STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION COMMISSION

CASE 9883

COMMISSION HEARING

IN THE MATTER OF:

Application of BTA Oil Producers for an Unorthodox Oil Well Location, Eddy County, New Mexico.

TRANSCRIPT OF PROCEEDINGS

BEFORE: WILLIAM J. LEMAY, CHAIRMAN
WILLIAM WEISS, COMMISSIONER
WILLIAM HUMPHRIES, COMMISSIONER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

June 21, 1990

ORIGINAL

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E X H I B I T S

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WHEREUPON, the following proceedings were had at 9:22 a.m.:

CHAIRMAN LEMAY: Case Number 9883.

MR. STOVALL: Application of BTA Oil Producers for an unorthodox oil well location, Eddy County, New Mexico.

CHAIRMAN LEMAY: Appearances in Case Number 9883?

MR. CARR: May it please the Commission, my name is William F. Carr with the law firm Campbell and Black, P.A., of Santa Fe.

I represent BTA Oil Producers, and I have three witnesses.

CHAIRMAN LEMAY: Thank you, Mr. Carr.

MS. AUBREY: May it please the Commission, my name is Karen Aubrey with the Santa Fe law firm of Kellahin, Kellahin and Aubrey.

I represent Bird Creek Resources in opposition to the Application. I have four witnesses to be sworn.

CHAIRMAN LEMAY: Thank you, Miss Aubrey. Will the witnesses currently stand and raise your right hand and be sworn?

(Thereupon, the witnesses were sworn.)

CHAIRMAN LEMAY: Are we going to have opening

remarks, Counsel?

MR. CARR: A brief opening.

CHAIRMAN LEMAY: Brief opening. All right, you may proceed, Mr. Carr.

MR. CARR: May it please the Commission, early this year BTA Oil Producers proposed the drilling of its JV-P Pardue Well Number "C" 1 at an unorthodox location to test the Delaware Formation. They sought approval of this location by an Administrative Application.

Objection to the Application was filed by Bird Creek Resources, an offsetting operator, toward whom the well is being moved. And because of that, the matter came on for hearing before the Oil Conservation Division in March.

An Examiner Order was entered that approved the location and imposed a penalty on the well's ability to produce. The penalty equaled 53 percent of the 142 depth-bracket allowable, and that penalty was to remain in effect until the Pardue Well was underproduced by an amount equal to 12,225 barrels.

This figure equals 8.7 -- or 8.15 percent of the recoverable reserves attributable to the well and is equal to what the Examiner found to be the additional drainage that would occur from the

offsetting tract.

Under this penalty and pursuant to the Order of the Division, BTA has drilled the well. They drilled it as a straight hole, and that well is currently being produced consistent with the penalty imposed by the Examiner Order.

Today we will call witnesses who will show you that this location, in fact, was necessary and is necessary.

We have a 40-acre tract. This tract is traversed, as we will show you, by the Pecos River, by two pipelines, by two floodplains, by a ravine, and by a railroad track, all on 40 acres, and we will show you that we had to drill the well at this location.

We will show you that we needed to drill it as a straight hole, the reason being is that when the well was actually spudded there was a penalty which impacted the economics.

There was limited data on this particular Delaware reservoir, which doesn't perform just like other Delaware reservoirs in the area, but all the wells are relatively recent, and long-term production histories are unavailable.

And we also had to drill it as a straight hole, because when you look at these factors and the

possibility of directional drilling and the increase in potential problems and operating costs in a directional hole, it's virtually impossible.

We're also going to show you that the penalty that was imposed by the Examiner is appropriate, it will protect correlative rights, and we're going to ask you to affirm the Order of the Examiner as a proper conservation measure, a measure that will prevent waste and at the same time permit the operators in the area to recover their just and fair share of the reserves from this pool.

CHAIRMAN LEMAY: Thank you, Mr. Carr.

Miss Aubrey?

MS. AUBREY: Thank you.

Bird Creek Resources opposed BTA's Application before the Examiner and continues to oppose it today. BTA claims that the Examiner, in fact, imposed a penalty on the BTA well. We claim that the Examiner imposed no penalty at all. What the Examiner did was to reduce the allowable for the BTA well for a six-month period of time.

Generally, this -- the Division and this Commission have penalized unorthodox locations by a factor which is comprised of the standard location over -- underneath the proposed location, and the penalty

has been permanent on the production of the well.

We believe that the Examiner imposed this penalty because of the suggestion to him that in fact there was no location for this well in the 40-acre tract.

There is going to be a substantial conflict in the evidence before you today on whether or not there is topographic justification for this unorthodox location.

At the hearing below, BTA claimed there was no geological basis for their request and that the only basis for their request was that there was no location available to them.

We will show you through witnesses today that there are in fact locations which are standard in the East Loving-Delaware Pool, where this well could have been located.

We believe we will also show you today that the real reason this well was moved closer to the Bird Creek acreage is that BTA saw the opportunity to drain Bird Creek instead of moving closer to their own wells in that section.

We ask that the Commission, after hearing all the testimony, impose a penalty which will actually penalize BTA for crowding the line and for moving out

of the standard location with no either geological or topographic justification. We ask that the penalty be made permanent against the production of the well.

Thank you.

CHAIRMAN LEMAY: Thank you, Miss Aubrey.

At this point, a point of clarification for the Commission is, my understanding, this well has already been drilled or not?

MR. CARR: Yes, sir, it has.

CHAIRMAN LEMAY: If it's already been drilled, what's the purpose of going through whether the location itself was justified? Was the well drilled under an existing Order that was valid?

MR. CARR: Yes, sir.

CHAIRMAN LEMAY: In the interest of trying to focus on the real issue, I think the issue would be the size of the penalty and not whether the well itself was justified in the first place.

So with that in mind, is there any objection to that type of testimony?

MS. AUBREY: If I may, Mr. LeMay, the Order was issued based on what we believe to have been some misleading testimony to the Examiner. We intend and would like to put on evidence of the topography of the area involved. We have aerial photographs, we have a

USGS floodplain map.

There was a claim before the Examiner that in fact BTA couldn't drill at a standard location because it would be moving into the floodplain. We will show you that they have completed a well in the floodplain at the same elevation.

So, given that, I believe that that sort of testimony is going to enable you to properly penalize BTA for the location of this well. They drilled it, they knew the 30 days hadn't run.

We informed their lawyer that we were filing for a de novo. They went ahead and drilled the well anyway during the 30-day de novo period, and frankly I believe our position is, they took the risk by doing so.

And we would like to put on the evidence on topography, on whether or not this well could have been directionally drilled, as well as the engineering testimony to show that the penalty that was imposed by the Examiner is no penalty at all.

CHAIRMAN LEMAY: Thank you, Miss Aubrey.

Mr. Carr?

MR. CARR: In response to that, we stand on the testimony we previously presented, and will present to you a case today very similar to what was presented

before the Examiner.

A well was drilled under a valid Order, and there was no attempt to stay. There was no surprise on their part that we were going forward with the well.

It's -- I think the Commission -- the Chairman is correct, that much of the case -- and our case is, as I will tell you now, is quite short -- much of what was presented before we believe is moot because the well has been drilled as a straight hole.

Directional drilling considerations are only really tangential to any question before you, and we think it's appropriate to look at the penalty and see if in fact, looking at the overall, if in fact, you shouldn't affirm -- you shouldn't do what we will ask, and that is affirm the Examiner Order, because we believe it was an appropriate decision at that time, and we can show you that it's a decision which we believe ought to be affirmed.

We're not mad at anybody here, but I think it's important to keep in mind that everything we have done has been consistent with valid Commission authority, every step.

CHAIRMAN LEMAY: Let's take a five-minute recess. I want to discuss what we will accept in the way of testimony and what the true issues are.

(Thereupon, a recess was taken at 9:32 a.m.)

(The following proceedings had at 9:38 a.m.)

CHAIRMAN LEMAY: Okay, we've discussed this issue, and it's our opinion that Bird creek had the opportunity to stay the Order of the Examiner, and therefore by failing to do so and allowing the well to be drilled under a valid order, the questions we're faced with right now are questions of correlative rights.

And the Commission will accept testimony on questions of correlative rights, we -- specifically going to the penalty that would be assessed against BTA, and it's also our request that the Examiner's record be incorporated as part of this hearing.

MS. AUBREY: Mr. LeMay --

CHAIRMAN LEMAY: Miss Aubrey?

MS. AUBREY: -- may I make a response to that?

CHAIRMAN LEMAY: Yes.

MS. AUBREY: The Commission's rules, as you know, are not clear on whether or not a party needs to request a stay of an Examiner Order pending a de novo.

I would like to remind the Commission that BTA could have asked for a stay also.

They -- It is our position that they drilled

this well at their own risk at a time when they knew we were going to file a de novo Application and that having done so, Bird Creek should not be penalized for presenting testimony today which would have been presented below, had anyone had any idea that BTA was going to testify the way they did.

And if you will permit me to do so, I would like to either make an offer of proof now on what we will show on the issues of topography and the issues of geology, or I would like to do that at the beginning of Bird Creek's case so that the record is clear as to what we would show if we were given the opportunity to do so, because I think it's relevant to you here today.

I don't think it's appropriate for a party to come into an Examiner Hearing and even unintentionally misstate a fact and then be able to skate at the Commission hearing because no stay was asked for by the other side.

They drilled the well, knowing we were filing for de novo. They knew it. We told them, and they won't deny that.

They didn't have to do it in that 30-day period, but they chose to. And I suspect they chose to in order to come to you with a fait accompli to make it harder for you to look at the testimony on whether or

not they should have had an unorthodox location in the first place.

So if you will permit me now, I would like to make an offer of proof, or I would be -- In fact, I guess I would prefer to do it at the beginning of Bird Creek's case, on what we would show on the issues of whether or not in fact it's true that they couldn't directionally drill it, whether or not in fact it's true that they did not gain a geological advantage, whether or not it's true that there was no topographic location at which they could have drilled this well that was standard.

Those are the issues that we hope to present to you today, and I would like to make an offer of proof on those issues later, if the Commission continues with this rule.

CHAIRMAN LEMAY: Thank you, Miss Aubrey.

Mr. Carr?

MR. CARR: May it please the Commission, I would like to, by way of response to Miss Aubrey's statements, simply for the record, since you now have incorporated the record of the Examiner Hearing, it's my understanding, into this proceeding, I can tell you on behalf of BTA that what we said then we believed to be the truth. We believed it to be the truth then, and

we believe it to be the truth today.

And when our witnesses were called, Bird Creek was present with Counsel, and they had an opportunity to cross-examine, which they did, and the record was complete, it was taken under advisement and an Order was entered, we drilled a well.

If what we are going to do now is to honor your ruling by focusing on correlative rights and the risk penalty, we are prepared to do that with one witness. The testimony we believe will -- that will be focused on that issue, then only to have Bird Creek go forward with what is an after-the-fact cross-examination of our witness's testimony, a month ago, three months ago, we think all we've done is really circumvent your ruling.

We think your ruling was appropriate. We're prepared to go forward in a fashion consistent with it, and we believe that the record below was made with a full opportunity to cross-examine and that that is the testimony that you can now look to because the parties under a valid Order relied on that Order, that was ordered from that testimony, and have gone forward with the development of the property.

CHAIRMAN LEMAY: Thank you.

MS. AUBREY: Mr. LeMay, may I make a one-

sentence response?

CHAIRMAN LEMAY: Miss Aubrey?

MS. AUBREY: Thank you. I would remind the Commission that this is a de novo proceeding, not an appeal. We are not bound by the record.

CHAIRMAN LEMAY: I understand that. The record, however, was taken at the Examiner level, a valid Order was issued, a stay was not requested, suspension of action of the drilling was not requested by either party. Therefore, we're dealing with a fait accompli. The well is there.

The purpose of the Commission right now is to assess a penalty, if one is required, based on correlative-rights issues.

And to rehash the entire record as to the topography considerations is irrelevant to the nature of this hearing, and my initial ruling will still hold.

If you would like to take some time to reorganize your case on that basis, I would be happy to grant you that time, Miss Aubrey.

MS. AUBREY: No, Mr. LeMay, I don't think we need to do that. We're prepared to address the correlative-rights issues, and I will renew my request to make an offer of proof at the end of BTA's case.

EXAMINER LEMAY: Thank you. We shall proceed

at this point.

MR. CARR: May it please the Commission, at this time we would call Pete Wilkinson.

For the record, I would state we were prepared to call Mr. Greg Hair and Mr. Keith Logan whose testimony would be virtually identical to the testimony presented at the Examiner Hearing and address geology, which the parties at that level stipulated was not a controlling factor in the drilling of a well, and Mr. Logan's testimony will focus solely on topographic -- or primarily on topographical conditions. I will not call them, consistent with your ruling.

I will call Mr. Pete Wilkinson, a petroleum engineer with BTA.

PETER B. WILKINSON,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. My name is Peter B. Wilkinson.

Q. Mr. Wilkinson, where do you reside?

A. Midland, Texas.

Q. By whom are you employed and in what

capacity?

A. By BTA Oil Producers as an exploitation manager.

Q. What is an exploitation manager?

A. Exploitation is just another word for development.

Q. Have you previously testified before this Commission?

A. No, sir.

Q. Could you review your educational background for the members of the Commission and then briefly summarize your work experience?

A. Yes, sir. I graduated from Texas Tech University in 1970 with a bachelor of science in petroleum engineering. Since that point in time I've been gainfully employed in the oil business by various different operators, the past 13 years with BTA.

Q. Does your area of responsibility for BTA include the portion of southeastern New Mexico which is involved in this case?

A. Yes, sir.

Q. Are you familiar with the Application filed in this matter on behalf of BTA?

A. Yes, sir.

Q. Are you familiar with the Pardue Well and the

surrounding area?

A. That is correct.

MR. CARR: At this point in time, may it please the Commission, we would tender Mr. Wilkinson as an expert witness in petroleum engineering.

CHAIRMAN LEMAY: His qualifications are acceptable.

Q. (By Mr. Carr) Mr. Wilkinson, could you explain to the Commission the current status of the Pardue "C" Number 1 Well?

A. Yes, sir. We drilled the well, completed it on May the 18th. The well is capable of flowing top allowable, but since the point in time that we put the well on production, we have limited the production to the Order that was involved in the case.

Q. So it is currently producing at 53 percent of its depth-bracket allowable?

A. That is correct.

Q. Have you had experience with developing other Delaware properties in southeastern New Mexico?

A. Yes, sir.

Q. Could you explain to the Commission what your personal experience was and how you were involved with the decision to drill this particular well?

A. We have evaluated numerous Delaware fields

throughout southeastern New Mexico, and in this particular area, based on the volumetric calculations and the short amount of decline-curve analysis that we had, we felt as if we had a good reservoir in the Delaware, better than normal, and we decided to drill these wells.

Q. Now, Mr. Wilkinson, I'm going to jump forward in your testimony.

Mr. Wilkinson was actually present, may it please the Commission, to testify about considerations related to directional drilling, and we will go over those and simply address questions concerning correlative rights.

Mr. Wilkinson, could you identify what has been marked as BTA Exhibit Number 6?

A. BTA Exhibit Number 6 is simply a copy of the latest producing capacities of the four wells that we have completed in the Loving East Field. Included are Wells B-1, B-2, C-1 and C-2, with the C-1 being the well in question here at this hearing.

We have barrels of oil per day, barrels of water per day, the amount of gas being produced in association with the oil, the gas-oil ratio, the choke size and the flowing-tubing pressure.

Q. Now, how recently have the wells in this area

actually been drilled?

A. They've all been drilled or completed in 1990.

Q. 1990 or 1989?

A. 1989, 1990, all the wells that we're familiar with.

Q. And do you have on any well a production history that would enable you to actually project what the wells will ultimately recover?

A. No, sir.

Q. What is the purpose of Exhibit Number 6?

A. Exhibit Number 6 just goes, in our opinion, to show that there is no communication amongst the four wells that we have in this reservoir.

Q. Have you had data available to you concerning the wells operated by Bird Creek in the property south of this area?

A. Very limited data.

Q. Based on the limited data that you have received, do you have any -- have you seen any evidence of communication between wells in the reservoir?

A. No, sir.

Q. Have you tried to estimate the number of acres that actually can be drained by the Pardue "C" Number 1 Well?

A. Yes, sir, we have.

Q. And is your calculation what is set forth at Exhibit Number 7?

A. Yes, sir.

Q. Could you go through this exhibit for the Commission and explain what these numbers are and what this exhibit is designed to show?

A. Okay, this is simply a volumetric calculation on our 8808 JV-P Pardue "C" Well Number 1. It's a simple standard engineering calculation of the original oil in place. It's a formula that's, of course, accepted throughout the industry.

We assume one of two things to get our final answer. You either have to assume what area the well is draining or what the recovery factor is.

Q. What recovery factor have you used?

A. Okay, in our analysis of the wells in the Delaware in southeastern New Mexico the wells recover anywhere from 9 to 21, 22 percent of the original oil in place.

This reservoir being a better productive reservoir than what we consider an average reservoir, we feel it's on the upper end of this.

So therefore, I went through my calculations and I assumed an areal extent of 20 acres. We have 53

feet of pay with an average porosity of 16 percent, water saturation of 43 percent, and a formation volume factor of 1.1.

Using these, plugging them into the formula, we get an original oil in place of 681,801 barrels of oil. Now, from what limited experience we have in this reservoir for a decline-curve analysis, we feel as if the wells will make in the range of 150,000 barrels of oil each. So you take this and divide it by the original oil in place, and this comes up to a 22-percent recovery factor. And we feel that --

Q. Just a moment. Twenty-two or 20 percent?

A. That comes up to 22 percent, and that would be based on a 20-acre areal extent.

Q. All right.

A. Now, we take -- If you take it and correct backwards for only a 20-percent recovery factor, this comes up to an areal extent of 22 acres, which will be drained by this well.

Q. Now, when we consider the distance between the Pardue Well and the closest offsetting well operated by Bird Creek, if this calculation is correct and the Pardue Well will drain 22 acres, would that drainage radius have any impact on the offsetting Bird Creek well?

A. Very little.

Q. And that Bird Creek well would be which one?

A. It would be the Teledyne Number 1.

Q. Now, when we go through this calculation, I want to be sure we've got the basis for these factors. The A stands for the area of drainage?

A. That's correct.

Q. That's based on the range of drainage areas for Delaware wells in the area?

A. Yes, sir.

Q. And because the wells in this area perform in a better-than-average capacity, you have taken a larger area factor here?

A. No, sir, that's not correct.

Q. Okay, explain that.

A. The wells in this area are better than average. That's why we chose the upper end of the recovery factors.

Q. All right.

A. The recovery factor is inversely proportional to the areal extent.

Q. Okay. Now, if we take the other, the 53 feet, the 16-percent porosity, the oil-water saturation, those figures simply come off log calculations --

A. That is correct.

Q. -- is that right?

A. Yes, sir.

Q. And so by taking these figures, plugging them into the formula, you then come up with a drainage area of 22 acres?

A. That is correct.

Q. Where did you get the 150,000 barrels of oil?

A. That was from the decline-curve analysis on the well down in Section 23 that was previously entered in the testimony at the hearing.

Q. Is this the figure that both parties stipulated was an accurate estimation at the March hearing?

A. Yes, it was.

MS. AUBREY: Excuse me, Mr. LeMay. I'd like to enter an objection here. I don't believe there were any stipulations made at the Examiner Hearing.

As Mr. Carr has pointed out, you have incorporated so I don't think it's necessary for him to characterize it.

MR. CARR: All right. We can change the question at that point, but in response I would direct the Division's attention to page 43 of the transcript of the Examiner Hearing.

CHAIRMAN LEMAY: The Commission will take that under advisement and look at page 43. Meanwhile, if there's no stipulations, you might rephrase the question as to the intent.

Q. (By Mr. Carr) Simply, the question was, where did you get the 150,000-barrel figure?

A. Decline-curve analysis.

Q. In your opinion, will continued operation of the Pardue Number 1 -- or "C" Number 1 Well -- under the previous Order impair the correlative rights of Bird Creek?

A. No, sir.

Q. And why is that?

A. We feel as if the penalty that was placed upon us in that hearing was substantial and severe to BTA, to where it would make an inequitable situation.

Q. Do you believe that there is going to be drainage under this penalty from the Teledyne tract to the Pardue Well?

A. No, sir.

Q. In your opinion, would affirming the Examiner Order and continuing the present penalty be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir, I do.

Q. Were Exhibits 6 and 7 prepared by you?

A. Yes, sir.

Q. Do you have anything further to add to your testimony?

A. No, sir.

MR. CARR: At this time, may it please the Commission, I would move the admission of BTA Exhibits 6 and 7.

CHAIRMAN LEMAY: Without objection, Exhibits 6 and 7 will be admitted into the record.

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

CHAIRMAN LEMAY: Miss Aubrey?

CROSS-EXAMINATION

BY MS. AUBREY:

Q. Good morning, Mr. Wilkinson.

A. Good morning.

Q. I believe you just testified that in your opinion, affirming the Examiner Order will protect correlative rights; is that correct?

A. That is correct.

Q. Will it protect BTA's correlative rights?

A. Yes, ma'am.

Q. So BTA is willing to accept a penalty of some sort against the production from the Number 1 Well; is

that right?

A. Yes, ma'am. We feel as if the penalty that was imposed at the previous hearing is adequate.

Q. And what is your understanding, Mr. Wilkinson, of what that penalty is designed to do?

A. The penalty is designed to allow Bird Creek to produce -- or allow BTA to underproduce their well to an amount of 12,225 barrels of oil, thus allowing Bird Creek an advantage.

Q. And why is that, Mr. Wilkinson?

A. Because we're producing our well at less than top allowable when the well is capable of producing top allowable.

Q. And I believe you just testified that in your opinion, your well drains 20 to 22 acres?

A. Twenty-two acres, yes, ma'am.

Q. And you're aware that the wells are spaced on 40's is that right?

A. That is correct.

Q. Are you assuming radial drainage in your analysis?

A. We have done no radial-drainage calculations.

Q. For the purposes of your testimony today, are you assuming a 20-acre circle around your wellbore?

A. Well, I don't know what a 20-acre circle is.

Q. Where do you think your oil is coming from, Mr. Wilkinson?

A. From the Delaware Formation.

Q. And specifically where in Section 11 is it coming from?

A. It's coming from the 40-acre tract surrounding our well.

Q. Completely within that 40-acre tract?

A. We feel as if the majority of it is, yes.

Q. Well, if it's only draining 20 acres, and you've got a 40-acre tract, it seems that there is some area out in your 40 that doesn't have any oil in it; is that right?

A. No, ma'am, there's an area within the 40 acres that probably will not be drained.

Q. So you're going to leave some oil in the ground?

A. That is quite possible.

Q. Are you asking this Commission to respace this pool on 20's?

A. No, ma'am, we are not.

Q. Why not?

A. First off, we couldn't drill in the center of the location -- this quarter section -- anyway, so therefore we're limited. We could not drill another

well in the northern portion of this 40-acre tract. We're not asking for that.

Q. Now, you -- So I understand you correctly, you believe that your 20 acres of oil is entirely within your 40-acre proration unit; is that correct?

A. The vast majority of it, yes, ma'am.

Q. So why -- And Bird Creek has the proration unit to the south; is that correct?

A. That's correct.

Q. Well, then, why are you willing to accept any penalty at all, Mr. Wilkinson?

A. We drilled this well knowing that we had an acceptable -- to BTA, at least -- acceptable Order established by the Oil Conservation Division, and we felt as if within the guidelines of their ruling that we could drill an economical well, and we were acceptable to drill this well per their Order.

Q. But you don't think you're draining BTA's -- or Bird Creek's -- oil at all, do you?

A. We said very little.

Q. How much is that?

A. I have no exact calculations, because we have done no radial-drainage calculations.

Q. You're an engineer, aren't you?

A. Yes, ma'am.

Q. Is that something you do in your profession as an engineer?

A. Yes, ma'am.

Q. So you can't tell the Commission how many barrels you believe you will drain from the Bird Creek acreage?

A. Based on previous testimony which has been entered into in this hearing, we believe it was approximately the 12,000 barrels that we were penalized.

Q. So part of your 20 acres of oil, 12,000-some-odd barrels according to your view of things, is over in Bird Creek's territory, right?

A. That is possible.

A. Do you think that's true?

A. In my best opinion, I don't know.

Q. You don't know how many acres. Could it be more?

A. It possibly could be.

Q. How do we find that out, Mr. Wilkinson?

A. It would be nice to have some core data.

Q. Do we have that?

A. No, ma'am, we do not.

Q. Your well is completed, isn't it?

A. That is correct.

Q. It's producing, isn't it?
A. That is correct.
Q. Have you cored it?
A. No, ma'am.
Q. Why not?
A. Economic considerations.
Q. How much is the cost to core the well?
A. To core that well, approximately, would cost us in the $30,000 to $40,000 range.
Q. And what would a core tell you? Would it tell you about porosity?
A. Yes, ma'am.
Q. Would it tell you about permeability?
A. Yes, ma'am.
Q. Would it give you something on which to base your estimate of a 20-acre drainage?
A. It would give you one more tool under which you could make some estimations of radial drainage, yes.
Q. Now, your claim is that it's not economic to do that; is that right?
A. I did not say it was not economic. I said economic -- just considerations.
Q. Well, what are those, sir?
A. Economic considerations are, will our

management allow us to gather this information by utilizing core analysis? The answer to that is no.

Q. And why is that?

A. Economic considerations.

Q. Well, we seem to be going --

A. We try to drill wells and make the most economical situation and completions for our management, and that is our job solely.

Q. So it wasn't your decision not to core the well?

A. It was not.

Q. If you had your choice, you'd core it?

A. If I had my choice, I might core it, possibly.

Q. Now, when was this well completed?

A. It was completed May the 18th, 1990.

Q. And when did you commence drilling it?

A. I don't have that date. It would be approximately 10 days to two weeks prior to that point.

Q. So, say around May 2nd; is that right?

A. I don't have the exact date of the spud. I believe that is a matter of public knowledge.

Q. Now, you testified that you felt when you drilled this well that it was a better-than-normal Delaware well; is that correct?

A. Yes, ma'am, I believe everyone considers that to be the case with this reservoir.

Q. And you believe that to be true of the entire East Loving-Delaware Pool?

A. Yes, ma'am.

Q. But this is not a standard Delaware pool?

A. In my opinion, I have not run across another Delaware pool in this portion of the area that is equal to this particular pay zone.

Q. It's better, isn't it?

A. In my opinion, yes.

Q. And you believed that at the time of the Examiner Hearing, didn't you?

A. Yes, ma'am, we did.

Q. Do you agree with Mr. Logan's testimony that he didn't know whether or not this was going to be a regular old, standard, garden-variety Delaware pool or a better-than-average pool?

MR. CARR: I would object to the characterization of the testimony. I don't believe Miss Aubrey can find regular old, garden-type Delaware pools in that transcript, and if we're to play this game I don't want those characterizations in the record.

MS. AUBREY: It may be on page 43, Bill.

MR. CARR: Again, it's not on page 43.

CHAIRMAN LEMAY: Well, recognizing this is semi-arid climate, we don't expect gardens out in the oil patch, but there may be other descriptive terminology you might use to try and describe the character of this pool.

MS. AUBREY: Mr. LeMay, I'll refer the witness to the record and try to read Mr. Logan's direct testimony directly to him; how would that be?

Q. (By Ms. Aubrey) Now, Mr. Logan is with your same company, right?

A. Yes, ma'am.

Q. He's an engineer?

A. That is correct.

Q. You are -- I believe said earlier that you -- Well, let me ask you. Do you stand behind all of his testimony?

A. Yes, ma'am, we do.

Q. Do you personally as a witness?

A. I personally, to my knowledge of everything that was contained in the initial hearing on BTA's behalf, do believe in it, yes, ma'am.

Q. Okay. And you would testify the same way if the same questions were asked to you?

A. Possibly. I probably won't give you the

exact same answers. As we all know, engineering is not an exact science.

Q. Uh-huh. That's the whole point here, isn't it, Mr. Wilkinson?

A. I believe so.

Q. Do you have a copy of the transcript?

A. I'm obtaining one right now.

Q. Oh, okay, good. On page 22, Mr. Logan testified at lines 21 to 25 that the average Delaware well would not be an economic venture for BTA. Do you agree with that?

A. I certainly agree with that.

Q. And Mr. Logan testified on pages 26 through 28 -- You can take a minute and look at that if you want --

A. Where would you like me to start?

Q. Let's start you on the bottom of page 26, that if this were an average Delaware field, it would be a marginal deal; is that correct?

A. If it was marginal -- an average Delaware field, yes, it would be a marginal venture for BTA.

Q. And how many -- Just for an average Delaware field, how many barrels would you assign to that well's recoverable oil?

A. Well, there's a range.

Q. Well, can you give me --

A. Would you like a range, or would you like a --

Q. Sure.

A. -- an average to the best of my ability?

Q. Why don't you give me both?

A. A range -- I believe this will be on the high end -- of 150,000. There's some that are a little deeper that do produce more reserves. There's some we feel as if make as many as 200,000 barrels. But there are many, many wells in the Delaware, throughout this portion of the country that make anywhere from 5000 to 20,000 barrels. We feel as if an average Delaware well would be in the range of 50,000 barrels of oil.

Q. Now, when you all decided to drill this well, which did you think you were dealing with? The five to ten or the --

A. No, ma'am, we felt as if we were going to get around the 150,000 barrels or we would not have drilled the well.

Q. And that was assuming no penalty; is that correct?

A. We drilled the well under a standing order that was entered by the Oil Conservation Division and we realized at the time that we drilled the well that

this was in effect, and it is still in effect today, and we are abiding by it.

Q. Let me rephrase my question. I don't think I made it clear. When you first proposed this well before the Examiner Hearing took place --

A. Yes, ma'am.

Q. -- you assumed 150,000 barrels of oil --

A. That is correct.

Q. -- is that correct?

A. That was the number we used in our economic justification.

Q. And in that economic justification, you didn't include any kind of penalty, did you?

A. No, ma'am, not the original, until after we had the hearing first.

Q. So you assumed that you would be producing the allowable of -- the depth-bracket allowable of 142 barrels a day; is that correct?

A. That is correct.

Q. Now, how did your economic analysis change once the Examiner entered his Order and you could only produce 75 barrels a day?

A. It extended our payout approximately from -- These are rough numbers based on today's oil prices of $15 a barrel -- about from 11 months to 25 months. And

25 months is very close to what we consider as one of our economic parameters into deciding whether or not to drill a well. But we did drill the well under those conditions.

Q. So I understand you, one of your economic parameters is the time to payout; is that correct?

A. That is correct.

Q. What are your others?

A. The ultimate return on your investment and your rate of return.

Q. Any others?

A. That is all.

Q. What is your rate of return on this well with the penalty that has been imposed by the Examiner?

A. I do not have that with me, but it was adequate under our guidelines to drill the well.

Q. Do I recall correctly that it was over or at 100 percent without the penalty? Was that the testimony?

A. I don't understand your question.

Q. And what is your internal rate of return --

A. That's privileged --

Q. -- on this well?

A. -- information.

Q. So you don't intend to tell us what that is;

is that right?

A. No, ma'am, we do not.

Q. In your economic analysis of putting together an AFE for a well -- I'm trying to take you back before the Examiner -- the time of the Examiner Hearing -- do you prepare an AFE?

A. No, ma'am, I do not. That's prepared by our drilling department.

Q. But your company does; is that correct?

A. That is correct.

Q. And into that AFE goes what they believe to be the necessary costs for drilling the well; is that right?

A. That is correct.

Q. Your Mr. Logan testified that it would cost about $70,000 to directionally drill this well. Do you affirm that part of his testimony?

A. Yes, ma'am.

Q. And have you made any review of that number to see whether or not from an economic and reserve-analysis point of view that's a correct number?

A. I have not. Our drilling superintendent provided that to us.

Q. Okay, is your drilling superintendent here today to testify?

A. No, ma'am, he is not.

Q. Was your drilling superintendent at the Examiner Hearing to testify?

A. No, ma'am, he was not. I have worked as a drilling engineer in the past, and I feel as if his numbers are very close to being correct.

Q. But you haven't reviewed them with regard to this particular well in this particular location?

A. Yes, I have looked at his numbers, and I did agree with them. That is the way BTA works. He provides us with an AFE, we look at it. We feel as if it's unreasonable, then we go and discuss this with him.

Q. What was your total AFE cost for this well?

A. The total AFE cost for a straight hole --

Q. This particular well.

A. -- was $450,000.

Q. Are you aware that Bird Creek is producing the -- drilling these same wells for an AFE cost of around $330,000?

A. Well, we have discrepancies in the oil business. I'm sure if it was a larger oil company it would have been even more.

We operate in a very prudent manner. I cannot testify to how Bird Creek drills or completes

wells.

Q. I didn't ask you to, Mr. Wilkinson. I asked if you were aware that their AFE cost on these wells was about $330,000?

A. In the testimony, yes.

Q. Now, by my calculations -- and you correct me if I'm wrong -- $70,000 directional drilling cost, if that's accurate, on a $450,000 AFE is about two percent; isn't that right, Mr. Wilkinson?

A. It would be somewhat less than two percent, yes.

Q. Now, I believe you have testified that -- Let me find your testimony here. There was no way to project the ultimate recovery of reserves when you drilled this well; is that right?

A. Based on the limited data that we had at the time that we initially began this project, there was not.

Q. And it's your testimony that there's no communication between BTA's four wells; is that right?

A. None that we can see at this point in time.

Q. How far are your wells apart?

A. They're based on 40-acre spacing.

Q. How many -- What's the distance between wells?

A. It would be approximately 1320.

Q. Are you closer to the Bird Creek well than you are to any of your other wells?

A. I'd have to scale it off on a map.

Q. Can you do that for me?

A. I don't have a ruler with me.

Q. Okay, let me see if I can give you an exhibit that will help you along on that.

(Off the record)

THE WITNESS: Miss Aubrey, from using a scale? I have a ruler here, and our well between our "C" 1 and our "C" 2 and the distance between our "C" 1 and the Teledyne Number 1, they're within about, it looks to me, 50 feet difference, only.

Q. (By Ms. Aubrey) And which one's farther?

A. I believe ours is about 50 feet further than the Teledyne Number 1.

Q. That's the "C" 2; is that correct? That you're talking about?

A. The "C" 1 to the "C" 2 distance is approximately 50 feet longer than the "C" 1 to the Teledyne.

Q. And the "C" 2 is one of the wells that you've referred to on your Exhibit Number 6; isn't that correct?

A. Yes, ma'am.

Q. Are you aware that that's presently being produced in violation of the Gas/Oil Rules for the East Loving-Delaware Pool?

A. Not in my opinion, it's not. This is a gas/oil ratio that I was given from a well test last week, is 860 cubic feet per barrel.

Q. Are you aware that the "C" 2 does not perform in the same manner as the "C" 1, or the "B" 1, or the "B" 2, that it's a different kind of well?

A. I'm not aware of that.

Q. Okay. Now, what -- The "B" Number 1 Well is located where?

A. Which well?

Q. It's on your Exhibit 6.

A. Which well?

Q. The "B" Number 1.

A. Okay, the "B" Number 1 Well is located to the north of the "C" Number 1 Well.

Q. Let me show you an exhibit so we can get the Commissioners to see some of the relationships here. I'm going to show you what I've marked as Bird Creek Exhibit Number 1.

(Off the record)

Q. (By Ms. Aubrey) Since that is not marked as

an exhibit, sir, I'd like you to take a minute and see whether or not you agree that the wells are correctly spotted there.

A. The BTA wells are correct. I can't really testify as to the accuracy of the Bird Creek.

Q. You haven't made a study of this area sufficient to know whether or not those wells -- well locations are correct?

A. Well, Well Numbers 1 and 2, they're not identified as Teledyne 1, Teledyne 2, RGA 1. May I refer to my map?

Q. You certainly may. Is that a document which is an exhibit?

A. It's a copy of a previous exhibit from the previous hearing.

Q. Let's see, you're looking at Exhibit Number what from the previous hearing? Exhibit Number 1?

A. Yes, ma'am, which is basically just a land plat showing the wells, both by BTA and Bird Creek.

Q. Let me show you this. Is this the one you're looking at?

A. No, ma'am. That was an exhibit prepared for the hearing today, which we have not entered into evidence.

Q. But it is a land map, isn't it?

A. It certainly appears to be, yes.
Q. Does that show the locations of the wells?
A. Yes, ma'am.
Q. And that's an exhibit you have with you?
A. It's not an exhibit we have entered into evidence.
Q. Is it an exhibit you have with you?
A. We do have copies of it, yes.
Q. Now, why don't you show me what you're looking at?
A. I'm looking at basically the same land map with the information that we've written on here as to whether or not we know what the situation, the controls of these wells are.
Q. And is that a document you intend to introduce as an exhibit today?
A. No, ma'am. This is for my own information so that I could get our plats and the location of our wells relative to the quarter-section or the half-section which we operate.
Q. So is the document I'm -- that you're looking at, that I'm holding up, the same one without your handwriting?
A. Yes, ma'am.
Q. Why don't you look at that and see if we've

spotted the wells correctly.

A. To the best of my ability, yes.

Q. Now, I'm not asking you to sponsor this exhibit or agree with it.

A. Certainly.

Q. We've shown, I will tell you a -- We have assumed 40-acre drainage. That's what the circle around these wells is. Do you understand that?

A. Pure radial drainage.

Q. I was trying not to confuse you here. I want to get real clear --

A. This was your circle map you referred to earlier.

Q. And you agree that the wells are correctly spotted; is that correct?

A. To the best of my knowledge, yes. I have not scaled them off, so I can't testify to the accuracy of the map.

Q. Okay, I'm not asking you to. The "B" 1 is your well; is that right?

A. Yes, ma'am.

Q. The "C" 2 is your well; is that right?

A. Yes, ma'am.

Q. The "C" 1 is your well; is that right?

A. Yes, ma'am.

Q. To your knowledge, the wells down in 14 are Bird Creek wells; is that right?

A. To the best of my knowledge.

Q. Is it your opinion that the "C" 1 is draining any of the reserves which are dedicated to the Bird Creek Number 2?

A. The Bird Creek Number 2?

Q. Number 2.

A. No, ma'am.

Q. And you think there's a little bit that you're draining from the Number 1?

A. There might possibly be, yes.

Q. And you might not, right, according to --

A. We might not. We don't know what type of a flow situation we have here.

Q. Why don't you know that, Mr. Wilkinson?

A. We do not have the data available to us.

Q. Have you logged the "C" 1?

A. Yes, ma'am.

Q. Do you have those logs with you today?

A. No, ma'am, I did not bring one.

Q. Why not?

A. I didn't feel as if it was necessary.

Q. That was your decision?

A. Yes, ma'am.

Q. Have you ever shared the logs on this well with anyone?
A. No, ma'am.
Q. Have you filed them with the Commission?
A. I do not know that.
Q. You've made some net pay assumptions in your calculation which I believe is Exhibit Number 7 today?
A. That is correct.
Q. Where did you get the numbers you used for your net pay?
A. Log evaluation.
Q. Of logs that you're not going to show us?
A. That's correct.
Q. Is there any other witness in this room who can testify as to the data on those logs?
A. Possibly.
Q. Who's that?
A. Mr. Logan.
Q. Now, you've also got some porosity and permeability numbers on your Exhibit Number 7; is that right?
A. I have no permeability numbers anywhere.
Q. Porosity numbers, is that correct?
A. That's correct, yes, ma'am.
Q. Where did you get that?

A. Off the log.

Q. And you did not bring that log with you today?

A. No, ma'am, as I said before.

Q. You do not intend to show that log to the Commission?

A. No, ma'am.

Q. Now, what is number B on your Exhibit 7? Assume B equals 1.1. What do we call that?

A. That's your formation volume factor. That's the amount of oil in the reservoir that it takes to make one barrel of oil on the surface.

Q. And what kind of a fluid analysis have you done?

A. This is just a general number that I feel as if is correct for a Delaware well, based on my experience.

Q. So you did not draw this from the actual performance of the "C" 1?

A. No, ma'am. If you'll see there, it says assume Bo equals 1.1. Nowhere in there is it stated that that is an actual number.

Q. What is an actual -- Are there any actual numbers on Exhibit 7?

A. Certainly.

Q. Which ones?

A. The height, the porosity and the water saturation.

Q. Where did you get the water saturation?

A. Log calculations.

Q. From the logs you're not showing us?

A. That's correct.

Q. So we're assuming 20 acres, and we're assuming 1.1; is that right?

A. That is correct.

Q. Could you have done an analysis, a fluid analysis, which would have given you a real number?

A. Yes, we could.

Q. And why didn't you do that, Mr. Wilkinson?

A. We don't feel as if there is any reason to do so.

Q. Don't you think it's important to show this Commission how many acres of drainage your well will actually drain?

A. In my experience in the Delaware Formation, the formation volume factor is in this exact range.

Q. And is that in a regular, average Delaware that well that BTA wouldn't drill, or is that in a Delaware well like the East Loving-Delaware Pool that we're dealing with today?

A. Those numbers were obtained from published literature.

Q. Did you not understand my question, Mr. Wilkinson?

A. I do not know the exact producing capacity or the recovery factors of the fields that were in this published literature.

Q. Well, I want to be sure I understand this correctly. Your 1.1 number here is from published literature?

A. Yes, ma'am.

Q. You do not know whether it's from published literature talking about what you and Mr. Logan have described as average Delaware wells, or whether it is from what we have all agreed here are better-than-average different Delaware wells; is that your testimony?

A. Yes. If --

Q. Thank you.

A. -- you used a formation volume factor of 1.2, for instance, you're only talking about less than a ten-percent change of your oil in place.

Q. Mr. Wilkinson, this is not the usual situation, is it, where we have a well that hasn't been drilled?

A. It is not.

Q. We know -- could know a lot about this well, couldn't we?

A. In reference to what?

Q. In reference to the area that it would drain?

A. No, ma'am. It's of too limited production at this point in time to make any estimations of what the actual recovery will be.

Q. In reference to the number of feet of net pay?

A. No, that is an actual number.

Q. Again from the logs that you did not bring?

A. That is correct.

Q. Is this an economic well for BTA at the -- with the situation we have now with the penalty, where you --

A. Under the current Order, it is an economic situation.

Q. Would you tell me what that economic range is, then, from being penalized the way you are, if you're penalized only producing 75 barrels a day for six months, and how you analyzed it at the front end before you drilled it? What's that range?

A. It extended the payout, as I previously testified to.

Q. So it's -- it almost -- if I recall your testimony correctly, more than doubled the payout?

A. That's correct, slightly more than doubled.

Q. And is it still your testimony that it wasn't economical to directionally drill this well for $70,000?

A. It was not economically viable to drill a directional well at this location. There are other factors to consider, other than the initial cost of drilling a well.

Q. But it is economical for BTA to double the payout?

A. That is correct.

Q. Now, let me have you look again at what we've marked as Bird Creek Exhibit Number 1, which is a drainage area map prepared by Golden Engineering, which you have in front of you.

If we used your calculations on your Exhibit 7, and these wells were capable of draining only 22 acres, how would you draw these circles?

A. They would be somewhat less than the circles that are on the map.

Q. And so where, for instance, between the "C" 1 and the "B" 1 the 40-acre circles don't overlap, would the 20-acre circles overlap?

A. No, ma'am.
Q. Would there be even more space between them?
A. That's correct.
Q. Would that, then, mean that there was oil underlying the proration unit we're talking about in Section 11 that would be left in the ground?
A. That's correct.
Q. And do you believe that that protects correlative rights, prevents waste and promotes conservation of hydrocarbons?
A. No, ma'am, I do not.
Q. Now, you based your decline-curve analysis on the -- a well down in Section 23; is that right?
A. Yes, ma'am.
Q. Do you have that decline curve for us?
A. I do not have it on my person, no, ma'am.
Q. Why not?
A. We have it here if you would like to look at it.
Q. I would.
A. Okay, I have the curve.
Q. May I have it?
A. Well, certainly.
Q. It's going to be difficult for me to ask any questions about it if I don't.

A. It's going to be kind of hard for both of us to answer questions about it if we don't have it to look at.

MS. AUBREY: With the Commission's permission, I'll stand up here next to the witness so I can look at the copy.

CHAIRMAN LEMAY: Permission granted.

Q. (By Ms. Aubrey) Now, maybe I'd better mark this as Bird Creek Exhibit Number 2, just so we'll all know what we're talking about and the record is straight.

Did you prepare this, sir?

A. Mr. Logan did.

Q. Is Mr. Logan going to testify today?

A. No, Mr. Logan works for me, and I have reviewed his work.

Q. And what factors went into your preparation of this decline curve?

A. These are actual numbers of the production up until September, 1989. At that point in time the well had made approximately 48,000 barrels of oil.

We took the decline curve and extrapolated it at a 20-percent decline rate, which came up with the remaining reserves of 99,000 barrels of oil. You add those to the 48,000 it's previously produced, and you

came up with the ultimate recovery of 147,000 barrels of oil.

Q. And you're -- You told us earlier that your hypothesis was that you'd have about 150?

A. That's correct.

Q. Now, this is on the -- This isn't a decline-curve analysis for the well that we're talking about?

A. No, ma'am. We do not have enough data to identify anything on that.

Q. So this is on the South Culebra Bluff Well which is down in 23; is that right?

A. Yes, ma'am.

Q. What do you know about that well?

A. I know that that -- production curve, and that's all.

Q. Do know how it was completed?

A. No, ma'am, I do not.

MS. AUBREY: May I take this for a moment, Mr. LeMay, and show it to my engineering witness?

CHAIRMAN LEMAY: Yes.

MS. AUBREY: Thank you.

CHAIRMAN LEMAY: Do you have copies of that?

THE WITNESS: No, sir, we just had the one copy.

MR. CARR: I'll be happy to make copies. If

the Commission would like to take a break, I'll be glad to do that.

MS. AUBREY: Perhaps we could do that so I can show it to my witness and the next witness can look at it too.

CHAIRMAN LEMAY: Let's take a ten-minute break and come back. Hopefully, you'll have copies for all of us. There's no copy of that in the previous record, is there, of that decline curve?

MS. AUBREY: No, sir.

CHAIRMAN LEMAY: We'd like to have copies.

(Thereupon, a recess was taken at 10:31 a.m.)

(The following proceedings had at 10:46 a.m.)

CHAIRMAN LEMAY: We shall resume.

Q. (By Ms. Aubrey) Mr. Wilkinson --

A. Yes, ma'am.

Q. -- I want to refer you to what I've marked as Bird Creek Exhibit Number 2 --

A. Okay.

Q. -- which is your production-decline curve.

A. Okay.

Q. And this is for the South Culebra Bluff Number 23; is that right?

A. Yes, ma'am.

Q. Where is this well completed?

A. In the Loving-Delaware East Field.

Q. Which of the four sands?

A. I'm not aware of which sand it's completed in. I'm not aware of more than one sand that is productive.

Q. Which one is that?

A. It's the basal sand right above the top of the Bone Springs, which we refer to as the Loving pay.

Q. I'm sorry, I didn't hear you.

A. We refer to it as the Loving pay. That's BTA's nomenclature.

Q. Have you reviewed the exhibits from the prior hearing?

A. Yes, ma'am, I believe so.

Q. Did you see exhibits in the prior hearing that talked about an A, B and a C and a D sand?

A. They were in there, yes.

Q. Do you agree that there are -- Do you agree with that nomenclature?

A. Well, everyone has their own nomenclature, yes.

Q. So if we assume that there are, in fact, four sands, A, B, C and D, and that the D is the lowest, are you then -- Is it your testimony that the South Culebra Bluff Number 23 is completed in the D?

A. I have no knowledge of which sand the well is completed in.

Q. Do you know how many sands it's completed in?

A. No, ma'am, I do not.

Q. Do you know whether it's completed in one or more?

A. No, ma'am, I do not.

Q. Okay. Where is your "C" Number 1 completed?

A. What we call the Loving pay.

Q. And would that be the A, B, C or D?

A. Under the nomenclature you previously stated, it would be the D.

Q. It's not completed in the C?

A. No, ma'am.

Q. Or the A or B?

A. No, ma'am.

Q. Do you believe those are productive in that well?

A. We do not have any basis to say they are productive or not productive.

Q. What do your logs show, Mr. Wilkinson?

A. Log calculations would indicate that they would be productive.

Q. Do you intend to recomplete the wells in those sands?

A. Possibly we'll test them, eventually, when this zone depletes.

Q. Do you have any --

A. I only make recommendations; I do not make decisions.

Q. You make engineering assumptions and give engineering opinions, though; is that correct?

A. That is correct.

Q. Is it your engineering opinion that the C and the D are sufficiently separated that you are not producing from the C in your well?

A. That is correct.

Q. So your -- I just want to be sure I understand this. Your projection of recoverable reserves of 150,000 barrels is only from the D sand; is that right?

A. Yes, ma'am.

Q. Have you made any estimates of what this well would produce from the A, B and C?

A. No, ma'am. We do not know that those zones are productive.

Q. What do your logs show?

A. Log calculations indicate they would be productive.

Q. What kind of porosity does your log show in

the -- Let's start with the C.

A. I don't have a log in front of me, so I cannot testify to that number, to be exact.

Q. And so your 53 feet of net pay is only for the D sand; is that right?

A. That is correct.

Q. How many feet of net pay do you have, according to your logs, in the C sand?

A. I do not have that number in front of me.

Q. Do you know whether or not you gained or lost net pay in the D sand by moving your location where you did?

A. Based on our maps, we believe that we lost pay by moving to where we did.

Q. And are those are maps based on your logs?

A. That is correct.

Q. And you don't have the logs?

A. No, ma'am, we do not.

Q. What do you think about the C sand, Mr. Wilkinson? Did you gain or lose net pay?

A. I don't have those numbers.

Q. Is it your testimony today that BTA has not looked at the C sand as a productive zone in this wellbore?

A. We have done log calculations solely on it.

Q. Do you have a fluid analysis on your "B" 1 or your "B" 2 well?

A. No, ma'am.

Q. Have you done a fluid analysis on your "B" 1 or your "B" 2 well?

A. No, ma'am.

Q. What about the "C" 2?

A. No, ma'am.

Q. You haven't performed a fluid analysis on any of these wells which you believe to be in this better-than-average Delaware pool?

A. No, we have not.

Q. Have you done -- performed any tests from which we could do a calculation, such as you have done for us on Exhibit Number 7, using actual numbers.

A. No, ma'am. As far as the formation volume factor, no, we have not.

Q. What would be -- In your view, what would be the number of acres that this well could drain, your "C" Number 1 could drain, if in fact the formation volume factor were 1.5?

A. I've never experienced a 1.5 formation volume factor in the Delaware.

Q. In which Delaware?

A. In any Delaware sand that I have been

personally involved with.

Q. And have you been personally involved with this particular Delaware sand before?

A. No, ma'am.

Q. So you have no knowledge and can't help us out on that at all?

A. All I have is what's based on literature.

Q. And you don't know whether that literature refers to the average Delaware pool or to this particular --

A. It does not --

Q. -- Delaware pool?

A. -- refer to this particular field, no, it does not.

Q. It does not. You know that it does not; is that correct?

A. That is correct.

Q. How is Exhibit 7 helpful to us, then, Mr. Wilkinson?

A. Exhibit 7 is just a volumetric calculation of --

Q. Based --

A. -- the one place that we -- to the best of our ability, under our tract.

Q. But you know that this isn't an average

Delaware sand, don't you?

A. It's above average, yes.

Q. And you know, and I believe you've told us today, that you were using a calculation which you know is based on the average Delaware sand; is that correct?

A. I only assumed a formation volume factor. That is the only thing that I have assumed in this calculation. The other data is accurate data from log analysis.

Q. Now, the formation volume factor affects how many net acres you come out with, doesn't it?

A. It would.

Q. Okay. Now, if that number gets bigger, what happens to the number of acres?

A. They get bigger.

Q. Huh. Mr. Wilkinson, what do you -- As an engineer, do you believe that a recovery factor, say in the neighborhood of 29 to 30 percent, would be fair for this particular Delaware sand in which your well is completed?

A. I do not.

Q. Do you believe that's too high?

A. Yes, ma'am, I do.

Q. And where did you get the 20-percent recovery factor that -- You've done that on the little

calculations --

A. Based on an experience basis, based totally on my experience as an engineer.

Q. In what --

A. In Delaware fields throughout southeastern New Mexico and Texas.

Q. Delaware fields such as this one?

A. Such as this one.

Q. Above-average Delaware fields?

A. I have looked at quite a few above-average Delaware fields, yes, ma'am, and the ones that are above average, the recovery factors we feel as if are in the 20- to 22-percent range. The poorer ones are in the 9- to 10-percent range. And based on what we felt like -- This field was a good field -- we felt as if the recovery factors would be higher.

Q. And you think 30 percent would be too high; is that right?

A. Absolutely, I believe it would be too high.

Q. Now, on your decline-curve analysis, which is -- we've referred to as Bird Creek Number 2 -- which was prepared by your Mr. Logan, you show a 20-percent decline curve; is that right?

A. That's correct.

Q. But you don't know from which of the four --

in which of the four sands this well is completed?

A. No, ma'am.

Q. Or how many of the four?

A. All I know is this well is completed --

MR. CARR: Objection --

THE WITNESS: -- in the Loving pay.

MR. CARR: -- I think these questions have been asked and answered over and over again, how many sands this well has been completed in, and our witness has testified he doesn't know, he doesn't know if there's more than one, and I object. The testimony is repetitive.

CHAIRMAN LEMAY: It occurs to me we're getting repetitive in this. I've heard these questions asked before and answered, and I --

MS. AUBREY: I'll be happy --

CHAIRMAN LEMAY: I don't know what you're trying to do.

MS. AUBREY: I'll be happy to move on, Mr. Lemay.

Q. (By Ms. Aubrey) And based on this, you calculate 147,000 barrels of oil as recoverable reserves attributable to the South Culebra Bluff Number 1 -- I mean Number 23.

A. 23, Number 1, yes.

Q. Okay. I know you told us -- And I'm not trying to be repetitive here -- I know you've told us that you don't have your logs, but do you know of your own knowledge what the perforated interval in the "C" Number 1 is?

A. No, ma'am. These 53 feet are based on net pay. It's not the gross perforated interval.

Q. And my question is, do you know what that is?

A. No, ma'am, I do not have that with me.

Q. Is it here in the room?

A. Yes, ma'am. The gross perforated interval is 6041 to 6114.

Q. That's 6041 to 6114; is that right?

A. That's correct; 73 feet, to the best of my knowledge.

Q. Seventy-three feet?

A. That's correct.

Q. I thought you said it was 53 feet.

A. Fifty-three feet is a net pay; 73 feet is a gross pay. Not all the zone within the Loving pay is felt to be productive.

Q. Now, on what basis do you throw --

A. Log analysis.

Q. Let me finish my question, Mr. Wilkinson, and then I won't have to repeat it and I won't get yelled

at.

On what do you base -- What criteria do you use to throw that 20 feet out?

A. Porosity less than 10 percent.

Q. Have you done any -- Do you have an opinion as to the permeability of this Delaware sand?

A. My only opinion is a non-exact nature. I believe it's a tight Delaware sand, because the wells are nonproductive until they're fracture-stimulated.

Q. Okay. Can you -- For purposes of your testimony today, can you put that into millidarcies for me?

A. No, ma'am, I cannot.

Q. Can you give me a range?

A. No, ma'am, I cannot.

Q. Do you know what range of permeability Mr. Logan assumed in his testimony?

A. No, ma'am, I'm not aware of that.

Q. Would you agree with me that a tight sand would be in the area of 5 to 10 millidarcies?

A. No, I certainly would not.

Q. Okay, what -- can you -- What would you call tight?

A. I would think less tight would be .1 millidarcies to 3 to 4 to 5 millidarcies.

Q. .1 to 5 would be your range?
A. To 5, yes.
Q. Okay.
A. I have no exact numbers on this reservoir.
Q. Is that something you can tell from your logs?
A. No, ma'am, it is not.
MS. AUBREY: Okay. May I have a moment, Mr. Lemay?
CHAIRMAN LEMAY: Yes.
(Off the record)
Q. (By Ms. Aubrey) Let me ask you a couple more questions. Are any of the BTA wells on top?
A. No, ma'am, they're not. They're all flow-ins that you see on Exhibit Number 6. It shows a flowing tubing pressure and a choke size. Those are not indicative of artificial lift.
Q. Mr. Wilkinson, do you know who the working-interest owners in your proration unit are?
A. BTA Oil Producers.
Q. Do you know what the railroad's interest in this unit is?
A. No, ma'am, I do not.
Q. There's a railroad right-of-way in your proration unit, isn't there?

A. I believe -- Yes, ma'am.
Q. Did you select the location at which this well was drilled?
A. No, ma'am, I did not.
Q. Who did that?
A. Our drilling superintendent.
Q. And what's his name?
A. Bud Johnson. I did personally inspect the site.
Q. So you've been on the ground?
A. Yes, ma'am, I have.
Q. Were you involved in the drilling completion of your "B" Number 1 Well?
A. In making a recommendation to management to drill the well, yes, I was.
Q. And that -- You show that on our Exhibit Number 1; is that correct?
A. Yes, ma'am.
Q. And that's correctly located; is that your testimony?
A. I cannot testify to the accuracy of your exhibits. That would be ludicrous.
Q. No, I don't want you to do that, Mr. Wilkinson. You looked at the little exhibit up there that you haven't introduced, and I believe you

testified earlier that from looking at your own map and looking at this map the well is correctly located. If you can't --

A. To the best of my ability.

Q. I won't say one more question, because lawyers always say that and then go on for an hour, but where is the bottom-hole -- the exact bottom-hole location of the "C" Number 1 as completed?

A. We do not have this information. We did not run a directional survey.

Q. You don't know where your well -- your bottom-hole location is?

A. No, ma'am. Based on the deviation surveys that were run in the well, they are within the limits of our proration unit.

Q. So you know you're in your proration unit, huh?

A. That's correct.

Q. Do you know whether --

A. You can take the angles of deviation and add them up, and you'll get to where the well is still on our proration unit. Exact location of which way the well went, we do not have this information. We did not run a deviational survey.

Q. So you don't know whether it drifted to the

north or to the south?

A. No, ma'am, we do not.

MS. AUBREY: That's all I have, Mr. Wilkinson. Thank you.

CHAIRMAN LEMAY: Additional questions of the witness?

MR. CARR: I have no further questions.

COMMISSIONER WEISS: Yes, I have one.

CHAIRMAN LEMAY: Commissioner Weiss?

EXAMINATION

BY COMMISSIONER WEISS:

Q. Is this reservoir contiguous, or is it a bunch of 20-acre reservoirs?

A. No, sir, it's one contiguous reservoir, in our opinion.

COMMISSIONER WEISS: That's the only question I have.

CHAIRMAN LEMAY: Thank you. I have no questions.

Mr. Carr, redirect?

MR. CARR: We have no redirect and nothing further as part of our direct testimony.

CHAIRMAN LEMAY: Thank you. The witness may be excused.

Miss Aubrey, would you like to present your

case?

MS. AUBREY: Yes, I would, Mr. LeMay, and at this time I'd like to renew my request to be allowed to put on topographic testimony to show the actual number of locations that were available to BTA.

CHAIRMAN LEMAY: Request denied.

MS. AUBREY: And also to present testimony on questions of net pay which this witness has raised.

CHAIRMAN LEMAY: As they pertain to correlative rights, we accept testimony, as to penalty assessment and correlative rights.

MS. AUBREY: But you -- So the record's clear, you will not allow me to put on any testimony with regard to whether or not there were standard locations available to BTA at the time that they made their initial request for an unorthodox location?

CHAIRMAN LEMAY: I think that was clear, that we ruled that the well was drilled under a valid Order and that you had the opportunity to stay the Order, suspend action, which you chose not to do. Therefore the well is a fait accompli, and we will rule on the correlative rights issues, which is our responsibility, yes.

MS. AUBREY: So that I don't do anything wrong here, since there has been some talk about

directional drilling in both -- in cross-examination -- will you permit me to put on a witness as to how much it would cost to have directionally drilled this well?

CHAIRMAN LEMAY: If you can show a correlation between that and the penalty factor in correlative rights without trying to establish a line of argument that would penalize BTA for drilling that location, yes, the Commission is charged with coming up with an order at a de novo.

By incorporating the previous record, we certainly have access to any information on directional drilling. However, I think it's important to establish how that would affect any revised penalty calculation based on drainage/correlative-rights considerations, not necessarily whether BTA had the option to drill another location or not. That's not an issue in the hearing.

The well's already been drilled. I think that was established.

MS. AUBREY: I understand that, Mr. LeMay, and that is established. I'm not trying to belabor this. I just want to be very clear that you are -- you as the Commission are accepting some of the testimony below without allowing me to cross-examine or even put on direct testimony on those issues, and I'm only

allowed to cross-examine on those witnesses that they choose to present today.

I guess I just don't understand how it is that the Commission can adopt the Examiner record in a de novo hearing, and then restrict my ability to put on direct proof.

CHAIRMAN LEMAY: Proof of what? We accept direct proof as it pertains to what we will have to issue an order on. Proof of whether they had other locations to drill is not relevant -- wouldn't help us at all to ascertain what the proper penalty should be. That's the reason.

MS. AUBREY: Well, let me just give you this hypothetical. I'm not saying that we would -- we are making this statement or that we can prove it.

But, for instance, if we were able to show that misstatements of fact were made to the Examiner about whether or not other locations were available and you accepted that, you would certainly have the ability to shut the well in, to refuse to assign an allowable to the well. That's an option you have today.

CHAIRMAN LEMAY: I think what you're saying is that -- whether they lied under oath. If that was the case, that's a separate issue entirely.

But assuming that they were telling the truth

and that the record is truthful in all regards, the Examiner issued a valid ruling which -- an Order which they drilled under.

And now we have a matter of fact here of a well correctly -- I mean, correctly in the sense of being drilled under a proper jurisdiction of the Division -- and now we have a correlative-rights issue as to what the proper penalty should be.

Any other testimony would be irrelevant as to whether they had other locations to drill, because the well's drilled already.

MS. AUBREY: Well, Mr. LeMay, how is Bird Creek to show that they lied under oath -- if that's what they did, if that's what we believe they did -- how are we to show that without being allowed to put on the testimony?

CHAIRMAN LEMAY: Mr. Carr?

MR. CARR: Do that from cross-examination, just like I intend to do if they lie today to you. At the time of the hearing.

MS. AUBREY: Well --

MR. CARR: And then you get an order and you go forward with it. And if you want to stay it, you try and stay it.

But we're here before you. The question

isn't whether directional drilling, $70,000 versus $30,000, is relevant to whether they decided to drill. Well, they did drill the well. That was a factor. It's done.

The question is, is there drainage that you need to act to offset the penalty?

MR. STOVALL: Mr. Chairman, if I might offer to redirect the focus of why you made your decision initially, the issue raised at the initial hearing and here is with respect to Bird Creek's correlative rights.

I assume the objection is based upon their belief that their correlative rights may be violated as a result of this well being located where it is and producing at a given rate.

I think -- Your underlying determination with respect to location has to do with the fact that because the well was validly drilled under a Division Order, waste could occur as the result of not allowing BTA to produce the well, and correlative rights can be effectively protected by imposing a proper production restriction on that well in order to protect Bird Creek's resources based upon its location.

And I think that's -- If I understand the Chairman correctly, that is the focus of what the

Commission is looking at today.

CHAIRMAN LEMAY: Well, the Commission has granted unorthodox locations, many, many unorthodox locations, for a variety of reasons. It could be geological. They might choose to just drill this location without having to drill it -- or without having to deviate it.

Once they drill it -- or before they drill it, actually -- a penalty is usually assessed with -- once they crowd a neighbor. That penalty can be argued, which we're doing here today.

The fact that they had other locations isn't truly a consideration, especially of this hearing. There's no reason -- I mean, we've granted in the past, as you're well familiar, unorthodox locations based on geology alone.

But we do render opinions, and we do render findings and an Order, based on the correlative rights of the various parties, and that's what we're here to hear, not to necessarily rehash whether they had other options available which they chose not to exercise.

MS. AUBREY: Well, Mr. LeMay, my point is that Mr. Carr suggests that I get to this through cross. He is not calling any witnesses that I can cross-examine who testified before. So I can't cross

anyone.

Mr. Wilkinson did not testify previously. He did not testify at the Examiner Hearing. So -- And Mr. Carr has elected not to call those witnesses --

CHAIRMAN LEMAY: Mr. Carr?

MS. AUBREY: -- so I can't get to it through cross.

MR. CARR: I have three witnesses, Mr. LeMay, that have presented testimony in these two proceedings. Mr. Logan and Mr. Hair testified at the Examiner level, and an attorney from the Kellahin firm cross-examined them.

Today, because they were going to talk about geology and the surface location, I didn't call them. I called Mr. Wilkinson. He has been cross-examined. Every word of testimony BTA has presented has been subject to cross-examination.

Without a valid order, we've acted on it, and it seems to me that there is a time to go on and go forward. And the question now is, does this location impair their correlative rights? It's a correlative-rights/drainage question. Every bit of testimony has been subject to cross.

CHAIRMAN LEMAY: Miss Aubrey, BTA is not required to put on witnesses that you can cross-

examine. Those that they do put on are subject to cross-examination.

You're perfectly free to make the case, and I hope you do, that a different penalty should be applicable in this case. But that's your responsibility.

MS. AUBREY: Well, I understand that, Mr. LeMay. My understanding is that they have a burden of proof here, that it's the same burden of proof they had below, that this is a de novo hearing, not an appeal. And I will proceed as you direct me to proceed.

CHAIRMAN LEMAY: Yes, and the record has been incorporated, the record of the previous hearing has been incorporated, and the Commissioners will take that into account in rendering their decision on this case.

So you may proceed.

MS. AUBREY: Thank you.

MR. STOVALL: Mr. Chairman, may I ask Miss Aubrey a question relating to a statement that she made a moment ago?

CHAIRMAN LEMAY: Yes, Mr. Stovall.

MR. STOVALL: Miss Aubrey, you intimated, you stated that you believed the BTA witnesses made incorrect statements when called. Are you stating that you believe they perjured themselves?

MS. AUBREY: Well, Mr. Stovall, I don't think it's up to me to characterize that. I think it's simply an -- I have the obligation on behalf of my client to present testimony, and I'm prepared to do that today, and support my statements that there are at least two locations that could have been drilled, that one of those locations is entirely out of the floodplain, that the location which they chose for the "B" Number 1 Well is in the floodplain, that the reasons that they gave to the Examiner for choosing their location are not supported by the topography.

They have said it's not geology; it's topography. I mean, we all know that you can't just get an unorthodox location --

MR. STOVALL: I'm asking you --

MS. AUBREY: -- we know --

MR. STOVALL: Miss Aubrey, I asked you if you're stating that they perjured themselves --

MS. AUBREY: I am not --

MR. STOVALL: -- that was my question.

MS. AUBREY: I'm not stating that they perjured themselves. I'm stating, and I have stated, and I will state again, that I believe they misstated the facts to the Examiner. I am not stating that they did that intentionally.

MR. STOVALL: I just wanted to get that clear. I have nothing further on that.

CHAIRMAN LEMAY: Okay. You may continue, Miss Aubrey.

MS. AUBREY: Thank you. Call Larry Robinette.

LAWRENCE W. ROBINETTE,

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

EXAMINATION

BY MS. AUBREY:

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

A. Lawrence W. Robinette.

Q. And what's your occupation, Mr. Robinette?

A. I'm -- work as a land-management consultant, basically as a land manager for Bird Creek Resources.

Q. And have you testified previously between the -- before the New Mexico Oil Conservation Division and had your qualifications as a land made made a matter -- landman made a matter of record?

A. Yes, I have.

MS. AUBREY: Mr. LeMay, I tender Mr. Robinette as an expert in petroleum land title.

CHAIRMAN LEMAY: His qualifications are

acceptable.

MS. AUBREY: Thank you.

Q. (By Ms. Aubrey) So that we can move this along, Mr. Robinette, would you just briefly describe Bird Creek's involvement in Section 14, in the well south of the well we're talking about here today?

A. Yes, basically we acquired the interest, we purchased the interest of Texaco in a gas well called the Carrasco Comm and subsequently acquired a farmout from Amoco Production, which gave us approximately 67-plus percent of the interest in the west half of Section 14 insofar as it covers from the surface to the base of the Delaware.

Of course, in the case of the Texaco interest we own, you know, down to the total depth of the -- covered by the leases.

Q. And how many wells does Bird Creek have completed and producing in this area?

A. We have six completed and producing in the west half of Section 14. We have one well completed, but it's not on line, Section 15. And we have a well drilling, another well drilling, in the east half of Section 15.

Q. And are all these wells completed or to be completed in the East Loving-Delaware?

A. Yes.

Q. Were -- At the time that Bird Creek acquired its interest, were there other wells -- were there wells producing from the East Loving-Delaware in this area?

A. Yes, the -- particularly the South Culebra Bluff 23-1, down in Section 23, in the south half of 23.

Q. And that's the well we saw the production decline curve on earlier?

A. That's correct.

Q. Are you involved in any way in the decision to drill these wells?

A. You mean as far as towards the location and whatever?

Q. Uh-huh.

A. No, that's decided by the engineers.

Q. Are you involved in the economic analysis of whether or not the wells are economic to drill for Bird Creek?

A. Yes, to some extent. I run some of the calculations regarding economics, but these based on the calculation, the numbers given me by the engineers regarding reserves and so forth.

Q. Have you made a study or an inquiry into the

interests in Section 11?

A. Yes, we're aware that BTA's interests was basically acquired in a farmout agreement with RB Operating and others that -- in which they drilled an Atoka well located approximately -- I don't know the exact location, but approximately the center of the west half of Section 11.

Q. And do you know whether or not the railroad has any interest in Section 11?

A. Yes, it does. It has a railroad right-of-way in there. I'm not sure -- Those minerals, perhaps, at least the royalty, may perhaps be owned by Santa Fe Energy. I'm not sure. Some of the railroad minerals out here are held by Santa Fe Energy. There's some sort of royalty agreement.

Q. Do you know whether or not those have been farmed out to BTA?

A. Yes, I think they were. The -- I think that the railroad had leased and that those leases were acquired by RB, et al. It may been Delta at the time that they were actually acquired, but it ended up in the hands of RB and their partners, RB Operating and their partners.

So the railroad is a -- The railroad and/or Santa Fe Energy is a royalty owner, and the rest of

these minerals, to my knowledge, are all owned by Teledyne, Inc.

Q. The Teledyne, Inc., has an interest in the Bird Creek wells; is that correct?

A. Yes, they are the sole royalty owner in the Bird Creek wells.

Q. With regard to the Teledyne Number 1, which is a Bird Creek well in Section 14, do you know whether or not that well has been completed?

A. Yes, it has.

Q. And do you know when it went on production?

A. No, I don't have the exact date.

Q. Do you know whether or not the logs from that well have been filed with the Commission?

A. If you want the exact date of completion, I have the file with me. I just don't have it in front of me.

Q. Do you know whether or not the logs have been filed with the Commission?

A. Yes, they have.

Q. What about the Teledyne Number 2?

A. Yes, it's also been completed and hooked up.

Q. And do you know if those logs have been filed with the Commission?

A. Yes, they have.

Q. And did you bring them with you today?
A. Yes, I did.
Q. So they're here in this room; is that right?
A. Yes.
Q. But you're a landman, so you can't really tell us about the logs; is that right?
A. That's correct.
Q. Okay. Mr. Robinette, I'm showing you what I've marked as Bird Creek Exhibit Number 3. Could you tell us where you obtained that?
A. Yes, your office obtained it and sent it to me.
Q. And what is it?
A. It's an aerial photograph that shows at least portions of Section 11 and 14. It certainly shows most of the -- It shows all of the southwest quarter of Section 11 and all of the northwest quarter of Section 14.
Q. And that's the area we're talking about today?
A. That's correct. It also shows areas in addition to that, but it does show both of those areas totally.
Q. And can you look at your copy and describe for the Commissioners where the location of the

railroad is from the location of the Pecos River is?

A. Yes, the railroad is -- it runs in that -- in a -- coming in from the -- on the west side, heads in a northeasterly direction, makes a curve and then heads east southeast.

Q. And does the highway -- is there a highway that shows on there?

A. Yes, there is. The highway coming in, again, at the west side, comes basically mostly to the east, dips slightly to the south southeast, and then comes back up slightly to the east northeast.

Q. Are you able, Mr. Robinette, are you able to draw in the 40-acre proration unit that we're talking about for the benefit of the Commission? Would you be able to do that?

A. Yeah -- Well, I have done it on another photograph like this, plotted it out, yes.

Q. Okay. Can you take a pen and do it again for us while you're up there, Mr. Robinette? Is that possible?

A. Yeah, I don't know whether I -- how exact I can be, because I've oriented that -- I had another map in which to orient the exact angles of the roads and so forth.

Q. Let me see if I can find that copy for you.

This was not an exhibit at the Examiner Hearing, was it, Mr. Robinette?

A. Not to my knowledge. I wasn't present at the Examiner Hearing.

Q. Mr. Robinette, I have marked this photocopy as Exhibit 3A, and when we take a lunch break I'll get more copies of it, maybe, if that's acceptable to Counsel and the Commission.

Is this the map on which you located the 40-acre proration unit?

A. That's correct.

Q. Would you be able to take my pen and draw it in on the -- off the photograph?

A. Yes.

Q. Now, do you know where this Exhibit Number 3 was obtained from, Mr. Robinette?

A. No, I don't remember. You had told me, but I don't remember where it was obtained from.

Q. How about if I tell you again?

A. Okay.

Q. Diaz.

A. Okay, fine.

MS. AUBREY: Mr. LeMay, with your permission I will hand you this one copy that has the proration unit actually drawn on it, and I will get other copies

made during the break of the photograph with the 40-acre proration unit drawn on it.

I have no more questions of Mr. Robinette.

CHAIRMAN LEMAY: Mr. Carr, cross-examination?

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Robinette --

A. Uh-huh.

Q. -- did you -- can you testify as to the accuracy on Exhibit 3A of exactly where you placed the 40-acre tract?

A. Yes, by the scale of the map, and I used the Allen scale, so as far as that is accurate, yes.

Q. And you can testify that you've placed the boundaries of that unit within five feet of where they actually would be?

A. I don't know whether they would be within five feet on a scale this small.

Q. On a scale this small?

A. Yeah, right.

MR. CARR: May it please the Commission, the only comment we would have is that I don't believe Counsel moved the admission of Exhibits 3 and 3A.

When that occurs, we have no objection to their admission if they're used to -- as orientation

plats or to identify the location of the surface of the well.

Beyond that, and also subject to the qualifications that there may be some inaccuracy due to scale.

As to any probative value as to drainage or correlative rights or the other issues before you, we would object to that, although we don't mind if this is used as a general orientation plat for subsequent testimony.

CHAIRMAN LEMAY: Miss Aubrey?

MS. AUBREY: Thank you. I had intended to offer that exhibit through Mr. West who has been on the ground and can testify that this accurately represents the proration unit in question and that he's familiar with the photograph and the USGS -- and has compared it to the USGS map in order to ascertain that it in fact represents the area we're talking about.

CHAIRMAN LEMAY: Do you plan to admit this into evidence, then?

MS. AUBREY: I will move it when I put Mr. West on, yes. Unless you'd rather I do it now. I'd be happy to do it now if you'd like.

CHAIRMAN LEMAY: It's your option.

MS. AUBREY: Okay, thank you.

MR. CARR: We have no further questions.

CHAIRMAN LEMAY: If not, the witness may be excused.

MS. AUBREY: Call John West.

JOHN W. WEST,

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

EXAMINATION

BY MS. AUBREY:

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

A. I'm John W. West.

Q. Mr. West, what's your occupation?

A. Civil engineer and surveyor.

Q. How long have you been a civil engineer and surveyor?

A. Since 1946.

Q. Have you testified previously before the New Mexico Oil Conservation Division or Commission?

A. Yes.

Q. When was that?

A. Many years before any of these gentlemen were here, but about 1955.

Q. Since none of us -- well, none of us who are now here were here then, would you review your

qualifications for the Commission?

A. I graduated from New Mexico University at Albuquerque in 1943 and had worked my way through and asked the board of registration to give me a registration as an engineer upon graduation. And they said, well, you're going into the service; we don't normally make 22-year-old people professional engineers.

I went in the service, came back three years later in 1946, I reapplied, and they granted me the license number 676.

I've been practicing ever since.

Q. And you're currently full-time, working as a full-time engineer and surveyor; is that right?

A. That's right.

MS. AUBREY: Mr. LeMay, I tender Mr. West as a professional engineer.

CHAIRMAN LEMAY: Mr. West's qualifications are certainly well known to the Commission. He is eminently qualified to testify.

MS. AUBREY: Thank you, sir.

Q. (By Ms. Aubrey) Mr. West, we've had some rulings here by the Commission that are going to change the testimony you're prepared to give.

What I'd like you to do at this point is just

briefly tell the Commission what kind of things you looked at and what you reviewed in order to be prepared to testify today.

A. When I was asked to make a survey of the general area of the southeast quarter of the southwest quarter of Section 11, Township 23 South, Range 28 East, to see if in fact there was a place in that 40 that a location that would be at least 330 feet back from the boundary line between Section 11 and Section 14 and would still be on the floodplain, I ran quite an extensive topographic survey in the area and selected a spot that could be drilled 330 --

Q. Mr. West, I'm afraid you're going to get me in trouble here --

A. Okay.

Q. -- if you continue on with this. Can you tell the Commission what kinds of documents you looked at, how many trips you made to the field, how many times you went to the location?

A. Well, we went to the location -- I went two times, had survey crews out there about four days. But basically, we were locating physical things on the ground in that area.

Q. So you're familiar with the area; is that right?

A. Yes, ma'am.

Q. I've marked an exhibit as Exhibit Number 3. I'll show you another copy of it, and there is an exhibit marked as Exhibit 3A there before you. Do you recognize the location of the proration unit that we're talking about, Sections 14 and 11, from these photographs?

A. Let me get myself oriented just slightly. The railroad -- Can I use this one?

Q. Sure.

A. Now I have it correct.

Q. Do those photographs correctly represent the portions of Sections 11 and 14?

A. Yes, ma'am.

MS. AUBREY: Mr. Commissioner, I tender Exhibits 3 and 3A, and I will have additional copies made at the lunch break for Counsel.

CHAIRMAN LEMAY: Are there any objections to Exhibit 3 and 3A being admitted?

MR. CARR: May it please the Commission, we object on relevance grounds if they're used for anything other than general orientation maps showing the area.

CHAIRMAN LEMAY: The exhibits will be entered into the record with the notation of opposing counsel

noted. Thank you.

MS. AUBREY: Mr. Lemay, that's all I have of this witness.

CHAIRMAN LEMAY: Additional questions of the witness? Mr. Carr?

MR. CARR: I have no questions.

CHAIRMAN LEMAY: I have one, Mr. West.

EXAMINATION

BY CHAIRMAN LEMAY:

Q. What's the date of these photographs? Do you know?

A. No, sir, I don't.

Q. Is it possible that they were -- I think there's a notation up there, 1978. Assuming they were flown in 1978, is there a possibility that the drainage could have changed somewhat in the 12 or so years since these photographs were --

A. I wouldn't think so.

Q. -- taken?

A. I was looking at the -- where the -- the highway comes along the section line from the west until it swings south to get at a good position to cross the river, and it crosses the river south of the north line of Section 14, and then the way the river comes through and the way the railroad comes across,

that's what I used for -- to get myself oriented.

Q. Those two items, I would assume, certainly would not change. The drainage of the river, certainly you would not expect it to have changed in the 12 years?

A. No, sir.

CHAIRMAN LEMAY: Thank you very much.

Do you have any questions?

COMMISSIONER WEISS: No.

CHAIRMAN LEMAY: If there are no additional questions of the witness, he may be excused.

THE WITNESS: Thank you, sir.

CHAIRMAN LEMAY: Miss Aubrey?

MS. AUBREY: My direct on my next witness will be lengthy. Perhaps we could take the lunch break now, and I can photocopy Exhibit 3 and 3A for Mr. Carr and for the Commission and we could reconvene. Would that be convenient for the Commission?

I'll be happy to start Mr. Barron now, whatever your pleasure is.

CHAIRMAN LEMAY: Well, if it'll be lengthy -- You anticipate what? Thirty, forty minutes of direct?

MS. AUBREY: I think so. I think so, at least.

CHAIRMAN LEMAY: If you would prefer to keep

that together, I can see that.

Why don't we take a break now and reconvene at one o'clock?

MS. AUBREY: Thank you.

CHAIRMAN LEMAY: Without objection.

MR. CARR: No objection.

(Thereupon, a recess was taken at 11:39 a.m.)

(The following proceedings had at 1:05 p.m.)

CHAIRMAN LEMAY: We shall resume. Miss Aubrey?

MS. AUBREY: Thank you.

ALLEN C. BARRON,

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

EXAMINATION

BY MS. AUBREY:

Q. (By Ms. Aubrey) Would you state your name for the record, please?

A. Yes, my name is Allen C. Barron.

Q. Where are you employed, Mr. Barron?

A. I'm employed by Golden Engineering, Inc., a petroleum consulting firm in Houston, Texas.

Q. Mr. Barron, I'm showing you what I've marked as Bird Creek Exhibit Number 4, which is your résumé. Would you briefly review your professional background

for the Commission?

A. I have a bachelor of science degree in chemical and petroleum engineering from the University of Houston, graduated in 1968.

Went to work for Amoco Production Company in their Gulf Coast Division, involved in well-producing operations for a period of almost four years.

Then employed with Houston Pipeline Company, which was then a division of Houston Natural Gas, now Enron Corporation, as a reservoir engineer in their Gas Reserve Section.

In 1978 I entered the consulting business with a consulting company in Houston, Ralph E. Davis Associates.

I went out on my own with my own practice in 1981 and joined Golden Engineering in 1984.

Q. What professional organizations do you belong to?

A. I'm a Registered Professional Engineer in the State of Texas and am a member of both the Texas and the National Society of Professional Engineers.

I am a member of the Society of Petroleum Engineers and the Society of Petroleum Evaluation Engineers.

I have membership in the American Association

of Petroleum Geologists and several local organizations in the Houston area involved in the oil and gas industry.

Q. Are you here representing Bird Creek Resources?

A. Yes, I am.

Q. Are you familiar with the subject matter of this Application, the unorthodox location that BTA has applied for in Section 11?

A. Yes, I am.

Q. Have you made a study of the area such that you can testify on all engineering issues before this Commission?

A. Yes, I have.

MS. AUBREY: Mr. LeMay, I tender Mr. Barron as an expert in petroleum engineering.

CHAIRMAN LEMAY: His qualifications are acceptable.

Q. (By Ms. Aubrey) Mr. Barron, within the larger field of petroleum engineering, do you have a subspecialty?

A. Yes, I specialize in various areas commonly classified in reservoir engineering.

Q. Mr. Barron, let me start by having you refer to Bird Creek Exhibit Number 1. Now, that's an exhibit

that we've had another witness testify to, and I believe Counsel has a copy of it. Let me show it to you. Did you prepare this exhibit, sir?

A. Yes, this exhibit was prepared by our office.

Q. Before we get into the text of the exhibit, would you describe briefly for the Commission what Golden Engineering does and what services it provides for its clients?

A. Yes. As I said earlier, we're a consulting engineering firm. We provide services both domestically and internationally to the oil and gas business, including furnishing engineering supervision for drilling and well-site supervision, both onshore and offshore.

We also operate properties for clients and handle regulatory matters for them.

We are involved in reservoir-engineering work, analysis, from annual-reserve reports to field studies, enhanced-recovery studies, evaluation of properties for sale and acquisition.

Additionally, we have a portion of our company that is involved in environmental actions, primarily concerned with deep-well injection, hazardous wastes, and surface groundwater studies.

Q. Let me refer you to Exhibit Number 1. Would

you describe for the Commission what data you reviewed in order to have this map prepared?

A. This map was prepared as an example of the base map of the subject area, utilizing the surface locations of the various wells within these sections, surface locations being provided from the drilling applications.

These were entered into a computer mapping system which then translated all that data into a base map for us to work from.

Q. And what kind of computer mapping system is that, Mr. Barron?

A. We use as a primary basis on our system a computer-derived mapping system that is a commercial product generated by Scientific Computer Applications out of Tulsa, Oklahoma. It's integrated with several other computer applications we have, including an AUTOCAD system that allows us to draw maps of this nature.

The circles shown on this map are a result of that system, whereby we are telling it to draw a circle given a certain radius, that circle encompassing 40 acres on the scale of this particular map.

Q. Now, on this map there are circles drawn around the "C" 1, the "B" 1 and the 1 -- the Number 1

Well in Section 15 and the 1 and 2 in Section 14; is that right?

A. That's correct.

Q. And is it your testimony that those circles represent a 40-acre area?

A. Yes, that's correct.

Q. Would you explain to the Commission why you drew that size circle on this map?

A. The 40 acres is an area that we feel represents the effective drainage area of the wells in this producing pool.

Q. And that would be the East Loving-Delaware Pool; is that correct?

A. Yes, that's correct.

Q. Okay. There is a hatched or shaded portion of those circles which runs between "C" 1 and Number 1 and 2 down in Section 11. Can you explain how you drew those?

A. The hashed area would represent the drainage area of the BTA "C" 1 Well, which falls below the dividing line between Sections 11 and 14, and in addition would be above a potential no-flow boundary between the BTA Well Number "C" 1 and the Bird Creek Teledyne 1 Well. So it would represent an area of drainage to the BTA well that would be in Section 14

and nonrecoverable by the Teledyne Number 1 Well.

Q. In drawing this map, in preparing this exhibit, did you assume radial drainage?

A. Yes, we did.

Q. Can you tell me why you did that?

A. We had no additional data, such as core analysis, on which to base any type of a numerical simulation of the reservoir. So in lieu of any additional detailed-type data we did assume radial drainage for the sake of analysis.

Q. In your profession, sir, is it common practice where you have no additional data to make an assumption that the drainage of the well will be radial?

A. Yes, that's correct.

Q. Have you also reviewed the testimony given by BTA at the Examiner Hearing in this matter back in March?

A. Yes.

Q. And have you reviewed the Order authored by the Examiner and entered by the Division in this matter?

A. Yes, I have.

Q. Now, on your Exhibit 1, the -- is the location of the "C" 1 Well the location as it's

actually on the ground?

A. Yes, that's correct.

Q. Now, you don't have a circle drawn around the "C" 2; why is that?

A. I think at the time we did that, it was not one that we were getting into a discussion on drainage or overlap of drainage. We were concerned with the previous hearing involving the "C" 1 Well and the Teledyne 1 Well.

Q. You show an overlap of the circles here between the "C" 1 and the Number 2 Well down in Section 14. Does that allow the Commission to conclude that in your opinion there is some drainage occurring from the "C" 1 of acreage that is dedicated -- or would be drained by the "C" 2 Well? I'm sorry, by the Number 2 Well?

A. Yes, that's correct, from the "C" 1 to the Teledyne Number 2 Well.

Q. So there are two BTA wells that are being affected by the location at which the "C" 1 is drilled; is that correct?

A. Two Bird Creek wells being affected by the location of the "C" 1.

Q. Do you have any other comments you wanted to make about Exhibit Number 1?

A. No.

Q. Mr. Barron, I'm going to hand you what I've marked as Exhibit Number 2, which is labeled "Standard Drainage Area." Did you prepare that exhibit?

A. Yes, I did.

(Off the record)

MS. AUBREY: Mr. LeMay, the witness has just reminded me that we have an Exhibit 2 which is a decline-production curve, I think, from BTA's files.

CHAIRMAN LEMAY: All right.

MS. AUBREY: Let me make this Exhibit Number 5, for the record.

CHAIRMAN LEMAY: Fine.

Q. (By Ms. Aubrey) Exhibit Number 5 again shows the locations of the wells we've discussed; is that correct?

A. Yes, that's correct.

Q. Would you review the information contained on this exhibit that's different from Exhibit Number 1?

A. This exhibit was prepared to show the potential drainage area of the "C" 1 Well, had it been drilled at a standard location, being 330 feet from the south line of Section 11.

Q. Now, that standard location is the closest standard location to Bird Creek's acreage; is that

correct?

A. That's correct.

Q. Now, you've indicated a no-flow boundary on here. Would you explain how that is different from the no-flow boundary shown on Exhibit 1?

A. Yes, the no-flow boundary would be that point equidistant between the two wells. So as the "C" 1 location would be moved from the location at which the well was actually drilled, northerly direction and away from the Teledyne Well to a standard location, the no-flow boundary would move in the same direction to remain equidistant between the two wells.

Q. And again, there are circles on this map. Are those, once again, 40-acre drainage radiuses?

A. Yes, they are.

Q. Did you have any other comments you wanted to make about Exhibit Number 5?

A. No.

Q. Let me ask you, Mr. Barron, do you know whether Bird Creek has been locating its wells in Section 14 at the nearest standard location to the section line, or whether they've been locating them in the center of the quarter-quarter sections?

A. Based upon the information as to the surface locations of the wells, it appears that the wells are

being located as close to the center of the 40-acre proration units as may be possible, given the local topography.

Q. Do you have an opinion as an engineer as to why Bird Creek is doing this? And did you have any involvement in that decision?

A. No, I did not have any.

Q. Do you have an opinion as to whether or not the pool rules which govern the spacing in this pool contemplate the type of performance we're all seeing from these wells?

A. Yes, I would think they should.

Q. I'm showing you Exhibit Number 6, now, which is a net-pay isopach on the C and D sands. Would you explain to the Commission why it is that you've separated those out into two separate sands?

A. Our analysis of the producing formation in this area in the Delaware Pool indicates that the Delaware can best be described by four sand groups, the A, B, C and D sands. And the current grouping in the Delaware, referring to the pool, is the C- and D-sand section.

So we have attempted to map the C and D together, inasmuch as the wells seem to be completed within this same continuous unit in all the wells.

The A and B sands are then mapped separately. And similarly, all have been mapped together as a total Delaware section.

Q. You were present for the earlier testimony of the engineer from BTA about nomenclature of the sands. Can you correlate your nomenclature with his?

A. Based upon the testimony he gave and indications of where his well is completed, it would be my estimation that what we are referring to as the C- and D-sand interval in the Delaware is potentially what he is referring to as the D sand in the Delaware, so it would be simply a nomenclature discrepancy.

Q. And then your A and B sands would be above the C and D?

A. Correct. He indicated they had done log analysis, and I think probably over a similar section that we have, being the entire Delaware section.

Q. Now that we all have Exhibit 6, Mr. Barron, would you review that exhibit for the Examiner?

A. This is an isopach map prepared upon the net-pay interval in the Delaware C and D sections in the area of interest.

Q. And what data did you use to prepare this map?

A. Preparation of this map used log analysis

that -- on approximately 10 wells that we had in our files. In addition, we had information on other wells that we had done some log analysis on, but not quite so rigorously as for this particular hearing.

The log analysis that we did entailed a digitization of approximately 3000 feet of well log -- excuse me, about 300 feet of well log -- and a computer analysis on a half-foot incremental basis on approximately ten wells.

We had log analysis on additional wells in the area that were done by hand, not by computer.

Additionally, we had indications of net pay in certain wells which were supplied to us by Bird Creek.

On those wells supplied to us by Bird Creek and for which we had the logs, following our rigorous determination of net pay, we compared the two to get a consensus opinion between the numbers they were furnishing and what we were able to decipher, such that we had some degree of reliability with numbers they furnished on wells on which we did not have the actual logs.

Q. Did you have available to you the logs on the BTA "C" Number 1 Well when you prepared this map?

A. No, we did not.

Q. Let me refer you to Section 11 on your map and ask you to state the number of feet of net pay and the sand to which you attribute that for the "C" 1, the "B" 1, and the Teledyne 1 and 2 Wells.

A. All right. Based upon our log analysis, we have an indication of approximately 60 feet of net pay in the Teledyne Number 1 Well. The determination of net pay would be that interval in the C and D section as we define it that would have greater than 10 percent porosity and less than 60 percent water saturation.

Using similar cutoffs on the Teledyne Number 2 Well, we estimate that there are 64 feet of net pay.

Based upon an extrapolation method using triangulation, we would anticipate that the "C" 1 Well would have encountered slightly in excess of 60 feet of net pay, and that the "B" 1 Well would have encountered slightly in excess of 50 feet of net pay.

Q. And again, on this Exhibit Number 6 you have drawn circles around the well locations. Are those the 40-acre radial drainage areas that we talked about earlier?

A. Yes, they are.

Q. Do you have any other comments that you would like to make about Exhibit 6?

A. No, not at this time.

Q. Number 7, Mr. Carr.

I've handed you Exhibit Number 7, which is a net-pay isopach on the A, B, C and D zones, Mr. Barron. Did you prepare that?

A. Yes, I did.

Q. And would you review your findings as shown on that exhibit for the Commission?

A. Yes. Again, this map was prepared in the same fashion as the previous exhibit, detailing the net feet of pay, this time being throughout the entire Delaware interval that we have identified as the A, B, C and D zones.

The same criteria for cutoff of net pay was used, that being in excess of 10 percent porosity and less than 60 percent water saturation.

Keeping in mind the numbers offered on the previous exhibit, this would indicate that the A and B zones would contribute significantly to the overall net pay count in the Delaware section, such that the Teledyne 1 is indicated to have a total of 139 feet of pay; the Teledyne 2, 159 feet; the BTA "C" 1 should have encountered in excess of 125 feet; and the BTA "B" 1 Well would have encountered slightly in excess of 100 feet of total net pay.

Again, the drainage areas are indicated on

the map, being the same 40-acre drainage circles.

Q. Is it your opinion, Mr. Barron, that the A, B, C and D sands will be -- all be present in the "C" 1 and the Teledyne Number 1?

A. Yes.

Q. You haven't seen the logs on the "C" 1?

A. That's correct.

Q. Is it your opinion that those four sands will be productive in those two wellbores?

A. Yes, it is.

Q. Is it your opinion that, given the location of the "C" 1 Well, that production which should be produced by the Teledyne Well in the A and B zones will in fact be produced by the "C" 1, given its location?

A. Yes, it should be produced by that well.

Q. So that the BTA well is going to drain Bird Creek, not only in the C sand and the D sand, but also the A and B sand?

A. Yes, that is correct.

Q. Do you know whether or not there are any present plans for Bird Creek to complete its well in the A and B sands?

A. No, I do not know of any plans that they have.

CHAIRMAN LEMAY: Miss Aubrey, I hate to

interrupt. At this point it might be helpful to the Commission if the witness might identify A, B, C and D sands on what I have here as Exhibit Number 4 of the original case.

We find ourselves without a log to correlate a lot of discussion here on A, B, C and D. Is that -- Would that be acceptable, or --

MS. AUBREY: That would be fine with me, Mr. LeMay. In fact, I have some copies of the old BTA exhibit here, and I'd be happy to show them to you.

CHAIRMAN LEMAY: Fine, or if you had your own exhibit, that would be helpful. It's just that it's very hard for us to follow the discussion on A, B, C and D without having a log to refer to.

MS. AUBREY: I understand.

Mr. Barron, I'm marking this as Bird Creek Number 8. It is, in fact, BTA Exhibit Number 4 from the Examiner Hearing, and I believe that the Commission has a copy of it, at least one copy of it up there. Perhaps Mr. Carr has some additional copies.

(Off the record)

MS. AUBREY: Gentlemen, here's an extra copy. I'll look on with the witness, with your permission, and you can have my last copy.

(Off the record)

Q. (By Ms. Aubrey) Mr. Barron, Mr. LeMay has asked that you refer to this exhibit and help us all in locating the A, B, C and D zones on the log shown on BTA's cross-section, A to A prime, from the March hearing. Can you do that for us?

A. Yes, the correlation provided here is a structural correlation hung upon a common datum, indicating certain areas of correlation by the same color, in addition to which they have marked the top of the Delaware pay. This would be the Loving Pool, Delaware Pay section.

Our differentiation in this would be that this entire area on the exhibit shaded in green would be designated as the C and D sands, the top of the C sand being that point where their heavy black line indicates the top of the Delaware pay.

The lowermost section, as indicated on the -- well, I guess log number 2, on the cross-section, at about 6110 feet of log depth would be in the area where we would make a differentiation between the C and D section.

CHAIRMAN LEMAY: Which number are you talking about?

THE WITNESS: The second well log to the cross-section, second well from the left.

CHAIRMAN LEMAY: Number 2?

THE WITNESS: Correct.

CHAIRMAN LEMAY: Okay.

THE WITNESS: So at about -- The BTA producer's "B" Number 1 Well, the Pardue "B" Number 1 Well. So in the neighborhood of about 6110 feet would be a dividing point between the C- and D-sand sections, as we would delineate them.

Above that, within that bracket area where BTA had designated "Loving," would be the A- and B-sand sections of the Delaware.

In this particular well I believe it's proper to say that the A sand would be the top of the Delaware at approximately 5850 feet, and that the B-sand section would be at the top of that correlation point that they had indicated in orange at about 5915 feet.

So in effect, on that particular well we'd be referring to the entire Delaware sequence of sands as being from about 5850 feet down to 6140 feet, or to the top of the Bone Springs.

Again, BTA had indicated -- and I think what they are calling the D in their testimony would be the pool unit itself, so I would not be able to differentiate above that where they might call the A, B and C.

CHAIRMAN LEMAY: Thank you, that's most helpful.

Q. (By Ms. Aubrey) I realize that you didn't prepare that exhibit, Mr. Barron, but based on your observation of those logs, does it appear to you that the A and B sands would be productive in the -- both the Teledyne Number 1 Well and the BTA Number 1 Well?

A. Yes. On the BTA 1 Well, which -- the "B" 1 Well which is on this cross-section, it does appear to be productive.

It appears similarly to be productive on the other well logs contained within this cross-section.

Q. Do you have any other comments you want to make about the logs to the Commission?

A. No.

Q. Mr. Barron, I'm showing you what I've marked as Bird Creek Exhibit Number 9. This is a multi-page exhibit. Can you review that for the Commission and tell the Commission what conclusions you have drawn from this?

A. Yes, the major portion of Exhibit Number 9 is an analysis by Core Laboratories of a fluid sample taken from the Bird Creek Resources Carrasco "14" Number 1 Well in the East Loving-Delaware Field.

This was a sample obtained for the purpose of

a fluid analysis of the producing oil. The analysis --

Q. You've reviewed this and are sure of its accuracy; is that correct? You feel comfortable with this?

A. Yes, I feel comfortable with their analysis.

Q. I'm sorry, I didn't mean to interrupt you.

A. Their analysis of the reservoir fluid is summarized in different places throughout the report itself.

Perhaps on page 2 of 17, which is about the fifth page of the document, it gives a summary of the reservoir fluid PVT data.

Their conclusions was that the reservoir was at an initial pressure of 2858 pounds at 106 degrees fahrenheit, had an initial gas/oil ratio of 1108 cubic feet per barrel, and had a relative oil volume at reservoir conditions of 1.543 barrels of oil per barrel of residual oil at 60 degrees or at surface conditions.

So they determined a formation volume factor for the Delaware oil of 1.543.

In addition, they have viscosity data and a standard presentation of all of their PVT analysis within the remainder of the report.

Q. Now, is the formation volume factor the same number as the -- as Mr. Wilkinson's calculation on

Exhibit 7 where he assumes a 1.1 number? Is that the -- Are we talking about the same number?

A. Yes, the large -- capital B sub o designation for oil formation volume factor would be a standard designation.

Q. Can you explain for the Commission what the difference in those two numbers means?

A. Formation volume factor, as spoken to earlier, is an indication of the shrinkage that will occur in the oil as it changes from reservoir conditions to separator or stock-tank conditions. The higher the number, the indication of the greater amount of shrinkage that's going to occur. The number is in basis on temperature, pressure and the amount of gas contained within the oil under the reservoir conditions.

Q. What magnitude or difference is there between a 1.1 formation volume factor, as shown on BTA's Exhibit Number 7, and the 1.54 formation volume factor that is contained in your Exhibit Number 9?

A. There would be approximately a 40-percent difference in the value of the numbers.

Q. And is that a number that is -- that one uses in order to conclude what the drainage of these particular wells will be?

A. It is a number that can be used in determination of the drainage, given other assumptions made in the calculation of oil in place and recoverable oil, yes.

Q. What other things do you need to know as an engineer before you can make that calculation?

A. You would need to know the porosity of the formation, the oil saturation. The formation volume factor is a consideration. You would need to know the area of drainage that's going to be affected by the well. You would need to know the net thickness of effective reservoir pay that is going to be contributing to the production. And for recovery of the oil in place, you would need to have a factor indicating how much of the oil in place would in fact be produced.

Q. And is that -- How do you calculate that recovery factor? Where do you get it?

A. Many ways. Perhaps the best answer coming from a well that's no longer producing, being a determination of its oil in place and what it ultimately produced without any extraneous conditions limiting its production.

With that information not at hand, it could be based upon analogy, it can be based on a certain set

of statistical correlations which can be utilized. Ranges of numbers for particular formations have generally been compiled by different organizations. Consultants, in particular, have ranges of numbers that they feel comfortable with.

And it's a consensus-of-opinion situation early in the producing life of a field as to what the recovery may be, later refined when compared to actual production history.

Q. Let me take you back and ask you a question about the formation volume factor. Is that a number which changes from formation to formation?

A. Yes, it can.

Q. So in order to estimate that number, it would be important to know with what formation you were dealing?

A. Yes, that's correct.

Q. I'm going to show you the next three exhibits we have, Mr. Barron. I've marked them as Exhibits 10, 11 and 12 -- Well, let me start over here.

Attached to your fluid analysis are two production-decline curves. Let's just refer to those as part of Exhibit 9, and why don't you review those now for the Commissioner?

A. All right. One of the wells which was

mentioned in the previous hearing as having been on production for approximately two years and therefore being one of the better indications of what the potential recovery might be in the Delaware Pool was the South Culebra Bluff Well Number 23-1, located in Section 23 and south of both the Bird Creek and BTA wells of interest.

This particular well came on production in March of 1988 and has produced approximately two-plus years, and through March of 1990 had cum'd a total of 57,613 barrels of oil.

This data was acquired through a commercial computer on-line service which accesses the production records that are filed with various state agencies throughout the United States, to which we have access by which we can acquire the production records.

These numbers were utilized in a software program to generate a curve-fit, using a least-squares method, to try and delineate a curve that would flow through the most number of production points.

There is still interpretation involved in this because certain points may or may not be accurate in a well's production. If it's off production for a certain period of time, they're not representative of its capacity.

But the methodology used did generate a good curve-fit through this production, as indicated by both of these curves. One is simply a replot of the other curve. One is a copy of the computer screen as it's worked on and is dumped to a printer, and the other one is a copy of a plot done up on a plotter. Same monthly production numbers, the same extrapolation.

The indication of this work was that this well seems highly likely to have an ultimate recovery of approximately 200,000 barrels of oil.

Q. Now, earlier in the testimony we talked about an exhibit we called the Bird Creek Number 2, which was a production-decline curve that was actually prepared by BTA --

A. Yes, that's correct.

Q. -- and on which there was a conclusion, there's a conclusion stated that there are 147,000 barrels of recoverable reserves. Can you compare those two exhibits and tell us how you -- whether or not you disagree with their conclusion?

A. Well, their conclusion was based upon production data apparently available to them through the month of September, 1989.

Our analysis used approximately six additional months of well production, during which time

the well continued to produce at what might be described a better-than-anticipated rate as compared to the BTA extrapolation.

Their extrapolation used a 20-percent decline, exponential decline in production, on an annual basis. The well, as I said, continued to produce at or near the 2000-barrels-of-oil-per-month range, which would have been above their forecast, beginning in September.

Consequently, we feel that our analysis and extrapolation, being based on additional data, is perhaps more reflective of the well's true capacity to produce, and as such it should have a decline in the range of approximately 13-1/2 percent per year, as opposed to their extrapolation of 20 percent per year, the result being that it will ultimately recover more oil.

Q. And does that tell you anything about the number of acres the -- that that particular well, being the South Culebra Bluff 23, will drain?

A. Yes, it does.

Q. What does it tell you?

A. It tells us that in all likelihood this well is capable of draining 40 acres.

Q. Can you correlate that to the BTA Pardue "C"

Number 1 in Section 11 and the Teledyne Number 1 in Section 14?

A. Yes, I feel that these wells are similar in nature. The reservoir is similar at those locations, and consequently they should also expect to drain 40 acres.

Q. Did you have any other comments you wanted to make about the production-decline curves prepared by you or the one prepared by BTA?

A. No, not at this time.

Q. Now I'm going to show you 10, 11 and 12.

(Off the record)

Q. (By Ms. Aubrey) Let me have you look first at Exhibit Number 10.

COMMISSIONER WEISS: Would you give us a minute to get these straight?

MS. AUBREY: Sure. Number 10 should be the A and B Delaware --

COMMISSIONER WEISS: They don't seem to be that way. We're going to figure it out here in a minute.

(Off the record)

CHAIRMAN LEMAY: Why don't you help us with these things?

MS. AUBREY: I'll be happy to, if I can

figure them out.

THE WITNESS: Do you want me to explain what they are?

MS. AUBREY: Maybe we could have Mr. Barron explain it, and then we could all hear it.

THE WITNESS: There are four pages involved in this series of exhibits. Exhibit Number 10 would be a single page entitled the A and B Delaware sands. It will list a series of parameters for seven separate wells with the BTA "C" 1 Well listed twice. It will give the drainage area, net volume, net porous volume, hydrocarbon volume, oil in place and ultimate recovery for the A and B Delaware sands.

CHAIRMAN LEMAY: We have that.

THE WITNESS: Exhibit Number 11 is a similar presentation for the Delaware C and D sands, again for all seven wells.

CHAIRMAN LEMAY: Okay, we have that.

THE WITNESS: Exhibit Number 12 is a two-page exhibit showing on one page the Delaware A and B and on the other page the Delaware C and D.

There should only be two lines of information, and as we'll explain, that will give the difference in the amount of oil being drained in each of those reservoirs, depending upon that well's

location.

CHAIRMAN LEMAY: All right, we've got it, thank you.

Q. (By Ms. Aubrey) Can we start with Exhibit Number 10, Mr. Barron?

A. Yes.

Q. Would you review that for the Commission and Mr. Stovall?

A. Exhibit Number 10 is output generated from our computer system in which we are able to take each individual well and delineate a 40-acre drainage area around that well.

The computer will then do a volumetric integration and determine the amount of oil in place underlying that 40-acre area or any other strictly configured or ill-defined polygon we want to draw around the particular point. It will do an integration through all areas of production, all reservoirs, taking into account the fluctuation in porosity across that area, water saturation and oil saturation, in determining the oil in place within that area.

So we are not simply using an average porosity across a 40-acre area, as may have been encountered by a well drilled in the middle of that 40-acre area.

If a particular well came up with 50 feet of pay and 15 percent porosity and a water saturation of 40 percent, rather than using those in a determination of oil in place, times the 40 acres, it will actually integrate across the entire area as the porosity or saturation may change in relationship to other wells in the area.

And as such, we have done that calculation for each of the wells indicated on this sheet, in addition to which we did the same calculation for the "C" 1 well, had it been drilled at the standard 330-foot location, rather than the location at which it was actually drilled.

As indicated on the top of the sheet, this is based -- The ultimate recoverable reserves is based upon an 18-percent recovery factor in the A and B sands, and the same 1.543 formation volume factor as indicated by fluid analysis of the C and D reservoir, inasmuch as it's the same, similar Delaware formation.

Q. And what conclusions have you come to with regard to the difference between a standard location for the "C" 1 and the orth- -- the location which was, in fact, drilled?

A. That the ultimate recoverable reserves of the well varied only slightly between the two locations.

However, there was an increase of approximately 5.3-plus-thousand barrels of ultimate recoverable oil by nature of the well being moved from standard location to the actual location it was drilled at.

Q. And do these calculations assist you in calculating the amount of impact on the correlative rights of Bird Creek Resources to the south of that well?

A. Yes, that's correct.

Q. And would you tell the Commission what your conclusion on that question is?

A. Referring back to the first page of Exhibit Number 12, which is a comparison between -- of the Delaware A and B sands between the two locations for the "C" 1 Well, this indicates that the "C" 1 Well at its -- a standard 330-foot location -- would ultimately drain approximately 27,215 barrels of oil from the Bird Creek tract. This would be from the dividing line between Section 11 and 14 down to the no-flow boundary with the Teledyne Number 1 Well.

At the actual location of the well, that being, as here referred to as the unorthodox location, the amount of drainage would actually increase to 43,234 barrels. Inasmuch as the well is farther south

and closer to the Teledyne Well, its 40-acre drainage area would, in fact, be more in Section 14 than in Section 11.

Q. More in Section 14 than in Section 11?

A. As compared to the standard location.

Q. Now, that is for the C and D zones; is that correct?

A. No, that's for the A and B zones in the Delaware.

Q. Okay.

A. A similar determination for the C and D zone, being that interval in which the wells are actually completed, would again indicate that by nature of the well having been moved from its -- a, quote, standard location, to the actual point it was drilled at, there would be a slight increase in the amount of ultimate oil that could be recovered.

The very slight increase is due to a slight increase in net pay that appears to occur in the reservoir as you move south in the area of interest.

In comparison to the two locations, the ultimate drainage, the second page of Exhibit 12 then shows that in the C and D reservoir the amount of drainage from Bird Creek at a standard location to the unorthodox would increase from 31,987 barrels to 49,835

barrels, in same -- similar configurations, as mentioned earlier, with the well's location and the drainage being more in Section 14 due to the unorthodox location.

Q. Now, Mr. Barron, do you have sufficient data and exhibits in front of you from which you can, to a reasonable engineering probability, calculate and testify to the -- not only the drainage radius of these wells but the effect that the penalty imposed by the Examiner has on Bird Creek's correlative rights?

A. Based upon our analysis, it indicates that the wells are capable of draining 40 acres, that in the C and D zone, the recovery of oil in place is approximately 20 percent, that it is probably slightly less or should be slightly less than the A and B zones -- that's why we used 18 percent -- and that the location that was approved and at which the well was drained will in fact allow the BTA well to drain well in excess of the 12,000-plus barrels that resulted from the earlier hearing.

Q. And can you calculate, as an example of effect on correlative rights, what that number would be?

A. As indicated on the second page of Exhibit 12, the difference between the ultimate recovery at the

two locations would be the 49,835 barrels less the 31,987, so that in that particular completion interval the well would have the ability to drain some 17,848 barrels of oil from the Bird Creek well.

In the upper section of the Delaware, in the A and B sands, which are currently not on production, again the same, similar difference in ultimate recoveries between the two locations indicate that some 16,019 barrels of oil would be drained from the Bird Creek lease.

Q. Can you tell us what that totals?

A. I total that being 33,867 barrels.

Q. As an engineer, Mr. Barron, do you have an opinion as to whether or not it is appropriate to add those numbers together, the additional drainage from the C and D and the A and B, in order to calculate the effect on Bird Creek's correlative rights?

A. Yes, I think they should be added together, because they do represent potential drainage of the C and D reservoir, in fact are under production at the current time and are subject to eventual drainage, the drainage from the A and B being solely dependent upon the time of completion in both wells as to when that drainage will actually occur.

Q. And what -- Who gets the advantage in that

situation? The person who completes in the A and B first or last?

A. Whoever would be completing first would get the advantage.

Q. Now, we reviewed a BTA exhibit, being BTA Exhibit Number 7, with the BTA witnesses. I'd like you to review it now for the Commission and give the Commission your analysis of the appropriate way to make these calculations.

A. In review, Exhibit Number 7 is a volumetric calculation of the oil in place and ultimate recovery from the BTA well, using standard engineering equations and the application of standard reservoir numbers.

The difference I would take initially would be with the formation volume factor, indicated to be 1.1 on Exhibit Number 7, and as I understood that to be based upon an average -- information available on average Delaware completions in this area of New Mexico.

In deference to that, I would substitute the number based upon actual analysis of the produced fluid in this reservoir, being 1.543. That would indicate, inasmuch as you're dividing by a larger number in the equation, you're going to have less oil in place.

Given the 20 acres that was used by BTA in

this analysis, rather than having the 681,801 barrels of oil in place, you'd have 486,054 barrels of oil in place. Simple arithmetic difference.

However, if one were to stay with an ultimate recovery from these wells of 150,000 barrels, it would mean that you were recovering the same amount of oil from less oil in place. Therefore, your recovery factor goes to 31 percent, rather than the numbers indicated on this of 22 percent.

Q. Do you believe 31 percent is a reasonable recovery factor for the East Loving-Delaware Pool?

A. No, I do not.

Q. So you would agree with the 20 percent; is that correct?

A. Yes.

Q. So we have to change some other number; is that right?

A. That's correct.

In order to allow for the same 20-percent recovery of 150,000 barrels in place which, as I've indicated on an earlier exhibit, is probably too low, however, with the 150,000 barrels of recovery and the same formation volume factor of 1.543, you wind up with 31 acres of drainage, 20 percent recovery, 150,000 barrels of ultimate production.

As I indicated, 150,000 barrels per well appears to be low. Our analysis indicates that a range of 200,000 barrels per C/D zone completion appears much more reasonable in comparison to actual production history from a well that has been on over two years.

Consequently, an anticipated recovery of 200,000 barrels of -- being 20 percent of the oil in place within a 40-acre -- or, excuse me, the 200,000 barrels being 20-percent recovery of the oil in place, you would in fact be affecting a drainage area of 41 acres.

Q. In coming to that conclusion, Mr. Barron, what -- how many feet of net pay are you using?

A. Those are using the numbers as provided by BTA, based upon their own log analysis of the subject well.

Our analysis, as indicated on Exhibits Number 10, 11 and 12, were based upon extrapolation of numbers in the area.

However, utilizing their number of 53 feet of net pay and a 16-percent porosity, 43-percent water saturation, I do wind up with the 41 acres of drainage for 200,000 barrels of oil.

Q. And is it likely or reasonable to expect that the number of barrels of recoverable reserves may be

even higher than that?

A. There is that potential, yes.

Q. If you use a higher number than that, which is one that is still supported by your data, what sort of a drainage pattern do you get?

A. Drainage pattern could increase above 40 to somewhere in the high 40 acres. 46, 47 acres would be potential.

I hasten to add, at this point in time this is still in the early productive life of this field, and consequently I feel that 40 acres is a reasonable and justifiable number at this time to presume for drainage in this pool.

Q. Now, there's been testimony today that these wells will only drain 20 acres.

If a well located at the location of the "C" 1 were to drain 20 acres, what shape would its drainage radius have to be in order to have an impact on Bird Creek?

A. A circular drainage area, as indicated of radial flow, would still overlap onto the Bird Creek acreage and allow for drainage off of Bird Creek's tract. It would, however, not indicate an overlap of drainage areas between the two wells, as is indicated when there's a 40-acre drainage.

Q. If BTA is right and these wells will drain 20 acres, then both wells are going to drain 20 acres; is that right?

A. That would be correct.

Q. Do you have an opinion as to the number of acres that the Teledyne Number 1 will drain?

A. At this point in time, I would assume it will drain 40 acres.

Q. There was some earlier testimony on the tightness of these sands and some estimates of permeability given in -- and a range of permeability given in millidarcies. Do you have an opinion on that?

A. I would agree that any formation that has permeability in the 1/10-of-a-millidarcy to 5 millidarcies would certainly be considered a relatively tight reservoir.

Q. Is it your opinion that this particular reservoir we're dealing with is that tight?

A. Based upon the production history of these wells and the fact that they -- those wells completed, particularly by Bird Creek, continue to produce at full allowable, flowing with the pressures that they do, that they are no longer draining oil simply from the fracture system that was accomplished by stimulating the wells upon completion, that they are in fact

producing oil out of the matrix rock and that rock capable of sustaining this magnitude of flow is probably of a higher permeability than that indicated of, say, 5 millidarcies of less.

Q. Could you give us a range in numbers of millidarcies of which you believe the permeability to be?

A. I think core analysis in this formation would probably indicate that there is sufficient reservoir rock that's going to be several hundred millidarcies.

That may not be uniform and continuous through the entire net-pay interval, but I think it will certainly sufficient enough and perhaps the predominance such that several hundred millidarcies would be the average to be expected from this formation, rather than less than 5 millidarcies.

Q. And what effect does that have, that analysis of permeability, have on your conclusions that the wells are draining 40, 41 acres?

A. Well, I think the wells will still drain the 40 or 41 acres with the higher permeability. They'll be able to sustain higher rates of flow, they will have less dramatic declines in production with time once the wells are no longer capable of making their top allowable. Consequently, their rates of decline will

probably be less -- more in line with the projections that we have made.

Q. Mr. Barron, would you give the Commission your professional engineering opinion as to the appropriate penalty to be imposed on the BTA well, given the location which BTA has chosen to drill and all the other factors that you've considered today in order to protect Bird Creek Resources's correlative rights in Section 14, both in the Teledyne Number 1 and Number 2?

A. Well, I think it would be appropriate to prevent the BTA well from draining these 33,867 barrels of potential oil from Bird Creek's leases, that the determination of the earlier hearing did not allow for the additional productive interval -- that is apparent in the wells -- and also BTA believes will ultimately be productive from this area, awaiting actual testing, and that the penalty imposed should be such that no less than this amount of oil is recoverable by Bird Creek prior to BTA's being able to produce out of the reservoir.

Q. The Examiner's Order was couched in terms of a time period. Is it your understanding -- Do you have an understanding as to whether or not that is the traditional way a penalty has been approached in the

State of New Mexico?

A. It's been indicated to me that the traditional method has been a strict imposition of percentage reduction in productive capacities of the well based upon their distance to the subject lease lines in comparison to a standard location.

Q. And what is the location of the BTA well with regard to the lease line?

A. The BTA well is indicated to be located 176 feet from the south line of Section 11.

Q. And what, as far as you know, is the nearest standard location?

A. 330 feet from the same line.

Q. Do you have a recommendation, then, as to the percent of penalty to be imposed against the BTA well?

A. It appears that the well should support a penalty of 46-2/3 percent of its allowable and, consequently, its delivery capacity once it's no longer able to produce allowable.

Q. And that would be for the producing life of the well?

A. Yes, that's correct.

Q. Were Exhibits 1 and 3 through 12 either prepared by you or prepared under your direction and supervision?

A. Yes, that's correct.

MS. AUBREY: Mr. Commissioner, I tender Exhibits 1 and 3 through 12. I also tender Exhibit 2, which was prepared by BTA and used as an exhibit.

CHAIRMAN LEMAY: Without objection, those exhibits will be entered into the record.

Does that complete your direct?

MS. AUBREY: I have no more questions of the witness at this time.

CHAIRMAN LEMAY: Thank you, Miss Aubrey.

Mr. Carr?

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Barron, when were you employed by Bird Creek?

A. Initially employed by Bird Creek in the beginning of this year, 1990.

Q. And what were you asked to do at that time?

A. We were asked to evaluate those wells that they had drilled and completed in the East Loving Field area.

Q. When did you become involved with any of the matters related to this case?

A. In late May, first part of June of 1990.

Q. Were you involved in any preparation of the

testimony presented at the Examiner Hearing?

A. No, I was not.

Q. Have you reviewed that testimony in preparation for today's case?

A. Yes, I have.

Q. I would like to go -- I guess the best way to work is through these exhibits as best I can in order, and I'd like to go to Exhibit Number 1, and I -- for me to understand this, first of all what you've done is, you've placed the wells at the locations where they are actually drilled in this area?

A. That's correct.

Q. And around each of those wells you have drawn a 40-acre -- a circle which represents a 40-acre drainage area?

A. That's correct.

Q. And what you have shown is that by moving the "C" 1 to the south, that drainage radius extends farther into Section 14 than if it were at a standard location?

A. That's correct.

Q. And then you have got a line running through the circle which shows a no-flow boundary -- I think that's pointed out on Exhibit 2 -- between the Teledyne Number 1 and the "C" Number 1?

A. That's correct.

Q. Now, to shorten this up, if I understand what you have done, you have taken these maps, the data in these maps, and with a computer you have generated the data that is shown on Exhibits 11 and 12, which explain the amount of additional drainage being gained by BTA, other than through this location?

A. That's correct.

Q. When I look at Exhibit Number 1, what is the area that is cross-hatched on that -- on that particular plat?

A. That is approximately 8 -- well, 8.659 acres, as indicated on the second page of Exhibit 12.

Q. Okay. You're going to have to bear with me. I'm having --

A. Exhibit 12, the acreage indicated on that particular exhibit --

Q. Okay.

A. -- is the cross-hatched area.

Q. Okay, so that when we get -- It's the last line on the second page, total unorthodox "C" 1 drainage, 8.659?

A. That's correct.

Q. So that's the number of acres that is cross-hatched on Exhibit Number 1; is that right?

A. Yes.

Q. And that is the acreage that is utilized to -- as the additional drainage area that then results in the 17,700 additional barrels of oil in the C and D?

A. That's correct.

Q. And then an additional like amount attributed to the A and the B?

A. That's correct.

Q. All right. If the "C" Number 1 Well did not drain 40 -- and assume that just for the purpose of this question -- then your no-flow boundary would in fact move off to the north and the west, wouldn't it? You'd have a smaller drainage circle, and that would cause that no-flow boundary to move to the northwest, would it not?

A. If the "C" 1 were to drain only 20 acres, making the same assumption that all wells would drain only 20 acres, then in fact there would essentially be no real overlap of drainage areas.

The no-flow boundary, in theory, is going to be halfway between the wells, regardless, as indicated here. This simply -- exhibit indicates that a no-flow boundary would exist in an area of overlap. With smaller circles the boundary itself would not move.

Q. But based on 40-acre and existing well

locations, the cross-hatched area is the 8.6 acres, and that is the basis of the 17,000 barrels in each of the two zones?

A. That's correct.

Q. Now, if we look at the Number 2 Well, what is the status of the Number 2 Well in 14?

A. Number 2 Well is a producing oil well in this Delaware-Loving Pool.

Q. Now, if we take a look at that well and compare it to the "C" Number 1, there would be a no-flow boundary between those two, won't there?

A. Yes, there will.

Q. And so we could draw on this exhibit a line that sort of goes in that ellipse area, and that would be an additional no-flow boundary; isn't that right?

A. That's correct.

Q. And the area south and west of that is -- represents reserves in acreage that's going to be drained by the Number 2, not the Number 1; isn't that right?

A. That's correct.

Q. And so that would be appropriate, wouldn't it, to be a reduction from the 8.6 acres if in fact we're looking at the area that's going to be drained by virtue of this location?

A. Yes, that can be done, and I have those numbers for you.

Q. Okay. So then we can reduce the 8-acre factor by that, correct?

A. Yes.

Q. Now, if we also draw a 40-acre circle around the "C" 2 Well, we're going to have an additional drainage area lopping into there, are we not?

A. Yes, that's correct.

Q. And that's the standard location; isn't that right?

A. Yes, as I understand it.

Q. And there's going to be an overlap between that drainage radius and the radius of the "C" 2; is that correct?

A. Yes.

Q. And so would it be appropriate to subtract, perhaps, an additional portion of that hatched area because there's going to be a no-flow boundary between the "C" 2 and the offsetting Bird Creek wells too; isn't that right?

A. No, there would not be -- It would not be --

Q. It will not be --

A. -- not be appropriate.

Q. It would not be appropriate, and why not?

A. If those wells are located equidistant from the survey line, which they probably are not, the no-flow boundary would in fact be the survey line.

If the "C" 2 is located closer to the survey than the Teledyne Number 2, then the no-flow boundary would in fact be into Section 11 by some amount. However, it would not impact -- not necessarily impact the drainage of the "C" 1 Well.

Q. If the "C" 2 is closer -- Do you know how far the setback is on the "C" 2 from the common section line?

A. Offhand, no, I do not know.

Q. Isn't it in fact closer than the Number 1 well is to that common section line?

A. Looking at the maps, it appears that way, it probably is. Even though the dots are large, they should be centered on the location.

Q. Those are both standard locations, aren't they?

A. I believe they are greater than 330 feet.

Q. And if the "C" 2 is at a standard location and it has a 40-acre drainage circle drawn around it, it would also be able to pick up some of the reserves that are in that area shaded on Exhibit Number 1; isn't that right?

A. It would potentially pick up some of that area shown under the influence of the "C" 1, yes, that's correct.

Q. And those are reserves that that well could lawfully produce. You're not challenging anything --

A. No, I'm not challenging that, no.

Q. -- about the "C" Number 2?

A. That's correct.

Q. All right. And so it is this shaded area, as shown on Exhibit Number 1, however, that's the basis for your penalty?

A. That's correct.

Q. Let's go to -- Let me see. The drainage radius that you're using on Exhibit 1 are actually generated as you showed us later in your testimony. You didn't have core data and information like that to actually calculate a drainage area or drainage radius for each of the wells, if I understood your testimony?

A. We used a 40-acre circle for all wells.

Q. Let's look at Exhibit Number 2.

Okay, I mean Number 5. When I said 2 a minute ago I meant Number 5.

A. All right.

MR. CARR: And after doing that, I have no questions. Number 5 I was going to be sure I knew what

a no-flow boundary is.

Q. (By Mr. Carr) If I take a look at Exhibit Number 6, this is your net-pay isopach on the C/D interval, the producing interval in this well?

A. That's correct.

Q. And this is contoured based on what? Log information?

A. Yes, that's correct.

Q. And what we have, like on the Number 1 Well, the Teledyne Number 1, we have 60 feet. Is that net pay?

A. That's net pay greater than 10 percent porosity and less than 60 percent water saturation.

Q. And we have 64 feet in the Number 2?

A. That's correct.

Q. How many did you compute for the "C" 1?

A. For the "C" 1 Well, we have an indication that it should have in excess of 60 feet of pay.

Q. All right, and did you --

A. We did not have the log to look at.

Q. And when you look at that log, you see that it has in fact 53 feet?

A. I have not seen the log; you all did not provide it.

Q. If you had 53 feet, then, you would have

actually a thinner section as you move off to the north; isn't that correct? Than what you're experiencing under the Teledyne wells?

A. If our analysis indicated that the net pay number as you indicated is correct, it would in fact be reducing itself as it moves to the north.

Q. And the thick of the pay, you get more reserves out of a smaller area? Even a lawyer should understand that, right?

A. No comment.

Q. All right. Now, if we look at this -- If we look at this, we have three 40-acre circles?

A. Yes, that's correct.

Q. And then there is a lighter line in the center that I guess is your 60-foot contour; isn't that correct?

A. That's correct, yes.

Q. Why is the "C" 1 with 60 feet outside your 60-foot contour? Why did you place that between the 60- and 50-foot contour?

A. What we're looking at here is a computer rendition, and you similarly have a 60-foot contour line farther south in that same section, because in the center of the section you drop to 57 feet, and then go back up to 68 feet, and so the computer is trying to

generate a best fit of data.

The line itself, in theory, should run through the 60-foot line.

You may notice that the 60-foot contour line is not perfectly smooth. There's a slight amount of jaggedness to the contouring, and that's a function of the smoothness factor used when the maps were actually drawn. The data in the computer will put 60 feet at that will location and the appropriate areas.

Sometimes --

Q. So this is just a computer adjustment of the --

A. Yeah, these maps were prepared in time to get copies made, with not a lot of leeway in terms of smoothing them out. The data itself is unchanged.

Q. If we look at the "B" Number 1, do you know how many net feet of porosity greater than 10 percent we have in that well, in Section 11?

A. The only thing we had to go on there was the cross-section provided in the earlier testimony, which was a neutron-density log.

Q. And that's the exhibit that you referred to --

A. Yes, and so we were not able to make a reduction potential in that pay for saturation. But

utilizing the data, it appeared that the numbers -- or some numbers provided in earlier testimony indicated that, you know, in excess of 50 percent was probably reasonable.

Q. If you look at that log on the "B" 1, can you from that log estimate the number -- the amount of net porosity greater than 10 percent?

A. I could take some time to come up with some numbers, but I'm sure that number is going to be in excess of 50 feet.

Q. You reviewed the prior transcript, did you not?

A. Yes, that's correct.

Q. And this was Exhibit 4 in that prior case?

A. Yes, that's correct.

Q. And at that time it was indicated or testified to that this showed porosity in excess of 10 percent?

A. Yes.

Q. And if you take the Number 3 and you add that up, if you get 66 feet or thereabouts, isn't it curious that you have placed that between the 50- and 60-foot contour on this particular map, on this isopach map?

A. If I understand you correctly, you're saying that previous testimony showed there were 63, and yet

we're only saying there's a little over 50 now.

Q. Yes.

A. We took the information we had at hand, some of which was on wells that we did have logs, so we could make an exact determination.

On some of those wells BTA may have indicated there was 70 feet of net pay. Our analysis may have come very close to 70 feet of pay greater than 10 percent, but only 55 feet of pay when adjusted for water saturation.

So we did some statistical work and reduced this well accordingly for water saturation.

Q. And so it was because of that, that the 66 feet shown on the previous Exhibit Number 4 has been translated into something between 50 and 60?

A. That's correct.

Q. Now, Exhibit Number 7 is an isopach map on all of the zones; is that right?

A. That's correct.

Q. You've not seen a log on the "C" Number 1, have you?

A. No, sir, I have not.

Q. Yet it was your testimony that you're convinced that it can produce from the A and B?

A. Yes.

Q. Are any wells that are operated by Bird Creek producing from the A and B?

A. No, they are not, to my knowledge.

Q. Are any wells producing -- by BTA or anyone else -- producing from the A and B?

A. Yes, there are wells in this general area that do produce.

Q. And when you say general area, are we talking about within the, say, four sections that we've been focusing on here today?

A. No, I believe there's a well -- And I apologize; I don't have these numbers in front of me. If I'm not mistaken, I believe there's a well in Section 25 to the southeast, there's a well north of here in Section 5, and I believe there is a third well within, you know, this general vicinity that has produced from the B. I don't remember where it was.

Q. And now and throughout the testimony when we're talking about A and B, none of the wells that have been the subject of today's hearing are currently producing there?

A. That's correct.

Q. We're only talking about a future potential at some time in the future?

A. Based upon log analysis, yes, sir, that's

correct.

Q. We've had some testimony on formation volume factors. You've dealt with these as a -- throughout your professional life, have you not?

A. Yes, sir.

Q. And that experience, you -- Based on that experience, I believe you testified they change formation to formation; is that correct?

A. Yes.

Q. Do they change within a formation?

A. There may be some change. Not too significant, would be the normal --

Q. Would be the normal --

A. -- consensus of opinion, yes.

Q. They also change well to well on occasion, do they not?

A. I'd say it's more possible than a practical occurrence.

Q. You are aware of situations, and have encountered them, where within the same reservoir wells demonstrate different formation volume factors?

A. That's correct. Formation volume factor usually uses based upon original conditions. And so the assumption is generally made that the reservoir is at equilibrium at discovery, so it should be uniform;

it may then change.

Q. When we looked at Exhibit Number 9 -- They also, going back to formation volume factors, they also tend to change during the producing life of a well; is that not true?

A. Yes.

Q. Now, if we take a look at some of the decline-curve information that you presented as part of -- I think Exhibit Number 9. It was attached to the core data.

A. Yes.

Q. Core Lab analysis. We saw a different curve than what had been offered earlier from BTA records for the Culebra Bluff Number 23 Well; is that right?

A. They're different in their extrapolation of future production. They contain what appears to be the same reported oil production, with their well having less indicated months of production than ours.

Q. Okay.

A. They have some additional information, which is apparently the gas production.

Q. Okay. Now, what -- In preparing for the case, you stated you had reviewed prior testimony; is that not correct?

A. Yes, sir.

Q. And you're aware of the testimony of Mr. Bill Burke?

A. Yes, that's correct.

Q. Are you aware that he testified about the producing capabilities of this well?

A. Yes, I indicated he did give a number.

Q. And are you aware of what those numbers are?

A. I'd be glad to have them reviewed to me so I don't say the wrong one.

Q. Let me just show you the transcript of the Examiner Hearing, page 47, and you might want to take a look at that. It appears to me he's talking about this well; is that not correct?

A. Yes, that's correct.

Q. And he was talking about how many barrels of oil had been produced by that well at that time?

A. That's correct.

Q. And how many barrels was he reciting?

A. Quoting his testimony on page 47, he says, "It has produced 60,000 barrels of oil."

Q. All right. And then did he take that number and compute a total production for the well?

A. Yes, he comes up with an estimate of 130,000 barrels for that well.

Q. Now, how many additional months' production

do you have to change a 130,000-barrel figure to 200,000?

A. I don't know that I have any additional months of production than he may have had at that time. I don't know specifically.

He does indicate the 60,000, and our records indicate that it had a slightly less number, based on file testimony, so he may have had an additional month.

Q. So you have a difference of opinion with Mr. Burke?

A. It's basically a difference of opinion of extrapolation of reserves.

Q. And that difference of opinion would affect -- If we work 130,000 barrels into a calculation as opposed to 200,000 barrels into a calculation, it can make quite a substantial difference in the number of acres that are actually contributing to any of these wells?

A. It could with one difference, in that it's my knowledge that that well is not completed in the entire section in which he anticipates 130,000 barrels of oil.

Q. And on what do you base that?

A. A review of that well production.

Q. Have you looked at the actual logs on that well?

A. Yes.

Q. And are there zones that can be opened that have not been?

A. Yes.

Q. And did you take that into -- factor that in, in changing your number?

A. What we did was anticipate that the well was actually producing significantly from that zone, that it was only completed in the lower interval but is producing in the entire interval. Consequently, we felt that in time it will drain or produce better than he may have anticipated it would.

Q. So that producing the entire zone -- It's just not perforated in the entire zone -- I'm not trying to --

A. Correct.

Q. I'm just trying to understand what you're saying.

A. Right.

Q. You talked about permeability a little bit. Are you aware of any testing of any well in the Delaware in this area done by Bird Creek without first fracture-stimulating that well?

A. No, I am not.

Q. So there's no well, to your knowledge -- Is

there any well, to your knowledge, that could produce in commercial quantities without having to be fracture-stimulated first?

A. I don't know that one way or the other.

Q. Based on your study of the reservoir, do you have an opinion as to whether or not the reservoir is basically a tight formation that needs stimulation to produce?

A. Based upon the review of the operations to date, it appears that stimulation is necessary to affect the types of producing rates these wells now exhibit, yes.

Q. Did you have any bottom-hole pressure buildup data to substantiate the statement of 200 to 300 millidarcies of permeability?

A. No, I do not.

Q. Let's see, I need Exhibit Number 10, which is one of the computer-generated exhibits. These are -- Excuse me.

These are the computer-generated --

A. It's a summation of the data generated by the computer just presented in --

Q. Based on --

A. -- print-sheet form, right.

Q. Based on the previous data?

A. Yes.

Q. And this was done, and these numbers do not necessarily reflect exact log information. If we go to your hydrocarbon core volume, we might see computer adjustments like we did on some of the earlier exhibits? I'm asking; I'm not -- I don't know --

A. On those wells where we had data, it would be reflective of the log analysis of that well, and then the extrapolation of that data to the next well.

If we did not have data on that well, such as on the BTA Well, then it was still in the extrapolation mode.

Q. And here we're assuming a 40-acre drainage area for each of the wells?

A. In determination of the oil in place, that's correct.

Q. And again this is on the upper two zones that are not completed --

A. That's correct.

Q. -- no wells are completed in those?

You're basing your penalty recommendation on not only current producing zones but also what you anticipate might be future production?

A. That's correct.

Q. And you're coming up with a 33,000 figure?

A. Yes, sir.

Q. And if you apply a 46. -- a 46-2/3 penalty to the Pardue Number 1, "C" Number 1, you would have restricted that well by in excess of 33,000 barrels during the first year, would you not? If it stays at top allowable of 142 barrels a day?

A. I'll go with your calculation, yes, sir.

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

CHAIRMAN LEMAY: Thank you, Mr. Carr.

Additional questions of the witness?

MS. AUBREY: Thank you.

CHAIRMAN LEMAY: I think we have some questions here. Would you rather have redirect after we ask our questions?

MS. AUBREY: Oh, certainly.

CHAIRMAN LEMAY: Commissioner Weiss?

EXAMINATION

BY COMMISSIONER WEISS:

Q. Let's see, on Exhibit 5 --

A. Yes, sir.

Q. -- what is the definition of a no-flow boundary again?

A. It would be at a position, all things assumed equal and uniform in drainage, at which the pressure transient --

Q. Do we know that there's all things equal and uniform drainage here? Is there a KH anywhere? Is there an equal pressure anywhere? Any measurements?

A. No, we're just assuming radial drainage at this point in time. There have been no pressure-transient analyses.

COMMISSIONER WEISS: I have no more questions.

CHAIRMAN LEMAY: I have one, Mr. Barron.

EXAMINATION

BY CHAIRMAN LEMAY:

Q. If you did have -- The assumptions are, you have 40 acres of radial drainage. If that's the case, can you explain the variation in flowing tubing pressures presented in the exhibits that BTA had there on their wells, their wells in there?

A. Not having actual knowledge of the wells, other than that information, I would have to make some generalized statements that may relate to completions of the wells, hookups, certainly going to be indicative of choke size, it should be indicative of the amount of production which has already occurred in the wells, it may have to do with localized reservoir conditions, paraffin problems, if they are in fact there, which I don't know.

I'm just saying there are many localized situations which could dictate that two wells, same reservoir, same rock characteristics, may produce differently at the surface because of other things that are going on, other than the reservoirs themselves.

So it would not be unusual to see wells with different flow rates, pressures or whatever.

Q. I guess that's my question is that, with your experience in the oil patch, is that an unusual situation with top allowable flowing wells? Is that the norm, or is that unusual to encounter that variation in flowing tubing pressure?

A. Well, I think variations are the norm. Again, these wells apparently have the capacity to produce their allowable and have spare capacity, so I don't know if the wells are being produced at allowable every day of the month, or if in fact a well that has a capacity of 172 barrels a day, like the "B" Number 2, may be produced at that rate for 25 days and the shut in, since they don't need to produce it for the remainder of their rate.

If they test the well on the first or second day of being opened back up, it certainly may have an abnormal flow characteristics that it wouldn't maintain for the next 30 days.

So differences, I think, would be the norm. If they were all the same, I think you'd be getting suspect well-tests reporting then.

CHAIRMAN LEMAY: I think Commissioner Weiss has a question.

FURTHER EXAMINATION

BY COMMISSIONER WEISS:

Q. I'm afraid I was a little hasty there. I didn't make things very clear. My point is, you don't know that there's a no-flow boundary there, because you don't have any information?

A. That's correct, that's making several assumptions on radial drainage and the fact that at a point in time the pressure transients will meet --

Q. I understand.

A. -- and that will --

Q. But there's nothing to say what the pressure transients are? We don't know KH, we don't know the static pressure?

A. You're correct.

Q. Then you have interference from other wells. You don't know that there's a no-flow boundary there, from what I can see?

A. That's correct.

CHAIRMAN LEMAY: Any other additional

questions of the witness?

MS. AUBREY: Thank you.

CHAIRMAN LEMAY: Miss Aubrey?

REDIRECT EXAMINATION

BY MS. AUBREY:

Q. Mr. Barron, will these wells, the "C" -- the BTA "C" Number 1 and the Teledyne Number 1 -- continue to produce at top allowable for their entire producing life?

A. No, they will not.

Q. At a point in time when they have -- are no longer capable of producing the allowable, is it necessary to continue to penalize the BTA well, to penalize its advantage over the Teledyne Number 1 drilled by Bird Creek, to compensate for the unorthodox location?

A. Yes, because at some point in time the Bird Creek Well will no longer be able to produce the top allowable, and that will allow some maintenance of stability between the two wells.

Q. So imposing the penalty as the Commission has always done for the producing life of the well will continue to maintain the status quo between the wells; is that correct?

A. That's correct.

MS. AUBREY: Thank you.

I have nothing more, Mr. LeMay.

CHAIRMAN LEMAY: The witness may excused.

Do you have an additional witness, or is that it?

MS. AUBREY: Given the Commission's prior rulings, I believe that's it.

CHAIRMAN LEMAY: Well, we can wind it up, I think with summary statements. I was going to take a break, but why don't we wind it up now then?

Do you want to break to kind of get your concluding statements together? I can give you that or --

MS. AUBREY: No.

MR. CARR: I'm ready to go.

CHAIRMAN LEMAY: All right, we'll conclude, then.

(Off the record)

MS. AUBREY: Commissioners, the Applicant BTA has completely failed in its burden of proving to you that the Examiner Order below should be sustained if in fact that was its burden today.

We believe its burden was to prove by a prima facie case that it was entitled to an unorthodox location. We believe that it's failed in that burden

of proof also.

BTA knew it was the Applicant here and that it had the obligation under your Rules to come forward with proof that would allow you as Commissioners to enter an order which correctly reflected the testimony given and which correctly put the burden on the Applicant.

They have refused to produce their logs for you, they have not done any fluid analysis, they have not cored their wells, and they are the ones coming to you asking for approval of a nonstandard location.

That location crowds Bird Creek's property. That location affects Bird Creek's correlative rights. If you believe BTA's testimony, that location promotes waste of hydrocarbons by leaving large portions of Section 11 with oil in place that will never be drained by a well.

Now, these wells either drain 20 acres or they drain 40 acres. Your own rules reflect the fact that the Commission's always believed they have drained 40 acres. Spacing rules are written for 40's. And I don't believe that you've been shown anything today which would allow you to conclude to the contrary.

If these wells drained 40 acres, they're draining our oil, and they need to be penalized for

that.

This Commission has always taken the position that well-spacing rules are there for a reason, that they are not to be lightly treated, and that producers who choose to locate their wells in unorthodox locations are required to pay a penalty for doing that.

The penalty imposed by the Examiner is not a penalty at all; it's simply a delay in production. It simply delays the amount of time that BTA gets to produce some oil. But it gets it, nonetheless, and it gets it by virtue of moving closer to Bird Creek's location.

There was no corresponding increase in the allowable for the Bird Creek Well while there was a six-month delay in production -- in allowable on the BTA Well.

We would ask you, based on the testimony before you today, that you impose a penalty on BTA which correctly and accurately compensates Bird Creek for the loss of reserves, for the violation of its correlative rights, and we suggest to you that that percentage is 46 percent of the allowable for the life of the well, for as long as the well produces.

That's the way the Commission's done it in the past. We believe that to be the correct way to do

it. We believe that that is the way to do it, to keep these two wells in balance and in equity during their joint producing lives, particularly at a time when both wells have dropped below the allowable now set for the wells.

If you are to grant BTA's Application for an unorthodox location for this well that they've already drilled, we would ask, then, that you impose that penalty on them in order that we can all play on a level field and all know what the rules are in advance. We thought those rules were the spacing rules that are printed. We believe that operators who violate them or who ask for exceptions to them ought to be penalized.

Thank you.

CHAIRMAN LEMAY: Thank you, Miss Aubrey.

Mr. Carr?

MR. CARR: May it please the Commission, as I stated when we opened, BTA early this year proposed a well at this location. The record that you incorporated into this case earlier today shows that they first tried a standard location, could not drill a well there.

Nothing in this record suggests that BTA in this case, or in any other location in this pool, has been engaged in the game of "closeology." They're

where they are because this is the location that was available on this 40-acre tract.

And so we come before you, and the task as we come before you is to try and determine how much these wells are going to drain. And we don't have the data, we just don't have core information -- no one does -- to individually go out and calculate drainage radius -- radii.

So what we have to do is, we go to volumetrics, and we take a look at the area that we can reasonably expect the wells to drain, and then we try and estimate the impact on the offsetting wells, and that's what we've tried to do.

We've shown you volumetrics with data from this well, from the log on this well, with a recovery factor that we all agree to. There are differences in the formation volume factor, there are differences in the ultimate recovery.

But in this formula, changing one factor will change the other. And we stand on the information that we've presented you today as we stand on the information we presented you in March as being our accurate, best interpretation of what our well will do and the impact it will have on the offsetting wells.

We came before you, and we have asked you to

affirm what the Examiner did.

We resent the fact or the suggestion that we are refusing to provide data. I don't think anybody asked for anything today that wasn't provided.

And as to the logs, they are on file with the Division, and each of you may look at them anytime you want. They are there, and they're there for your review.

The question of what area is going to be drained was addressed by Bird Creek by coming in with some computer-generated information that I submit to you is fundamentally flawed at the outset.

Look at Exhibit Number 1. The hatched area is the input factor that results in the penalty number. And yet, they're basing that on one no-flow boundary, and they ignore the impact of two other wells.

If you factor those in, the shaded area becomes smaller. I'm a lawyer, but it seems to me that means the drainage is smaller. And when you look at it, it's a nice computer presentation, but it misses the mark and it's wrong.

We submit to you what we've used is standard industry information and in an appropriate, responsible engineering approach, and we conclude that our well's going to drain 22 acres.

The Examiner found that the additional drainage area was about 12,225 barrels.

Now, if we look at the number of acres that they were concluding were going to be drained, 17,000, and we try and factor in some general limitations due to the impact other wells would have on this drainage area because of interference between wells, we think that's a reasonable number. And it represents 8.15 percent of the recoverable reserves, based on 150,000, which we still believe is a correct determination of what these wells will ultimately make, based on information available to us at this stage in the life of the wells.

And on that, we believe that the penalty imposed by the Examiner was correct. I'm not going to repeat it over and over again. We think we've given you a proper engineering way to estimate the drainage area, the additional recovery.

We think what we've said today is consistent with what you'll see we said in March. When Mr. Logan testified then, he thought about 20 acres would be drained. When we ran the volumetrics we came out at about that level, and we stand on what we believe is a consistent presentation through two hearings.

Bird Creek comes in, and they talk about

drainage areas that may or may not exist. They ignore certain wells.

And then they throw in the clincher: Well, let's multiply it by two, because there's some potential behind the pipe that someday somebody might produce. And I submit to you, that's an arbitrary, capricious and unreasonable way to deal with this situation.

What they're asking is a permanent penalty that's going to shut in a well long after the advantage that we might be gaining is offset. It's going to dry up the producing life of the existing wells, the Pardue "C" Number 1, and it is going to ultimately cause increased cost to recover the same reserves, and there's going to be waste, there are going to be reserves left in the ground.

We ask you to affirm the Order of the Examiner Hearing as an appropriate conservation tool to permit the operators in this pool, both Bird Creek and BTA -- to provide each of them the opportunity to produce their just and fair share of the reserves in the Delaware Formation under these tracts.

CHAIRMAN LEMAY: Thank you, Mr. Carr. Are there any other statements in the case?

I'm going to request that both parties submit

draft orders for the Commission's consideration.

Nothing more? We'll take the case under advisement.

Thank you very much, ladies and gentlemen.

(Thereupon, these proceedings were concluded at 2:55 p.m.)

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL July 7, 1990.

STEVEN T. BRENNER
CSR No. 106

My commission expires: October 14, 1990