law. It's no vested absolute right to have that production in your pocket forever. That opportunity was exercised by the Phil Tex people when they drilled the Honolulu Well and what did it show? An overwhelming portion of the west half has been condemned. There's absolutely no technical dispute that the portion of this reservoir that lies to the west of the fault is going to produce nothing more than water.

The applicant is faced with this overwhelming dilemma now after the fact, coming in

here looking for another straw in this little reservoir, has given you a predicament. We either abide by the rules of conservation that this Commission has developed and implemented for some 50 years or we forget the rules for this pool and simply return to the law of capture and we'll all stick a whole bunch more straws in this little reservoir.

The fact that there may be some reserves remaining just east of the fault within this gerrymandered spacing unit in which they provide the novel solution of stacking four 40-acre tracts on top of each other in order to escape a penalty for nonproductive acres is certainly nothing short of novel. I can't imagine anywhere else that we have committed ourselves to that course of action other than the Jalmat Pool and Lord knows we don't need another one of those.

The fact of the matter is that sometimes you just can't help everybody and is it better to let the remaining reserves on the east half of that fault be captured by someone else or do you allow an applicant who fails to prove to you, sir, what volume of oil is in place underneath his tract and what volume of oil he needs to recover the cost of his well. We asked those witnesses; they wouldn't give us an AFE; they gave us approximations of well costs; we don't know what the oil price is going to be; there is no way that they have quantified or justified

approval of this application. They say they have producable reserves on their side of the line east of the fault; well, they certainly didn't prove it here.

What they have proved is that they ask you to violate all the significant spacing and location rules of this very pool. They ask you to ignore the 1320-foot distance between wells, when we have found from Mr. Aycock there's an alternative location. Let him step out from our well. He doesn't need to play closeology in order to capture some reserves for his side of the spacing unit. This is nothing more than an indirect attack on the spacing order and if you approve this, then you're going to leave to two wells in what amounts to something nothing more than, I don't know, 36 acres, looks to me. It can be calculated. You can look at those two wells and the area involved in those and it's got to be less than 40 acres in a pool that this Commission has found justifies 160 acres.

If you decide to do once again what the Commission has often done and that is to approve this location, we would ask that you incorporate Mr. Duncan's proposal, which is one that takes into consideration the net productive acres as testified to by the various technical people, but don't ignore the fact that no one other than Mr. Duncan has taken into account the location

of the applicant's well, which is only 165 feet away from the common spacing unit line and an order that approves this well at this location that does not take into consideration that principal fact is not fair.

We would ask, first of all, that you deny this application, but in the alternative, if you choose to approve it, that you do so using Mr. Duncan's formula and that you also strictly require the applicant to continually survey his wells and make sure that he gets no closer than the 165 feet.

Thank you.

MR. LYON: Mr. Carr?

MR. CARR: May it please the Examiner, there is one thing that I personally need to clear up in the record. Curry and Thornton is not standing before you asking you to come in and help somebody, to help us.

What we're here doing is asking you to carry out your statutory duties under the Oil and Gas Act, to give us an opportunity to produce our just and fair share of the reserves under the property that we recently acquired but that we own and they do not.

We came in at the beginning of this hearing and I told you we're not trying to get closer because we can crowd in on them, we're drilling a well at

the only responsible place to put this well. Mr. Holmstrom could not tell you how close to crowd the fault and we can't produce the reserves under our tract unless we can drill a well that will be a well we can complete in the reservoir. And so that's why we're here.

This is a case involving correlative rights. Correlative rights are not protected by am aimless walk through Mr. Kellahin's black book. Correlative rights are defined by statute and the Supreme Court of New Mexico has stated that this is an agency that is a creature of statute and your powers are expressly defined and limited by those statutes and so I think it is absolutely critical that if you're to carry out your duties in this case you look at the definition of correlative rights and what they mean is that we are afforded an opportunity to produce our fair share of the reserves. To do that we submit we have to have a location in the reservoir. Without that we're denied our opportunity.

But the statute doesn't just end there; it talks about affording us a just and equitable share and it goes on and it says that just and equitable share of oil and gas, or both, in the pool being an amount so far as can be practicably determined, and so far as can be practicably obtained without waste substantially in the proportion the quantify of recoverable oil or gas, or both,

under such property, our tract, bears to the total recoverable oil or gas, or both, in the pool, the entire pool, and then for such purposes we get to use our share of reservoir energy.

So for us to be afforded the opportunity to have our correlative rights, we've got to be able to have a shot at producing the remaining reserves under our tract as those reserves relate to the total reserves in the pool, and we have to do this without waste, and for that reason we can't go running around drilling a bunch of wells that are not going to pay. Mr. Kellahin talks about not dropping other straws into this pool. Well, pardon me, that's the only way we'll get our share and to have to do two of those becomes economic waste and that you're not permitted to authorize if you're going to carry out your duties under the statute.

So if we look at the evidence in this case, I think you're going to -- that the picture becomes very clear. I think if you look at Exhibit Number Four, you see Exhibit Number Four, here's Section 9. Here is the pool. Here is the fault. Here is Mr. McAlpine's property line and here is what we own.

We're asking you for an opportunity to produce that in a prudent fashion and that requires one well, not a second, wasteful well. It requires

one spacing, one proration unit. Without that, frankly, we're unable to do it without committing waste; we're probably unable to do it at all.

We look at the statutes. Let's look at Continental. That is the primary case that governs your activity.

Now if we look at how you have in the past dealt with the problem of adjusting the equities when wells are drilled at unorthodox locations, I do agree with Mr. Kellahin there have been a lot of approaches taken. But you go to the Continental decision and you'll see that they say, yes, you can use straight acreage, you can use these various things, when that is the only practicable way to go.

And it talks about correlative rights as a situation where to do it right you need to know what is there and then you allocate that and when you know what the net acre feet are in this reservoir, if you're going to meet your duty under the Oil and Gas Act, if you're going to meet your duty under the definition of correlative rights and statute and in rule, and if you're going to comply with the directive in the Continental decision, you have no choice but to go forward and enter an order and impose a penalty that is designed to let us produce our fair share of the reserves in this reservoir.

And we've had a lot of talk about precedent. We've seen the Texaco case. Mr. Duncan today did an admirable job of taking the data here and trying to force that into the formula. But the problem is it misses the point on correlative rights. He says he doesn't have any idea whether it will give us our just and fair share and you use that formula on this record and you have violated our correlative rights.

We've given you a case that's precedent. It's a Devonian -- it's a Devonian well. It's a different shaped spacing or proration unit but the important factors are it's a Devonian well. There was a fault and the net productive acres were calculated and the formula allocating production was based on the net productive acres under one person's tract as opposed to the net productive acres under another and that's exactly what we have here. That's precedent that I think it this case is consistent with your statutory duty. It's consistent with the Continental decision and it is something you should seriously consider when you will go about resolving this case. Because I believe it is the one correct way that you can go if you're to meet your statutory duties.

Now, Santa Fe Energy, Exxon, they want to come in and they want to say, you know, ignore all of this, there are all kinds of things we can do. We

tried a million things and none of them really worked, just deny this application.

Well, I submit to you we're asking you not to ignore anything. We're asking you to go back to the statute. We're asking you to go back to the rules. We're asking you to look at the case law. And we're convinced when you do that and look at the precedent we've given you here today, you're going to see there is only one thing that you can do and that is you've got to approve the location and you have got to set a penalty based on the recommendation that we have given you because those penalties are the only way we have a chance to produce the just and fair share of the reserves that we have under our particular problem.

We're not here trying to play games with the rules. We didn't come in and ask for a 515 barrel allowable that we'd never produce. We didn't come in here knowing that there was reserves -- there were reserves to the west but what we were going to propose would require people to be outside the reservoir if they drilled at standard locations and then come in and say, yeah, we think you ought to develop under the rules.

We're coming in here with a valuable, valid property right and all we're asking is that you give us the opportunity to produce that and we think if

you're going to do that you have no choice, you must approve the nonstandard spacing unit; you must approve this location; and you've got to set a penalty based on our recommendation because that's the only one that's before you that gives us a chance to recover our just and fair share of the reserves in this pool.

MR. LYON: Any statements? Anything else to go into this record?

If not, this hearing is adjourned.

(Hearing concluded.)

C E R T I F I C A T E

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

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9617, heard by me on March 1 1989.

, Examiner
Oil Conservation Division