STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	)	CASE NO. 11,189
APPLICATION OF ORYX ENERGY COMPANY	)	

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

ORIGINAL

BEFORE: MICHAEL E. STOGNER, Hearing Examiner

January 19th, 1995

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on Thursday, January 19th, 1995, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, before Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

January 19th, 1995
Examiner Hearing
CASE NO. 11,189

(Continued...)

I N D E X (Continued)

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E X H I B I T S

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* * *

A P P E A R A N C E S

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By: WILLIAM F. CARR

* * *

WHEREUPON, the following proceedings were had at 11:02 a.m.:

EXAMINER STOGNER: At this time I'll call next case, Number 11,189, which is the Application of Oryx Energy Company for an unorthodox infill gas well location, Eddy County, New Mexico.

At this time, I'll call for appearances.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin, appearing on behalf of the Applicant Oryx Energy Company.

EXAMINER STOGNER: Any other appearances?

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

We represent MW Petroleum Corporation and Chevron USA, Inc., in opposition to the Application.

I have two witnesses.

MR. KELLAHIN: Mr. Examiner, I have five experts with me, but I propose to swear two of them at this time.

EXAMINER STOGNER: Are there any other appearances?

Will the witnesses please stand to be sworn at this time?

(Thereupon, the witnesses were sworn.)

EXAMINER STOGNER: Mr. Carr or Mr. Kellahin, is

there any need of opening remarks at this time, or --

MR. KELLAHIN: I'd like to give you a quick summary of what we're going to demonstrate to you so that before we start you'll have a clear indication of what we think are the issues, and if I may do so, I'd like to proceed.

EXAMINER STOGNER: Okay.

MR. KELLAHIN: We're dealing with the Indian Basin Upper Penn Gas Pool. As the Examiner knows, this is a prorated gas pool, well spacing 640 acres, well locations to be standard are 1650 from the side boundaries.

Currently under the proration system, the top allowable for a nonmarginal well in the pool is 6.5 million a day.

We are here before you because Oryx is operating Section 2, which is on the eastern flank of this pool. And as you remember, this agency, and including this Examiner, have dealt on a number of occasions with what I'm about to describe to you.

In a simple layman's definition, we find that as you move west in this reservoir, you're moving upstructure, that the gas in this reservoir is incredibly mobile, and as the gas is withdrawn upstructure, water encroachment occurs to the downstructure gas wells. It's impossible to predict when water encroachment will take over a wellbore.

We have in the past, Mr. Examiner, had a number of situations where the operator for an individual section would look to protect the remaining recoverable gas in his section by replacing his original well with an upstructure well on his section at an unorthodox location.

Just north of Oryx, in Section 35, in the adjoining township, back on June of 1993, you as an Examiner approved for MW/Apache the drilling of an unorthodox well, the Federal C Number 2, 800 feet out of the southwest corner of that section. It's Order Number R-9910. I'll show you a copy of the order.

I'm also handing you a copy of the penalty formula.

The precedent established in this reservoir for handling unorthodox locations is to calculate the productive acreage that is above the gas-water contact within the section and take that productive acreage as a ratio of 640 acres, and that's one of the factors.

The other factor is the arithmetic encroachment, the distance in which the unorthodox location is closer to its side boundaries.

There is one operator in the pool that uses a third factor, and that's Apache. Apache uses a third component, and it's the double circle.

We are going to propose to you, Mr. Examiner,

that the unorthodox location that Oryx seeks be subject to a penalty that's composed of two factors: a productive acreage factor and the distance encroachment factor.

We're going to delete the double-circle factor. If we included the double-circle factor, the penalty would be less. We're excluding it; the penalty is more. And we'll recommend to you an allowable of 62 percent.

The issue of difference here is that Oryx wants to continue to produce the original well at its standard location until such time as it waters out, and because the agency's proration rules do not allow in this pool the penalty to be pegged against an individual well, we propose that this penalty be for the entire GPU. We'll take a hit on the whole spacing unit, and so that the original well and the unorthodox well in any combination will not be able to produce more than 62 percent of the allowable, and that's what we're going to ask you to do.

We have had visits with our opponents that offset us to the south and the west, and we'll talk about our points of difference, but that's where we're going.

I have a geologist to present to you. He's worked on this area for four years and he's going to describe what he's done. My reservoir engineer comes with considerable experience, and he's going to talk about his portion of the project.

And with those experts, then, we hope to convince you to allow us to do what I've just suggested.

EXAMINER STOGNER: Before we get started, Mr. Kellahin, you handed me a copy of the Order Number R-9910 and an exhibit. I assume that's out of that case, but it's a little --

MR. KELLAHIN: It did not photocopy very well, Mr. Examiner, and if you give me just a second I can tell you what exhibit number that was. It was Exhibit 5.

EXAMINER STOGNER: Exhibit Number 5. And that was in Case 10,736?

MR. KELLAHIN: Yes, sir.

EXAMINER STOGNER: And that was presented by MW Petroleum?

MR. KELLAHIN: Yes. Ms. Ceci Leonard was the witness, and Mr. Carr was the lawyer.

MR. CARR: And I believe the Application was granted.

EXAMINER STOGNER: Well, who stamped the --

MR. CARR: I don't know.

EXAMINER STOGNER: Okay, everybody clear on that, what exhibit this is? For the record in this particular case, that was Exhibit Number 5 from Case 10,736.

Okay, do you have anything else, Mr. Kellahin?

MR. KELLAHIN: No, sir.

EXAMINER STOGNER: Mr. Carr, would you like to make a statement?

MR. CARR: Mr. Stogner, very briefly, this is not exactly a case -- the same case that was before you when MW Petroleum sought approval to drill an additional well in Section 35.

If you'll look at the order that Mr. Kellahin provided you, the order paragraphs are set forth on page 3. And order paragraph 3 provides basically that prior to producing the new well or placing it on production, that the original well on the unit shall be plugged and rendered nonproductive.

So in that case there was no request to simultaneously produce two wells on the unit. And MW Petroleum Corporation's position is that if this is precedent, that it should be followed and that the original well should either be thoroughly worked over to determine whether or not it can maintain production at a commercial level and produced, or that it should be plugged and abandoned prior to production from the well at the unorthodox location.

Chevron's concern is somewhat different. Chevron is concerned about the penalty that will be imposed on the well because of its unorthodox location.

Chevron will also come before you and recommend a

risk penalty.

We also will look at two factors, not three: We will look at productive acres, and we will look at distance encroachment. And where Oryx will recommend a penalty of 38 percent, 62-percent acreage factor, we are going to recommend a penalty of 52 percent that provides a 48-percent acreage factor, and that is what the difference in the presentation will be.

EXAMINER STOGNER: Thank you, Mr. Carr.

Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, we would like you to take administrative notice of the transcript exhibits in Case 10,736. I believe it's relevant to this case. We will demonstrate to you that Apache never asked for simultaneous dedication, that their well was watered out and they only sought a replacement well, and so there is some difference. We're asking to produce them both concurrently until such time as we lose the ability of the first well to produce.

MR. CARR: We concur in that request to incorporate the record of the prior case.

EXAMINER STOGNER: The record in Case 10,736 will be incorporated in this matter.

Are you ready to start?

MR. KELLAHIN: Yes, sir.

EXAMINER STOGNER: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

Mr. Examiner, at this time I'd like to call Oryx's geologist, Mr. Roy Wolin. W-o-l-i-n is how he spells his last name.

ROY C. WOLIN,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and occupation?

A. My name is Roy Wolin, and I'm a geologist.

Q. Mr. Wolin, on prior occasions have you testified before the Division?

A. Once, in 1980.

Q. Summarize for us your education.

A. I went to California State University at North Ridge and obtained a bachelor's of science in geology.

Q. And what year was that?

A. 1980.

Q. Subsequent to graduation, summarize your employment experience.

A. I've worked subsequent to graduation for Sun Company, Inc., for eight years, from 1980 to 1988, and the subsequent time beyond that I've worked strictly for Oryx

Energy.

Q. There's a background noise in the hearing room, there's the heater, Mr. Wolin. You'll -- The amplification is not in these microphones; it's for the use of the court reporter. So you'll have to speak up.

Describe for us what has been your responsibility with regards to geologic duties insofar as they involve the Indian Basin-Upper Penn Gas Pool.

A. For the last four years, the Indian Basin-Upper Penn Gas Pool has been my responsibility for the drilling and the recompletion of wells in that pool and the updating of all geologic maps and cross-sections.

Q. What kinds of tools do you have as a geologist to work with to perform your duties?

A. I have drafting departments and computers to do the necessary work.

Q. Are all the wells of such a vintage that you have good-quality log information and adequate geologic data by which to make interpretations and reach conclusions?

A. Basically, all the wells are -- the bulk of the wells are 1960s vintage, but the logs are of a quality to make the picks for structure maps, and somewhat questionable for other kinds of maps.

Q. All right. Is there any other geologist with your company that's assigned responsibility for the Indian

Basin Pool?

A. None.

Q. Based upon your studies, do you now have geologic recommendations and conclusions with regards to how to further operate Section 2 in this particular township?

A. Yes, I do.

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

EXAMINER STOGNER: Any objections?

MR. CARR: No objection.

EXAMINER STOGNER: Mr. Wolin is so qualified.

Q. (By Mr. Kellahin) Mr. Wolin, give me a short geologic summary of the Indian Basin-Upper Penn Gas Pool.

A. The Indian Basin-Upper Penn Gas Pool is located in Eddy County, New Mexico. Essentially what it is, it's a fault trap of closure up against a fault.

Q. Where would we find the fault trap?

A. It would be on the western side of the field.

Q. All right, what happens then?

A. And then, as you approach downdip to the east, you begin to lose structural section, and that portion of the field which is basically dolomitized in the upper Penn section, roughly at 7500 feet, is that portion of the reservoir which produces.

Q. What is the distribution of the hydrocarbons and

the water within the reservoir?

A. Originally when the field was discovered in the early Sixties, it appeared to have had a gas-water contact of roughly minus 3700 feet, 3778 exactly. And as the wells have been produced the water has encroached updip, which is to the west, and we now have a different gas-water contact, which is encroaching over different sections at different rates.

Q. How does any of this apply to the Oryx-operated property within Section 2?

A. Presently, our Conoco State Number 1 well, which has perforations down to a minus 3508, is beginning to show water interference in the production of that well.

Q. When you look at the position of the Conoco State 1 in the reservoir within your section, is there remaining recoverable gas in your section that that well is not going to be able to recover?

A. Yes.

Q. What do you propose to do?

A. We're proposing an unorthodox location at a location of 800 from the west and 800 from the south.

Q. Why have you picked that particular location?

A. It is in the extreme updip position on our Conoco State lease structurally.

Q. Is there any significance to the fact that you've

located it 800 feet from the south and west boundaries of your section?

A. That is the best position structurally that we can obtain.

Q. And how does that footage location compare to what MW/Apache did in Section 35?

A. It's the exact same footage location.

Q. Is there a reason to have this unorthodox location, as opposed to the closest standard location, which would be 1650 from the west and south?

A. At 1650 from the west and south, our gaining of structural position would be minimized, and that well would probably water out in a very short period of time.

Q. Is there a reasonable geologic probability that a well at the closest standard location to the south and west would water out before it recovered the cost of drilling that well?

A. Yes.

Q. Describe for us the gain in structure in terms of footage that you attempt to achieve by taking your well -- your production at the unorthodox location point.

A. We're hoping to gain as much as 100 foot in structure at the unorthodox location, versus as little as 30 feet in the orthodox location.

Q. Do you have an opinion as to whether or not that

achieves an unfair advantage over the offsets, which are Chevron and Apache?

A. No, I do not believe that would give that unfair advantage based upon an allowable penalty.

Q. All right, sir. What proposed allowable penalty are you recommending to the Division Examiner?

A. We're proposing a .62 penalty, based upon --

Q. Well, that's a .62 allowable, isn't it?

A. Allowable, excuse me. -- based upon the standard calculations and also based upon the gas-water contact, as exhibited on our well, the Conoco State Number 1.

Q. Are the operating wells that Apache and Chevron have to the south and west of you still producing?

A. The well to the south of us is actually operated by Apache, not Chevron.

Q. All right. Chevron operates the well. Which well?

A. The two wells to the west and to the southwest, the Bogle Flats wells.

And in answer to your question, the Apache Smith Number 1 is still producing from that formation with perforations as low as 3487 subsea.

Q. In looking at the first component of the penalty, which is the productive acreage versus the total acreage in the section, what did you do?

A. Based upon a gas-water contact from our Conoco State Number 1 well, we gave it a minus 3450 subsea. And based upon that subsea datum, it would allow for over our Conoco State Unit 487.3 productive acres.

Q. How did you determine that the productive acreage above the water contact that remained in the section was 487?

A. Through planimetering.

Q. Did you share with Chevron the information you have just given me about the location and the approximate productive acreage within your section that remain?

A. Yes, on January 12th, in a meeting between Chevron and Apache.

Q. And what did you show them?

A. I showed them a map showing approximately 500 acres of productive section.

Q. Is that the same information you're about to show this Examiner?

A. That is correct.

Q. And what response did you receive from Apache and Chevron with regards to your calculation and opinion about the productive acreage left in your section?

A. At that time they agreed that that was basically how they interpreted it and that they would verbally agree to a .62.

Q. What about waste? Do you have a geologic opinion about whether or not waste is prevented by allowing Oryx to produce both the standard well and the unorthodox location well concurrently in this section?

A. Yes, I do have an opinion.

Q. What is that opinion?

A. Based upon some recent information in the field where downdip operators are pulling high-volume lift, it indicates there is gas that is left behind when wells are shut in, and also that gas will migrate off the lease to the updip position, which is controlled by Chevron.

Q. When we look at the Conoco State Number 1 well, what is its current rate in terms of approximate gas volume per day produced and water produced?

A. It's approximately producing 3 million a day and 75 barrels of water.

Q. Let's turn and look at your displays. Exhibit 1 is simply a cover sheet, is it not?

A. Yes.

Q. All right, let's turn past that and let's look at Exhibit 2. Before you describe it, identify it for me.

A. This is a structure map, Exhibit Number 2.

Q. Is this your work product?

A. This is my work product.

Q. Is this your work product, and all the rest of

these geologic displays represent your work product?

A. That is correct.

Q. Find for us Section 2 so that we at least have focused on the correct section shaded in yellow of those shaded in yellow.

A. Section 2 is located right here. You'll see an arrow locating our proposed unorthodox location in Township 22 South, Range 33 East, Section 2.

Q. Did you have a larger scale --

A. Yes, I do.

MR. KELLAHIN: -- of this map? Let's get that.

Mr. Examiner, I apologize. I don't have more than one of these, but I thought it might aid you in showing this to you because it's larger scale, and you're welcome to keep this. It's an identical copy of Exhibit 2, except it's on a larger scale.

EXAMINER STOGNER: Okay, I think we've got Section 2 established.

Q. (By Mr. Kellahin) All right. Let's look at the western side of the display. There's a line running vertically from north to south. Do you see the black line?

A. Yes, I do.

Q. Yeah, what is that?

A. That represents the boundary between Township 22, Range 23 East and Range 24 East.

Q. All right. Is that -- Now, I'm looking at the fault block that runs --

A. Oh, excuse me --

Q. -- on the west side of the display.

A. -- on the western side. That represents the known fault in Indian Basin, with the downthrown side being on the eastern side and the downthrown side being on the western side.

Q. As we move from that point, east on the display, what's happening to the structure?

A. The structure is going downdip, almost directly east.

Q. When we get to the eastern edge of the reservoir, there's a blue line. What's that?

A. That blue line represents the original gas-water contact of minus 3778.

Q. When we look at the purple line, what's that?

A. That represents the assumed or most probable gas-water contact at present, roughly 3450 over our lease and somewhat shallower over MW Petroleum's lease.

Q. What has caused the gas-water contact to migrate to the west?

A. Well, essentially what's happened is gas is being drawn updip, the water is encroaching from the east, and it's encroaching at differential rates.

Q. Okay. Describe for us how you constructed the structure map and its contour lines.

A. Essentially I picked the tops of the Upper Penn section, all wells, over the Indian Basin Pool, and constructed from that methodology.

Q. Okay. Are you satisfied that this structure map is an accurate and reasonable depiction of the structure on the top of this reservoir?

A. Yes, I am.

Q. Let's turn now to Exhibit Number 3 and have you identify that for me.

A. Exhibit Number 3 is essentially the same map, showing two cross-sections which have been constructed, cross-sections A-A' and cross-sections B-B', with cross-section A-A' representing the Conoco State Number 1, their proposed Conoco State Number 2 unorthodox location, and the Chevron Bogle Flats Unit Number 4.

Cross-Section B-B' is a cross-section that goes over Apache or MW Petroleum's lease and includes the C 1, their recently drilled well, the C 2, and the Bogle Flats Chevron Number 3.

Q. When Apache presented its case to the Division Examiner, did they present a cross-section?

A. Yes, they did.

Q. Let's get one out. If you'll take -- I believe

it's Exhibit 4, is it? No, from the Apache case. It's got a stamp in the right corner. Is that Exhibit 4?

A. It is Exhibit 4.

Q. All right. I'd like you to take this cross-section that they presented, identify for the Examiner the wells that are on that cross-section, and then let me ask you some questions about it.

A. The Apache cross-section shows the MW Petroleum, which is a wholly owned subsidiary of Apache Corporation, Federal C 1, which is a downdip well, shows the top of the Cisco/Canyon or the Upper Penn Section, shows their highest known water at minus 3458, and they've hung the section on a minus 3500. They show their proposed location for the Federal C 2, which was drilled in 1993, and then they show the Chevron Bogle Flats Unit Number 1.

Q. In defining or determining the productive acreage for the Apache section in 35, what then did they do?

A. It appears that they used a gas-water contact at that time of 3458 over their acreage, and then from that they calculated a productive acreage.

Q. Let's go to your cross-section, which -- let's do the --

A. It would be B.

Q. Do you want to do the B-B' first? Let's do that. It's Exhibit Number 6. Taking Exhibit 6, describe for us

now, Mr. Wolin, how you determine what the present gas-water contact is, as it affects your Section 2.

A. Essentially over Exhibit 6, essentially what we have is the same three wells again, this time hung on a minus 3400 subsea line, and in this cross-section I show the perforations over those three wells.

At present, the CJ 35 Number 1, which is MW's downdip well, is watered out. And you can see I've given at that time a minus 3400 subsea gas-water contact over their lease.

The next section to the west -- the next log to the west is their recently drilled well, the CJ 35 Number 2, and you can see that the perforations in the Upper Penn section are above that minus 3400 gas-water contact.

Q. So what does that tell you?

A. It tells me that what they were attempting to do is, they've come up from their downdip well which watered out, and they've kept above what I would assume to be the known gas-water contact.

Q. So how does that help you find out where the present gas-water contact is?

A. It tells me that they are producing no water in their well, and it tells me that the gas-water contact has to be below the basal perforations.

Q. And their basal perforation in their replacement

well is what? Minus --

A. It's about -- approximately minus 38- -- Excuse me, 3380.

Q. Okay, and then we look at the Chevron Bogle Flats well.

A. All the perforations in the Chevron Bogle Flats well are above that minus 3400 subsea line.

Q. Okay. Let's look at your A-A' cross-section. We have to go back to Exhibit 5.

All right, find these two wells for us. Hang on just a second. Find the two wells for us that are on Exhibit 5, Mr. Wolin.

A. The two wells on Exhibit 5 are -- One is located in Section 2; it's our present Conoco State Number 1. And the other one is in Section 10, and it's the Bogle Flats Unit Number 1.

And then there's also the proposed location, the Conoco State Number 2, as a stick figure on the cross-section.

Q. Okay. When we look at the -- your existing well in the section, the Conoco State 1, how did you determine the present gas-water contact in that well?

A. Up until very recently, within the last four months, I believe, the well was producing water-free, and the basal perforations in the Conoco State Number 1 are at

a -- are at a subsea number of minus 3508. And just recently the well began to cut water. So by --

Q. You can make a geologic argument that the gas-water contact is at least minus 3508?

A. Yes, you can.

Q. So what did you use when you picked the gas-water contact for your section?

A. For the proration I picked a minus 3450, 50 foot higher than our basal perforations.

Q. Well, why weren't you more aggressive and picked a deeper point and gave yourself more acreage?

A. I was trying to be conservative, based upon MW's wells.

Q. Okay. When we move, then, through your projected location for the Conoco State 2 well, we go over to the Chevron Bogle Flats Unit 4?

A. That's correct.

Q. All right. And all those perforations are water-free?

A. That is correct.

Q. Let's turn now to Exhibit 4 and see how you put all this together.

All right, sir, first of all identify for us what Exhibit 4 is.

A. Exhibit 4 is a blown-up scale map of Exhibit 3,

and what you can see is the Conoco State acreage that we own and also the structural contours and the gas-water contact.

Q. Okay. Describe for us now how you have specifically defined what is identified as the current gas-water contact within your section.

A. Based upon the Conoco State basal perforations of minus 3508, I've come up 50 foot updip to be conservative, and also it should be noted that the well due to the south of the Conoco State Number 1, the Apache JH Smith Number 1, has perforations down to a depth of minus 3487 subsea and is producing water-free. So --

Q. When you label this dashed line, "assumed", that's simply because you can't go out and actually find it site-specific on the ground?

A. That is correct.

Q. All right. Using the best available information, what is the degree of geologic confidence that you have in finding the productive acreage within your section?

A. It's very high.

Q. And when you calculate that surface acreage above the gas-water contact by planimetering, what number do you get?

A. 487.3 acres.

Q. Show us the relationship of the Apache

unorthodox-location well in Section 35, which is the Federal C 2, the relationship of that well to your existing Conoco State 1 well.

Q. That well is located approximately 65 feet updip of our Conoco State Number 1.

Q. Do you have a geologic opinion about how the water is moving in the reservoir and what accounts for water breakthrough?

A. My geologic opinion -- Yes, I do.

Q. And what is that?

A. My geologic opinion is that in areas of high permeability, which is difficult to quantify based upon the lack of core data, the water encroaches at a faster rate; and in areas of lower permeability the water is encroaching slower, which is represented by our Conoco State Number 1.

Q. You spoke a while ago of the fact that continuing the remaining life of the Conoco State 1 well, the existing well, there was an opportunity to recover gas that might be bypassed otherwise?

A. That is correct.

Q. Describe for us how you reach that opinion.

A. There are a number of offset operators in the downdip position that have recently re-entered downdip wellbores and are producing, on high-volume lift, gas in the Upper Penn Pool, at rates of approximately 1500 MCF a

day, with associated water, approximately 4000 barrels a day, and this indicates that there is bypass gas after these wells are shut in.

And by producing the Conoco State Number 1, in concurrence with the proposed location, we would obtain some of that bypass gas.

Q. In your meetings with Chevron, did any of Chevron's personnel object to any of the methods by which you had come up with the productive acreage within your section?

A. No.

Q. Let's turn to Exhibit 7. What is this, sir?

A. Exhibit 7 is an example of one of the downdip operators that have re-entered an older wellbore, perforated in the same interval --

Q. Is there a map that we can use to find out where the John Trigg Federal --

A. If you look at Exhibit Number 3 --

Q. Yes, sir.

A. -- you will see in the southeast quarter, Section 6, in the very extreme northwest quarter, is the well. It's very dark.

Q. I'm sorry, my eyes aren't good enough to find it. Is it Section 6?

A. It's Section 6.

Q. Okay, the map says Section 2.

A. Well, if you look at the larger-scale map, which is Exhibit 4, you'll see that well on the extreme eastern side, right there. It's called the Trigg Federal IB Number 6.

Q. All right, just right on the edge of Exhibit 4 on the right-hand margin?

A. That is correct.

Q. All right, and that's the well you've been describing?

A. Yes.

Q. Let's look at Exhibit 7. Show us what's happened.

A. In Exhibit 7, you'll notice I put two gas-water contacts, the first one being the original gas-water contact of a minus 3778, and this well produced up until the time frame of 1989, when it watered out.

Essentially what's happened recently, within the last year, Yates Petroleum has re-entered this wellbore, perforated the exact same interval that had been opened up earlier when this well was originally P-and-A'd, and produced on a high-volume lift on an average of about 1500 MCF a day -- the initial potential was 1700 -- 10 barrels of oil and 4633 barrels of water per day, indicating bypass gas.

Q. Let's go back to Exhibit 4, which is the map that's got productive acreage on it.

When the Division allowed MW/Apache to have its well at the unorthodox location with the 62-percent allowable, geologically, is there anything between that well and your Conoco State Number 1 well that would impede the migration of gas from your producing well towards their unorthodox-location well?

A. Nothing whatsoever.

Q. In the absence of a replacement well in your section, where is the gas going to go?

A. Updip to either Apache's well or Chevron's wells up there.

Q. If the Division denies you the opportunity to produce the original well concurrently with the replacement well, what's going to happen?

A. Essentially some of the gas will migrate offdip, updip.

Q. If the Division adopts your penalty, which is the 62-percent allowable, and the current allowable is 6.5 million, it gets you approximately 4 million a day allowable for the spacing unit?

A. That's correct.

Q. And the current well is now making about 3 million a day?

A. That is correct.

Q. And so you want the chance to produce that penalized allowable among the two wells?

A. That is correct.

Q. Do you see any reason to further penalize the spacing unit or these wells, simply because you have two in the section?

A. None whatsoever.

Q. In fact, are there not -- Is there not a section operated by Marathon that's got two wells?

A. That is correct.

Q. Those two wells are at standard locations?

A. That is correct also.

Q. But those two wells share an allowable, don't they?

A. That is right.

Q. All right. Summarize for us, Mr. Wolin, what you want to do.

A. Essentially what we're asking is to be granted an unorthodox location with a .62 allowable and to be able to produce that allowable from the single proration unit.

MR. KELLAHIN: That concludes my examination of Mr. Wolin.

We move the introduction of his Exhibits 1 through 7.

EXAMINER STOGNER: Exhibits 1 through 7 will be admitted into evidence.

Thank you, Mr. Kellahin.

Mr. Carr, your witness.

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Wolin, let's look at Exhibit Number 2. This exhibit is a structure map on the Indian Basin field; is that correct?

A. That is correct.

Q. The light blue line shows the original gas-water contact, and the dark blue where you have --

A. That is correct.

Q. And as this pool has continued to be produced, that dark blue line, the current gas-water contact, continues to move to the west, does it not?

A. That is correct.

Q. And are you the individual that actually placed the dark blue line on this exhibit?

A. Actually, that was done by our computer graphics department.

Q. What information do you look to, to determine where to place that line?

A. Basically, the perforations in the wells that are beginning to water out.

Q. Do you consider the water production that's occurring in the wells in proximity to the line?

A. That's correct.

Q. And as wells west of the line start to water out, you move that line to the west; isn't that right?

A. Depending upon what section I'm in.

Q. You talked about this water encroachment to the west occurring in an irregular fashion across certain sections, did you not?

A. That is correct.

Q. And yet you've picked a gas-water contact and applied it uniformly across Section 2, isn't that what you've done?

A. Essentially. It's not exactly uniformly, but pretty close to uniform. You can see from my Exhibit 4, it's not uniform in the northern quarter.

Q. If we -- You really can't tell exactly how it's going to move across that section until it actually hits a well; isn't that right?

A. We can make a reasonable determination of that.

Q. And is it your opinion that it is encroaching in a basically uniform pattern across this section?

A. From the limited data I have, that is my opinion.

Q. If I look at Exhibit Number 2, the one we're looking at, and I compare it to Exhibit Number 4, it

appears to me that the assumed gas-water contact differs as you've placed it across the Section 2 on these two exhibits; is that not right?

A. I think the only difference you're looking at is the difference between and 8-by-11 computer-generated map and a blown-up map represented by Exhibit 4, being a much more accurate map.

Q. In fact, if I look at Exhibit 2, it appears to me that the gas-water contact sort of bows toward the west; would you agree with me on that?

A. I think that's just a factor of how the computer is putting on a contour line.

Q. So are you saying that this one we should disregard and go to the one on Exhibit Number 4?

A. I say Exhibit Number 4 is more accurate as being a blown-up map.

Q. Have you planimetered the productive acres in Section 2 using the map as we see it on Exhibit 2, or did you only focus on what's shown on Exhibit Number --

A. What's shown on Exhibit 4.

Q. If I look at Exhibit Number 4, and I have the assumed gas-water contact, you drew that line, correct?

A. That is correct.

Q. And if I am correct on this, the wells east of that line are not productive at this time, they have

watered out; is that --

A. That's correct.

Q. And you have how many producing wells at this time west of the line? I see three of them. I see the MW Petroleum in the southwest of 35, your well in the northwest of 1, and then south of that in Section 11 I believe there's also one?

A. That is correct.

Q. In placing the assumed gas-water contact, you have considered the water production from each of the wells on the west side of the line if there is any?

A. That is correct.

Q. And you are using how much water production in your calculations from your well in the northwest of -- I think it's --

A. Are you talking about the Conoco State Number 1 well?

Q. Yes, sir.

A. We're producing 75 barrels a day, to my knowledge.

Q. And did that factor into your placement of this gas-water contact?

A. Yes, I moved it up 50 feet from our bottom perforations.

Q. The well down in Section 11, are you showing any

water production from that well?

A. Not to my knowledge on Apache's well.

Q. What about the MW well in the southwest of the southwest, their Federal C 35 Number 2?

A. It is indicated by their engineer that they had no present water production.

Q. If in fact that well since December has gone from 6 million a day to 3 million a day and started producing at a rate of 83 barrels of water a day, wouldn't that have some impact on this exhibit?

A. That would only draw -- that would be -- Essentially you have no impact because, as you can see, I've shown that I've brought the gas-water contact on their lease down to roughly where their perforations are.

Q. And so the fact that you're getting that kind of a change in the gas-water contact or -- the production from that well wouldn't suggest to you that in fact the gas-water -- assumed gas-water contact ought to be further west?

A. It would not suggest that, and what it might indicate to me, that our Conoco State well is going to be affected by their production updip.

Q. Now, if you're permitted to produce two wells on this unit, isn't it possible that the remaining production in Section 2 could in fact be produced from the existing

well? That's the intent of this, is it not, of leaving the old well on production?

A. Based upon engineering data -- and I'm not an expert as an engineer -- that these wells can water out extremely fast, and that might not be the case.

Q. When you say "extremely fast", is it possible within a matter of months that the --

A. Within a matter of months.

Q. -- existing well could be gone?

Is, in your opinion, the gas-water contact moving that quickly across this reservoir?

A. It depends upon what the encroachment is, based upon permeability. It appears to be moving slower across the Conoco State lease, because we are still producing water-free.

Q. The penalty that you're going to be recommending is based on your geological interpretation of the number of productive acres in 2; is that not right?

A. That is correct.

Q. And the effectiveness of the penalty to protect the other interest owners is in fact based upon the accuracy of your interpretation?

A. That is correct.

Q. And as a geologist, you have to work with the information that you have; isn't that fair to say?

A. That is correct.

Q. And if in fact two months from now we find that the Conoco State Number 1 well, the existing well in Section 2, is watered out, that would suggest that in fact at that time there is substantially less productive acreage than there is now?

A. I don't think it would suggest that, for the simple reason that when we approach a certain water level, a certain amount of water in these wellbores, they tend to die, even though they're capable of producing gas.

So when we're making, say, above 300 barrels a day of water, these wells -- the gas-water contact may still be lower in the well, but from an economic limit on lift we can no longer produce that well.

Q. When that occurs, isn't it prudent to go ahead and rework the well, attempt to continue to maintain it at a commercial level?

A. If it is possible. That has not proved to be a very good solution in the field.

Q. Has not Oryx filed a sundry notice seeking to re-work the existing well, the Conoco State Number 1, in Section 2?

A. That is correct.

Q. And isn't it your intention to go in and re-work this and attempt to maintain it at as high a producing

level as possible?

A. If possible, but we have grave doubts about that work.

Q. Wouldn't it be prudent to do that before you go out and drill an additional well in the unit?

A. I think we would need to have the unorthodox location approved in case that well goes down very quickly.

Q. Would you drill the unorthodox well prior to reworking the existing well to determine whether or not you can return it to commercial production?

A. I guess my answer to that would be, we are going to attempt to rework the original well first, but we still need the unorthodox location --

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

A. We will attempt to rework the original well first.

MR. CARR: I think that's all, Mr. Stogner. Thank you.

Thank you, Mr. Wolin.

EXAMINER STOGNER: Mr. Kellahin, any redirect?

MR. KELLAHIN: Just one point to make sure I'm clear.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Wolin, Mr. Carr asked you about the

structural position of the MW/Apache Federal C Number 2 well, their unorthodox location well.

A. Yes, sir.

Q. And if that well is recently beginning to show some water encroachment, would that water encroachment occur at the lowest perforations in that wellbore?

A. That is correct.

Q. If you extend that point out laterally at that structural position, is it going to modify the pick of the gas-water contact as you've displayed it in Section 35?

A. Let me refer to my cross-section B-B'.

Q. All right, sir, let's do that.

A. And you see that the --

EXAMINER STOGNER: Exhibit 6, is it?

THE WITNESS: Exhibit 6 is correct.

You can see from that exhibit that the top of the Upper Penn section is at a minus 3298.

Q. (By Mr. Kellahin) Yes, sir.

A. And that the lowest perforation is approximately 70 feet below that. So that would make a rough subsea depth of a minus 3368 or thereabouts.

And I think if you look at where my gas-water contact line goes across the lease --

Q. Uh-huh.

A. -- that's roughly where it falls in.

Q. Okay. And have you also honored the fact that when we look at the lower perforations in your Conoco State Number 1 well, and if you're getting water encroachment at that point, if you project laterally out into the reservoir at that footage, is it going to match your gas-water contact line?

A. Yes, it will. In fact, it will be -- mine will be a little bit more conservative than that.

Q. You have moved the contact higher in your wellbore than you might otherwise have done?

A. That is correct.

Q. And by moving it higher, you have reduced your productive acreage?

A. That is correct.

MR. KELLAHIN: No further questions.

EXAMINATION

BY EXAMINER STOGNER:

Q. Let's see, I have a few questions.

Referring to Exhibit Number 4, because I wanted to make sure that we get the water contact in case any planimetering has to be done, you were gracious enough to give me an Exhibit Number 2 that has a large scale, which is just a little bit smaller than your Exhibit Number 4.

It appears to me the gas-water contact kind of follows that 3400 contour line, but then in Exhibit Number

4 you have it bowing out to the east. I want to make sure that I have this right.

A. As I've stated before, the computer generated product --

Q. Okay, I'm looking at Exhibit Number 2 --

A. Two that's correct.

Q. -- enlarged. Let's get this straight now. You show it following 3400 contour line. Is it or is it not following that 3400 contour line?

A. This Exhibit Number 2 --

Q. Uh-huh.

A. -- is roughly following the 3400 contour line, but this exhibit on the smaller scale map is at 200-foot contour intervals.

Q. I'm looking at your enlarged exhibit --

A. I understand, the enlarged exhibit.

Q. -- which is not much smaller than 4. Let's forget about that little Number 2.

A. Okay.

Q. I'm looking at your enlarged Exhibit Number 2, so you can't use that argument that the scale of the computer --

A. Well, it's still the same as -- Okay, let me explain.

Q. You have it bowing out to the east.

A. Okay --

Q. I still don't understand this.

A. Okay, let me explain. For presentation purposes, the computer-generated map, which is the smaller Number -- Exhibit Number 2, has been expanded to a no-scale; there's no accurate scale on this map. This is just an exhibit right here, this one right here, that has no accurate scale. And when it expanded the smaller scale, it expands the gas-water contact at the same scale and causes it to bow in. It's a computer-generated product.

MR. KELLAHIN: Let me ask you this, because I'm not sure you're clear. You've taken the little display --

THE WITNESS: That is correct.

MR. KELLAHIN: -- and you've taken this and blown it bigger?

THE WITNESS: That is correct.

MR. KELLAHIN: It was not the big map reduced to the small display size?

THE WITNESS: That is correct.

MR. KELLAHIN: All right.

THE WITNESS: And that the actual structure map that we have used for the planimetering and the interpretation is Exhibit Number 4.

Q. (By Examiner Stogner) Let's take that for a minute. What would be the closest standard location for

your proposed Number 2 in Section 2?

A. It would be 1650 from the south and 1650 from the west, on Exhibit Number 4, which is a two-scale map, and that would put us only slightly updip structurally.

Q. How much more of an advantage do you have with that well, proposed well, being 800 foot from the south and west line as you do at a standard location?

A. Seventy --

Q. I'm sorry.

A. Excuse me, Mr. Examiner. Seventy foot extra structural section.

Q. Seventy foot of extra structure. So I can translate that over on my Exhibit Number -- cross-section, Exhibit Number 5.

A. To the A-A' exhibit?

Q. Yeah. So you're only talking about a 70-foot advantage?

A. To about essentially minus 3240 to -50 subsea in the unorthodox location.

Q. Okay. And what does that translate to as far as -- Well, I guess I should ask your reservoir engineer that.

A. Essentially, what we're saying is, by drilling the unorthodox location we will gain a hundred foot of structural advantage from the Conoco State Number 1.

By drilling at an orthodox location we could gain as little as 30 foot of advantage. And essentially we would be drilling what could be an uneconomic well.

EXAMINER STOGNER: Mr. Kellahin, I don't have any other questions of this witness at this time. Perhaps after the -- your engineering testimony.

MR. KELLAHIN: All right, sir.

Mr. Examiner, I have some extra copies of Mr. Phillips's engineering displays which may be a little easier to read than some of the others, but the stamped set is the small set in front of you.

EXAMINER STOGNER: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

LARRY R. PHILLIPS,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and occupation?

A. Larry R. Phillips. I'm a petroleum engineer for Oryx Energy.

Q. Mr. Phillips, on prior occasions have you testified before the Division?

A. No.

Q. Summarize for us your education.

A. I received a BS in petroleum engineering from the University of Texas in 1978.

Q. Subsequent to graduation, summarize for us your experience as a petroleum engineer.

A. I started for two years with Arco in Alaska, stationed in Anchorage as an operations/analytical engineer.

I came back to Dallas and worked for a year with the Sun Gas Company as an administrative reservoir engineer and then worked eight-plus years for Netherland Sewell and Associates, a consulting firm out of Dallas, and then came back to Oryx Energy, at the time Sun E&P, in 1989, September.

Q. How many years have you practiced reservoir engineering within your petroleum engineering discipline?

A. Fourteen.

Q. And in what part of the United States has that reservoir engineering been done?

A. It's been in every basin in the United States and many abroad.

Q. Are you familiar with the reservoir engineering aspects of the operations for Oryx's interest within the Indian Basin-Upper Penn Gas Pool?

A. Yes.

MR. KELLAHIN: We tender Mr. Phillips as an

expert reservoir engineer.

EXAMINER STOGNER: Any objections?

MR. CARR: No objection.

EXAMINER STOGNER: Mr. Phillips is so qualified.

Q. (By Mr. Kellahin) From a reservoir engineering aspect, Mr. Phillips, describe for us what's happening in Section 2.

A. We have been producing from the Number 1 well since the 1960s, from just that well, water-free until very recently, we've started making some water. We're currently unable to produce at much more than around 3000 MCF per day.

Q. Is there remaining gas reserves that are recoverable within Section 2 that are not going to be recovered by this well?

A. Yes.

Q. What do you propose to do in order to recover your share of the gas in the pool from this section?

A. Our proposal is to drill an unorthodox location updip in Section 2.

Q. In the absence of drilling the well at the proposed unorthodox location, what happens to your share of that gas?

A. It migrates updip and we lose it.

Q. It goes off the section?

A. Yes.

Q. Let's talk about the two-well concept.

A. Okay.

Q. Are you familiar with the sequence of operation by Apache in Section 35 to the north?

A. Yes.

Q. Did they ever request of Oryx the opportunity to concurrently produce their original well with the replacement well?

A. No, they did not.

Q. What was happening to them at the time that they sought to have a replacement well?

A. They were starting to make water very similar to the way we are now.

Q. At the time of the hearing, Ms. Leonard testified that she was making about 1.9 million a day and about 800 barrels of water.

A. Right.

Q. With that kind of rate, did she have any realistic opportunity to produce those wells concurrently?

A. At that point, probably not, although they never did try to lift that much water.

Q. There was no workover attempt on the Federal C Number 1 well in Section 35?

A. I believe there was. Our operations engineer

might be able to speak better to that.

Q. But in other -- In terms of shutting off the 800 barrels a day, they did not seek to do that?

A. We have never found any operator that's been very successful at being able to shut off water.

Q. Do you see any disadvantage to the offset operators if the Division allows you the opportunity to take a penalty on the entire spacing unit and to apportion that penalized allowable, then, between the two wells?

A. None.

Q. Why not?

A. That's our reasoning for seeking the penalty, the precedent that's been set, that protects our offset neighbors' allowables.

Q. Using the penalty of productive acreage and encroachment, it's the 62-percent allowable?

A. Yes.

Q. Whether it's a single well or two wells?

A. Right.

Q. Does the addition of the first well -- in other words, the opportunity to continue to produce that -- gain you any kind of advantage?

A. I think the thing that that does for us is, it allows us to be prudent operators, to maximize production from our acreage that would be bypassed if that well was

simply shut in.

Q. Let's turn it the other way around. If the Division does not let you produce the well at its unorthodox location, the replacement well, until the original well is fully abandoned, what happens to the upstructure gas in the southwest corner of your section while you're waiting the chance to produce the replacement well?

A. Well, that's where the real damage comes in. That gas continues to be produced by Chevron and Apache, whereas if we're limited to the current well and say we can manage to continue producing at 3 million a day, that difference between that and our allowable is being gained by updip operators.

Q. So every day that you wait to protect yourself from drainage by the upstructure well is gas that moves off your section?

A. Absolutely.

Q. Let's look at Exhibit Number 8.

A. Okay.

Q. What are you showing?

A. That's simply a summary of our request as Roy has summarized before.

Q. Okay. And then Exhibit Number 9?

A. The basis of our request, we simply contend that

as a prudent operator, reservoir management is maximized by being allowed to produce from the two wellbores.

Roy has mentioned the example of the bypass gas --

Q. Do you share his conclusions -- As a reservoir engineer, do you share his geologic conclusions about bypass gas?

A. Yes.

Q. You've looked at the issue that's been represented by the Yates well to the east?

A. Yes.

Q. The conclusion is, then, from your perspective -- ?

A. -- that having one well per 640 we are going to lose gas that's trapped behind as the water moves past.

Q. Okay.

A. And we further content that our correlative rights will be impaired if Oryx is not allowed to produce these wells concurrently, and we'll show production from offsets and again the geological reservoir data showing the uneven encroachment of the water.

Q. When you mean "uneven encroachment", is it also unpredictable as to time?

A. Absolutely. We, for example feel very fortunate --

Q. I'm sorry, I can't -- Speak up.

A. We feel very fortunate that the Conoco State 1 produced as long as it did, water-free.

Q. Your highest current rate prior to water production was what, sir?

A. We were at about 6500 MCF per day.

Q. You're producing up near allowable, then, aren't you?

A. Yes.

Q. And what happens?

A. Once the water hit?

Q. Yes, sir.

A. We're currently able to produce at about 3000 MCF per day.

Q. Have you examined whether or not there is any relationship to what is happening with the Conoco State 1 well because of the operations of Apache's well at its unorthodox location?

A. Well, certainly they were pulling that well as hard as they could, well above allowables. In fact, they recently had to cut back to get back in conformance.

And that pulling, that close up to our well, certainly you could argue that that pulled the water to us quicker.

Q. Let's look at Exhibit 10. What's the basis for

the exhibit? And then describe for us what you've done.

A. This is simply the acreage factor calculations. There were two factors that go into that.

Productive acreage based on detailed geological evaluation, which you've been presented already, that part of the equation comes out to .76 allowable.

Distance ratio method comes out to a .48.

The average between the two is our proposed .62.

Q. Ms. Leonard presented to Examiner Stogner at her hearing a three-part formula. Have you in fact made the calculation in both ways?

A. Yes.

Q. Does it make any appreciable difference?

A. It makes it slightly higher. It would be about 64 or 65 if we used her --

Q. If you used her formula, you get about 64 or 65 as the allowable?

A. Yes.

Q. And by taking out the double-circle parameter, then you get an allowable of 62 percent?

A. Yes, sir.

Q. All right, sir, let's turn now to Exhibit Number 11 and have you identify and describe that exhibit.

A. This is simply a P-over-Z versus cumulative production plot for the Conoco State Number 1.

We're currently at a cum of 40 BCF at a pressure of about 1000 pounds, P over Z of 1175.

And this simply shows us that there is considerable gas left in the area.

Q. All right, let's look at the P-over-Z plot. If you take it down to zero pressure --

A. Uh-huh.

Q. -- what is the total expected cumulative production from the well?

A. If you could take it down to zero pressure, it would be right at 62 BCF.

Q. All right, if you take it back to an abandonment pressure of about 500 pounds, what is going to be your cumulative recovery?

A. About 52.5.

Q. It appears now, though, because of water encroachment you're only going to get about 46 BCF; is that what you've shown us here?

A. That would be with an updip location.

Q. I'm sorry, explain it again, then, because I didn't understand.

A. Currently we don't expect to get a whole lot more from the Number 1 well.

Q. So where are you now in terms of cumulative recovery from the Number 1 well?

A. 40 BCF.

Q. All right. How is this used by you, then, in deciding whether or not there's remaining gas in your section to justify the updip well?

A. Simply, we use it to show management that there is a basis for -- determine that there are updip reserves left to get, and we use a risk number based on this kind of data to run economics to justify drilling the updip location.

Q. All right, sir. Let's turn now to Exhibit Number 12.

A. Okay.

Q. Before you describe what you're trying to demonstrate, show us what's on the display.

A. Okay, Exhibit 12 schematically shows the wells in their correct positions as far as in relationship to the Oryx Energy Conoco State Number 1 well, which is on the right.

MR. KELLAHIN: All right, Mr. Examiner, you should have a larger scale of this display which might be easier to read. I apologize for only having one set of the larger copies.

Q. (By Mr. Kellahin) When you look at the Oryx Conoco State 1, it's got the gray shading in the caption?

A. Yes.

Q. And then you have located the four wells in the approximate position they would be in relation to that well on the ground?

A. Right.

Q. Okay. How is this useful to you?

A. It simply demonstrates the strong production that exists all around us.

MW Petroleum, with their second well to the north of us, averaged 5000 MCF a day when they had an allowable of 4000, up until October when they cut back to about 1200 MCF a day.

The Chevron Bogle Flats well, with a cum of 40.7 BCF, has averaged 6.2 MMCF a day through November of 1994.

For 1994, the Chevron Bogle Flats Number 4 well, directly south of their 3 Number 1, averaged 6.4 through November of 1994. October and November, they were producing at over 7.3 MMCF per day.

And directly south of us, the MW Petroleum has averaged 6.861 MMCF per day for 1994.

Q. What engineering conclusions do you make that are relevant to the case?

A. The point here is that with the strong production existing updip of us, that if we are not allowed to move a location updip, that these wells are certainly capable of producing the gas off of our lease.

Q. Do you see any reservoir limitation or restriction to keep that gas from migrating off Section 2?

A. None.

Q. Let's turn to Exhibit Number 13, and I guess we just have the flip situation?

A. Yes.

Q. The Oryx well, again, is in gray, and you're now looking at the yellow-captioned wells that are to the downstructure side?

A. That's correct.

Q. All right. Describe for us what you're showing.

A. The point here is that we cannot predict what the water is going to do to any great degree of success, nor how it's going to affect the well.

If you look at the Lowe State to the north and east of our well, it produced a fair amount of water for a number of years before finally going down, with still a fair amount of gas, waited a full two years before putting the Number 2 well in, and that well lasted about four years before it was unable produce any longer. One well cum'd 16.5 BCF, the second well cum'd 1.9.

The -- Directly to the east of us is the Musselman, Owen and King Smith Federal lease, where you can see that the water in this case was on a steady incline and the gas on a steady decline. They didn't lose this well

all at once; they lost it over a fair number of years. Yet when they drilled the second well, after a two-year period they still were able to produce for four years nearly water-free.

Then to our south, the MW Petroleum Smith Number 1 is in there, showing no water production as of yet.

And then the MW Petroleum Smith Federal 1 and 2, one location east, shows the Number 1 being lost quickly. As soon as water hit, they were unable to produce any longer, waited two years to produce, and were unable to make a second well.

So you can see there's great variety in how the water comes, how quickly it comes, and how it affects you.

The point we would like to make is that we're not willing to just give up the gas from the Number 1 location to water encroachment and lose that to being bypassed and to being uneconomic to produce.

It may be that we can continue to produce the Number 1 for some period of time and get gas that would either otherwise be completely lost to production or move on updip with updip operators producing that gas.

Q. Let me ask you to turn to a specific example. I'm not going to ask you to go through all these exhibits here that illustrate water encroachment, I'm going to ask you to summarize them for me in a minute.

But let's take one of them as an illustration, and let's go back to Exhibit Number 14, which is the next display, and this is the MW Apache Federal 1 and 2 production display.

A. Okay, this is again one step further south than the previous display that you saw.

The HOC Federal Number 1 went off production in 1990 when water was encroaching. They were just able to -- They were not able to economically produce that well. They waited a year and a half before trying the Number 2 and were only able to produce 267 MMCF of gas before they could no longer deal with the water production.

Q. In the second one?

A. In the second well, yes.

Q. All right. Does this not illustrate what you're concerned about for your section --

A. Yes.

Q. -- that if you delay the replacement well until the first well no longer produces, the second well never recovers enough gas to pay for itself, and all the remaining gas migrates upstructure?

A. Yes, that's certainly a danger.

Q. Is this water migration a pattern in the reservoir where the problems that you and Apache have experienced will continue to occur as water migrates to the

west?

A. Absolutely.

Q. And that's what the rest of these things show, are they not, when we look at Exhibits 15 through 23? They're simply examples of water encroachment?

A. 15 and -- Well, 14 and 15, that's true. 16 is the example of the far downdip Yates Petroleum well that Roy has already discussed, and the fact that they are producing at high-volume lift and able to make gas.

Q. All right, sir. You've got specific references to illustrate your conclusions about that?

A. Yes.

Q. Have you been involved with Mr. Wolin's analysis and interpretation of the current gas-water contact? Has that been anything that you've worked on?

A. It's something that we talk about a lot, yes.

Q. Do you see any engineering evidence that is contrary to the geologic conclusions he has made about the present character of that gas-water contact within Section 2?

A. No, it makes sense. There is preferential movement of the water through high-perm areas that easily explain the erratic nature of that contact.

Q. When we try to depict that line, though, to the best of our engineering and geologic skills as it is shown

on Exhibit 2, do you concur with his conclusion about the location of that line?

A. I would argue that it should be lower on our lease, but I have no problem with where Roy has put it.

Q. If it's lower on your lease, then that gives you more productive acreage?

A. Yes.

MR. KELLAHIN: That concludes my examination of Mr. Phillips, Mr. Stogner.

We would move the introduction of Exhibits 8 through 23.

EXAMINER STOGNER: Exhibits 8 through 23 will be admitted into evidence at this time.

Let's take a lunch recess and reconvene at 1:30. I have now 12:25.

(Thereupon, a recess was taken at 12:25 p.m.)

(The following proceedings had at 1:35 p.m.)

EXAMINER STOGNER: Hearing will come to order.

Mr. Kellahin?

MR. KELLAHIN: That concludes my examination of this witness, Mr. Examiner.

EXAMINER STOGNER: Okay, Mr. Carr, your witness.

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Phillips, if I understand the testimony, Oryx

is proposing a penalty on the well at the unorthodox location so that you'll have actually an acreage factor -- Is it 63 percent?

MR. KELLAHIN: Sixty-two.

Q. (By Mr. Carr) Sixty-two percent; is that right?

A. Well, the way you worded it is not quite right. We're not asking it for that well but for the unit.

Q. Correct. And the purpose of that penalty is to really protect correlative rights, is it not, because of the unorthodox location?

A. Yes.

Q. Not only the other operators in the pool but also to enable Oryx to -- permitting Oryx to produce its share of the reserves under that tract?

A. Yes.

Q. It's important, therefore, that the penalty be as accurate as possible to achieve that purpose; isn't that a fair statement?

A. Yes.

Q. Now, if I look at the Conoco State Number 1 well, the existing well in Section 2, when did you start producing water in that well?

A. I believe it was November.

Q. 1994?

A. Yes.

Q. When you start producing water in one of these wells, is it possible for the well to water out completely in a fairly short time frame?

A. Yes.

Q. Is that the typical experience with one of these wells?

A. I don't think there is a typical experience.

Q. But that is possible?

A. Yes.

MR. CARR: That's all I have.

EXAMINER STOGNER: Thank you, Mr. Carr.

EXAMINATION

BY EXAMINER STOGNER:

Q. Mr. Phillips, you were talking, I believe, in your testimony about this well having to be drilled at an unorthodox location to essentially offset drainage from the other sections; is that correct?

A. Yes, sir.

Q. Okay, and you were referring to which wells in particular?

A. In particular to the west would be the Chevron Bogle Flats wells, due west and southwest. And then the due north and due south, the two MW Petroleum wells.

Q. Okay. Now, the Bogle wells, what -- Do you know what -- if they're at standard locations or unorthodox

locations?

A. Standard locations.

Q. And how about the well to the immediate south?

A. Standard.

Q. Standard. But the MW well that you're referring to is the one to the north; that's at the unorthodox location, right?

A. Yes, sir.

Q. I guess I'm a little confused when you say to offset the drainage that's being incurred from these wells that are at standard locations. Do you want to elaborate a little bit on that?

A. Sure, and there's another reason behind the unorthodox location as well, that Roy has referred to.

As we've pointed out, the gas is going to move upstructure. So any well located upstructure, orthodox or unorthodox, is going to be pulling gas.

The major reason for asking for the unorthodox location is, it's a much less degree of risk for us to drill there. With 640-acre spacing, how high you're going to get upstructure, therefore away from the water, is somewhat questionable. The further we can move in the direction we know is upstructure, the much greater likelihood that we will have a successful completion, and we're willing to take the penalty in order to reduce the

risk of the drilling cost.

Q. Now, the acreage factor to be assigned, .62 acre factor, that's correct, right?

A. Yes, sir.

Q. That is to be assigned a proration unit with both wells being allowed to produce?

A. Yes, sir.

Q. Okay. I haven't calculated, but what's the acreage factor on this proration unit presently? It's not one, is it? It's a little bit more?

A. I'm sorry, I'm not really sure I understand your question. Our allocation factor is one.

Q. How big is the proration unit?

A. I'd have to defer the question.

Q. Okay. The reason I'm asking, because I have this Section 2 having 654.28 acres, which 640 acres divided by that is a little over -- What? About 1.1? So I think you have an acreage factor that's a little bit more than the standard one, or at least it should be. I don't have a proration schedule.

That should be carrying a 1.02.

MR. KELLAHIN: Mr. Examiner, in our copy of the proration schedule it looks like we're carrying 640 acres, and maybe we're looking at a different line, so if I might approach you, I'll show you what I thought was the well.

EXAMINER STOGNER: That's what I'm getting at, if it's -- is it -- Well, you've been gypping yourself out of .02; that's what you should have been having the whole time.

MR. KELLAHIN: All right, we were going off the schedule. It said 640 acres.

EXAMINER STOGNER: Okay, then that's what -- I won't confuse the issue then.

If you remember right, I believe that Musselman, Owen and King application that we had in here several years ago had an acreage factor of 1.05 or 1.1, something to that -- But in this one we're not talking all that much, so we'll just go with the standard of what's on the proration schedule and refer to the Section 2 as having 654 with an acreage factor of one.

Okay, I don't have any other questions of Mr. Phillips at this time either.

You may be excused.

MR. KELLAHIN: That concludes my presentation, Mr. Examiner.

EXAMINER STOGNER: Okay, thank you, Mr. Kellahin.

Mr. Carr?

MR. CARR: Thank you, Mr. Stogner.

At this time we call David Rittersbacher.

EXAMINER STOGNER: Mr. Carr?

DAVE RITTERSBACHER,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. My name is Dave Rittersbacher.

Q. Mr. Rittersbacher, where do you reside?

A. I reside in Midland, Texas.

Q. By whom are you employed?

A. Chevron USA, Inc.

Q. What is your current position with Chevron?

A. I'm a geologist with Chevron.

Q. Have you previously testified before this Division?

A. No, I have not.

Q. Could you briefly review your educational background for Mr. Stogner and then summarize your work experience?

A. I have a BS in geology from Colorado State University, 1983, an MS in geology from Colorado School of Mines, 1985.

I've worked nine years as a petroleum geologist with Tenneco Oil Company in Denver and Chevron, USA, in Hobbs, New Mexico, and Midland, Texas.

Q. Does the geographic area of your responsibility for Chevron include the portion of southeastern New Mexico involved in this case?

A. Yes, it does.

Q. Are you familiar with the proposed Conoco State Number 2 well?

A. Yes, I am.

Q. Have you made a geologic study of the area surrounding the proposed well?

A. Yes, I have.

MR. CARR: Mr. Stogner, we tender Mr. Rittersbacher as an expert witness in petroleum geology.

EXAMINER STOGNER: Are there any objections?

MR. KELLAHIN: No objection.

EXAMINER STOGNER: Mr. Rittersbacher is so qualified.

Q. (By Mr. Carr) Mr. Rittersbacher, could you state what Chevron seeks by appearing in this case?

A. We'd like to provide the Commission information to use as a basis for imposing a proper acreage factor allowable for Oryx's Conoco State lease. This will ensure the protection of Chevron's and offset operators' correlative rights.

We propose an acreage factor of .48, for a penalty of .52, based on productive acreage and distance

from the lease line.

Q. Have you prepared exhibits for presentation here today?

A. Yes, I have three exhibits.

Q. Let's go to what has been marked Chevron Exhibit Number 1. Would you identify that and then review the information on it for Mr. Stogner?

A. Chevron Exhibit Number 1 is a structure map on top of the upper Penn dolomite, which is the gas reservoir for the Upper Penn Gas Pool.

The area includes a one-section boundary around the Conoco State lease, and the structure dips off to the east at approximately 200 feet per mile.

The location of the Conoco State Number 2 well is in the southwest southwest of Section 2 and is shown by the small black arrow.

The Conoco State Number 1 well, which has been a point of discussion, is located in the southeast northwest of Section 2.

On my map, the blue wells represent wells that have watered out or wells that are currently making a significant amount of water, in excess of 50 barrels a day.

Within the wells that are colored blue, there are two wells that are still currently producing. One of them is in the southwest southwest of Section 35. It is the

Federal C 35 Number 2. Its current rate is 3 million cubic feet of gas per day and 85 barrels of water per day.

And as testified earlier, the Conoco State Number 1 is also making water at about the same rate, three million cubic feet of gas per day and 75 barrels of water per day.

Also shown on our map is our interpretation of productive acreage. It is a dashed line that cuts through Section 2, and it's labeled "Eastern Limit of Productive Acreage". It does not follow the structure contours directly, and we feel that it is a geographic boundary, more so than a structural boundary, and our later figures will help to demonstrate that.

We have chosen to put the boundary close to the Federal C 35 Number 2 and the Conoco State Number 1, because we feel there's not a lot of productive life remaining for those wells.

Q. All right, Mr. Rittersbacher, let's move to Chevron Exhibit Number 2, the cross-section A-A'. Would you first point out the location of the line on the index map and then review this exhibit for the Examiner?

A. The location of the line is shown both on the index map in the upper right-hand corner and on Figure Number 1. It's a two-well structural cross-section.

It goes from the Conoco State Number 1 to the

Lowe State Number 2, which is located in the southwest southwest of Section 36.

It has on it the top of the upper Penn dolomite, as a heavy black line, which is the top of the reservoir in Indian Basin. Also as a heavy black line is the base of the upper Penn dolomite, which forms the bottom of the potential reservoir facies.

We have the original gas-water contact as we've mapped it shown as a dashed line. It was originally tilted by hydrodynamic conditions in the reservoir.

The important thing that we'd like to point out on this cross-section is that the Lowe State Number 2 in Section 36 watered out and was deep into the Morrow in 1991.

At that time, the top of the perfs in that well were at minus 3499, nine feet above the base of the perfs in the Conoco State Number 1. Therefore, we don't feel that the water is coming up from the bottom because if it were, the Conoco State Number 1 would have seen water encroachment at a similar time period.

It is our feeling that the water is moving through the reservoir as a front, and it is quickly approaching the Conoco State Number 1 well, as evidenced by its water production.

Q. Let's move now to Exhibit Number 3, the B-B'

cross-section.

A. B-B' is also a two-well structural cross-section. It's also on Figure Number 1 and on the index map in the upper right.

It has the same attributes as the first figure in that the top of the Upper Penn Dolomite is a heavy black line. Basically, the Upper Penn Dolomite is also a heavy black line. And the original tilted gas-water contact is shown.

Like Figure Number 2, cross-section A-A', Figure Number 3 shows two wells, one of which watered out. It watered out in 4-92. It is the Smith Federal Number 2, and it's located in the southwest of the northwest of Section 12. At the time it watered out, its perforations were also structurally higher than the corresponding perforations in the Smith Number 1 well, which is located in Section 11.

We use this as evidence, again, that the water is not moving up from the bottom but rather is moving through the reservoir as a flood front. So we don't feel it's appropriate to use a base perforation to predict the gas-water contact.

Q. Now, because you see the water moving as a front through the reservoir, do you see water production in the wells in Section 2 and in Section 35? That's the reason you've drawn your gas-water contact where you have?

A. That's right. As testified earlier, we don't feel that there potentially is much productive life left in those two wells. Therefore, by our model it demands that we move the flood front close to the wells, and that gives us 298 productive acres in Section 2.

Q. 298?

A. Right.

Q. Will Chevron also call an engineering witness to set forth the recommended penalty calculation for the well?

A. Yes, they will.

Q. Were Exhibits 1 through 3 prepared by you?

A. Yes, they were.

MR. CARR: Mr. Stogner, at this time we move the admission of Chevron Exhibits 1 through 3.

EXAMINER STOGNER: Chevron Exhibits 1 through 3 will be admitted into evidence at this time.

MR. CARR: That concludes my examination of Mr. Rittersbacher.

EXAMINER STOGNER: Thank you, Mr. Carr.

Mr. Kellahin, your witness.

MR. KELLAHIN: Yes, sir.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Rittersbacher, for your preparation for the hearing today, did you review the geologic presentation

made by MW/Apache when Ms. Leonard put on the presentation for her unorthodox location in Section 35 that we've talked about earlier today?

A. No, I did not review it.

Q. Did you review any of the structure maps that Mr. Wilson [*sic*] had prepared for Oryx?

A. Prior to the hearing?

Q. Yes, sir.

A. No, I did not.

Q. Okay. Do you have a copy of his structure map which is Exhibit Number 4?

A. Not with me.

Q. Stay there and I'll bring you one.

A. Okay.

Q. I'd like to take your structure map, which is Exhibit Number 1 --

A. Yes, sir.

Q. -- all right, sir? And if you'll compare it to Mr. Wolin's structure map, which is on his Exhibit Number 4 --

A. Yes.

Q. -- let's look at how you have placed the structure lines. Let's ignore the gas-water contact for a moment, but look at the distribution of the contours based upon the control points as we look at Section 2, all right?

A. Yes.

Q. When you look at the contour line at a minus 3400 --

A. Yes.

Q. -- there appears to be agreement with you between the two geologists, except that your contour line at that depth is slightly west, and Mr. Wolin's goes slightly east as we move south in the section. Are you with me?

A. Yes, I am.

Q. All right. Is there any material difference between you two geologists about how the contour lines on the structure map are placed in Section 2?

A. There's a slight difference.

Q. Is it enough to matter?

A. I think it matters.

Q. Okay, describe for me in what way.

A. The difference lies in that this map that I created was on top of the dolomite, which is the reservoir unit, versus the top of the Upper Penn, which is Figure 4 in front of me.

Q. Okay.

A. And because of that top moved down in the Smith Federal Number 2, located in Section 1, it looks like it's in the northwest of the southwest, that pushed that contour farther to the west.

Q. All right, your map uses the top of the dolomite?

A. Yes, that's correct.

Q. And Mr. Wolin's map used the top of the pay in the dolomite?

A. From the cross-sections, as near as I could tell, it was the top of the upper Penn interval, which may include some limestone.

Q. Okay. Have you looked at what Ceci Leonard presented to the Division when she presented her structure map for the other hearing?

A. No, I have not.

MR. KELLAHIN: Okay. Mr. Examiner, I'm showing you a copy of what Apache introduced as Exhibit Number 1. I apologize to Mr. Carr; I only have two copies. Perhaps we can share them. I've given one to the Examiner and one to the witness.

Q. (By Mr. Kellahin) When you look at Ms. Leonard's structure map, can you identify what she has mapped on her structure map?

A. It's labeled as the top of the Penn, which is not necessarily the top of the reservoir.

Q. Where in relation to what you did is her work?

A. My structure map is sometimes lower in a given well, because the top of the Cisco may be limestone, non-reservoir rock.

Q. Ms. Leonard, on her structure map, for her Section 35, was looking at everything updip of minus 3425. Do you find that?

You're going to have to make a minus 3425 line, but --

A. Thank you.

Q. -- if you'll go to the -- I think it's 3400 --

A. Yes, I see that.

Q. Yeah, and you're going to have to make your own line at minus 3425.

A. Sure.

Q. And then she planimetered everything above minus 3425 and got 440 acres.

A. That's correct.

Q. Do you see how she did that?

A. Yes, I can see that.

Q. Okay. Under that concept she has taken all gas following that contour line above the minus 3425, okay?

A. Okay.

Q. If you project that strategy down into Section 2, what happens?

A. It follows the contour line in the eastern portion of Section 2.

Q. All right. How is what she has done different in any way from what you have done in finding what you believe

to be the gas-water contact in Section 2?

A. She has projected from the base of perforations in her well, in Section 35, the Federal C Number 1, as I heard it presented earlier today.

Q. Yes, sir.

A. We don't feel that's an appropriate strategy.

Q. All right.

A. That would be the difference.

Q. We've got a material point of difference here in how you've approached -- If I understand Mr. Wolin, he's looking at the lowest perforation as the point in the Conoco State well where he says that that may be the point where we're going to get water encroachment.

A. That's as I recall it, yes.

Q. That's his position, I think --

A. Yes.

Q. -- right?

A. Right.

Q. All right. If you take his position on your map, that point is going to be at minus 3508, I believe, is the number?

A. That's correct.

Q. All right. If you take it at minus 3508, which is his lowest perforation in the Conoco State well, what happens on your map to that gas-water contact?

A. It moves downdip and it includes wells that have watered out.

Q. Okay, it's going to move that line to the east?

A. That's correct, including wells that have watered out already.

Q. Okay. You can draw the contour line based on the top perforation in the Conoco State well as you've done it, based upon what reason?

A. The line is drawn based on geographic position of wells that have watered out. We drew the line close to the Conoco State well because we feel that it does not have a long productive life remaining.

Q. When you look south in Section 11 --

A. Yes.

Q. -- and you find the Pan American Smith well --

A. Yes.

Q. -- all right? The bottom perforation in that well is at a minus 3487, isn't it?

A. That's correct.

Q. And it is still water-free, isn't it?

A. Absolutely.

Q. All right. On your contour map, on your structure map, find me minus 3487 within Section 11.

A. Minus 3487 in Section 11 would exist in the southeast quarter of Section 11.

Q. And minus 3487 is going to be below the point at which water is produced out of the well in Section 12, the Smith Federal Com 2?

A. That's correct.

Q. Okay, what's your explanation for the fact that the Smith, the Pan American Smith, is water-free at a lower structural position than the well in Section 12, which is slightly higher?

A. I'd refer back to cross-section B-B' --

Q. Okay, let's do that.

A. -- and that emphasizes that because the water in our opinion is moving as a flood front, as a water front, you can have a situation develop, and that's exactly the situation that we described earlier, where perforations structurally higher in the Smith Federal Number 2 well, located in Section 12, have watered out, when there's gas-free production updip.

Q. When Chevron consented to the penalty for the Apache MW Production Company well in 35 --

A. Yes.

Q. -- and approved Ceci Leonard's formula and her acreage factor based upon 440 productive acres, wasn't that based upon the presumption that water was moving up from the lowest point in the structure?

A. Yes, it was.

MR. KELLAHIN: That concludes my examination, Mr. Examiner.

EXAMINER STOGNER: Thank you, Mr. Kellahin.

Mr. Carr, any redirect?

MR. CARR: No redirect.

EXAMINATION

BY EXAMINER STOGNER:

Q. When this water wall or front comes in contact with the perforations, then I'm to assume that the well waters out immediately; is that correct? And -- with this water front that you're proposing or --

A. It generally waters out in a relatively short time period.

Q. Do you see the -- Does the wall of water follow some sort of an inclination, or does it all water out at one time from top to bottom, or does the bottom perforations fill up and then --

A. It can move -- In our opinion, it may move past you in an interval above you that you have not perforated. And a case in point would be the well in Section 35 --

Q. Okay.

A. -- which was the Apache well, the Federal C Number 1.

They had perfs low in the dolomite section, which watered out, they added perfs above it, and one of the

possible interpretations was, water was already existing at that spot, because the water front had essentially moved to that well.

Q. And this water front moves in relationship to production, I would assume?

A. That would be our guess, although it's not strictly dependent on production. It appears that the reservoir is -- that you can produce it faster than the water can encroach.

EXAMINER STOGNER: Any other questions of this witness?

MR. KELLAHIN: One follow-up question, if I might.

EXAMINER STOGNER: Yes, sir.

FURTHER EXAMINATION

BY MR. KELLAHIN:

Q. In Section 2, I talked to you about your choice for the water contact.

A. Yes, sir.

Q. And you were taking the top perf in the Conoco State well?

A. No, I was not taking the top perf.

Q. Okay.

A. I just chose to move that line close to the well --

Q. Okay.

A. -- because I feel it did not have a long productive life ahead of it.

Q. All right. You didn't -- I've stated it badly. You didn't use the bottom perforation then?

A. No, I did not.

Q. All right. If you didn't select the bottom perforation at 3508, then where did you decide in your judgment that the water contact with the gas existed in that well?

A. We just drew it close to the well, based on our experience of the wells watering out quickly in through there.

Q. Did you apply that same method to the Apache well in Section 35?

A. Yes.

Q. In Section 35, the Federal C 35-2 well, its lowest perforation is at minus 3370, isn't it?

A. 3368, but essentially the same.

Q. 3368. If you didn't use 3368 in that well, what did you use to be the gas-water contact in relation to that well?

A. If you'll remember, that well was producing at a similar rate, water and gas, to the Conoco State Number 1.

Q. So where did you pick the point?

A. I picked the point geographically similar position to each well.

MR. KELLAHIN: Okay. Thank you, Mr. Examiner.

EXAMINER STOGNER: Thank you.

Mr. Carr?

MR. CARR: Nothing further.

EXAMINER STOGNER: You may be excused.

MR. CARR: At this time we call Brian Huzzey.

BRIAN H. HUZZEY,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Mr. Huzzey, will you state your full name for the record?

A. Brian H. Huzzey.

Q. And where do you reside?

A. Midland, Texas.

Q. By whom are you employed?

A. Chevron, USA.

Q. And what is your current position with Chevron?

A. I'm a petroleum -- a lead petroleum engineer.

Q. Have you previously testified before this Division?

A. Yes, I have.

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

A. Yes, they were.

Q. Are you familiar with the well proposed by Oryx in this case?

A. Yes, I am.

Q. Have you made a calculation to determine whether an appropriate penalty should be -- to protect the correlative rights of the interest owners in the area?

A. Yes, I have.

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

EXAMINER STOGNER: Are there any objections?

MR. KELLAHIN: No objection.

EXAMINER STOGNER: So qualified.

Q. (By Mr. Carr) Mr. Huzzey, would you refer to what has been marked Chevron Exhibit Number 4 and, using this exhibit, explain what Chevron's recommended penalty is for this well?

A. Similar to what has already been presented by Oryx, we utilized two methods, the distance ratio method, which gave us an acreage factor of .48 or a penalty factor of .52, and the acreage factor method where we planimetered Mr. Rittersbacher's Exhibit Number 1 and came up with 298

acres and came up with an acre factor of .47.

So the average of the two would be .48.

Q. That's the acreage factor or a penalty of 52 feet?

A. Yes, it is.

Q. What is Chevron's position concerning the production of the original well on the unit after the second well is drilled and the penalty is imposed?

A. As far as -- ?

Q. -- as continuing to produce the old well? Does Chevron object to that?

A. No, we have no objection to them producing from both wells, as long as the penalty factor for the entire unit is recognized and applied.

Q. In terms of the recommended acreage factor of .62 that's been recommended by Oryx, in your opinion what impact would this have on the correlative rights of Chevron?

A. With our interpretation of this reservoir, we feel that this would give them somewhat of an advantage in producing more than their fair share of the reserves remaining under their property.

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

A. Not at this time.

Q. Was Exhibit Number 4 prepared by you?

A. Yes, it was.

MR. CARR: Mr. Stogner, at this time we move the admission of Chevron Exhibit Number 4.

EXAMINER STOGNER: Exhibit Number 4 will be admitted into evidence.

MR. CARR: That concludes my examination of Mr. Huzzey.

EXAMINER STOGNER: Thank you.

Mr. Kellahin?

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Huzzey, Chevron has no disagreement with Oryx over the concept that it's appropriate in this reservoir that as your original well becomes watered out, it's good management of your interests to drill a replacement well higher in the structure?

A. No, we have no argument with that.

Q. In terms of what to do so that if there is an advantage gained by the unorthodox-located well, whatever it may be, are you comfortable with the process of using productive acreage as a component, plus the footage encroachment as a component to arrive at a regulatory penalty for those wells?

A. I believe by presenting Exhibit Number 4, that

that concurs with what you've just stated.

Q. The concept of a second well producing concurrently with the first well is not an issue with your company, is it?

A. Not as long as the penalty is applied to the entire unit.

Q. Okay. Do you deal with prorationing matters for your company?

A. I deal with them on a fairly regular basis, yes.

Q. Okay. You understand the regulatory system we have before the agency under prorationing really is not equipped to handle a well-specific penalty with Indian Basin; don't you realize that?

A. I do now, yes.

Q. Okay. And perhaps the only way that we have to handle that is to put the penalty against the whole spacing unit, which we have proposed to do?

A. Correct.

Q. And you don't have any disagreement with that?

A. No.

Q. All right The difference of opinion, then, is going to be based upon the two geologists' difference in productive acreage?

A. Their interpretation?

Q. Yes, sir.

A. That basically is what it boils down to at this point in time.

Q. That's where we are, aren't we?

A. Right.

Q. This is not an engineering problem at this point, is it?

A. Engineering only comes into it if you have possibly prepared a geological model that you input into a simulator, which would at that time combine both the geological and the engineering aspects which predict performance.

Q. Well, it would be fun if we had it, but no one's got it, right?

A. I wouldn't say that.

Q. Do you have one?

A. We do have a simulator within Chevron, yes, and a simulation.

Q. Are you able to simulate to see what would happen if the Conoco State Number 2 well is placed at this location, as it competes for gas with your offsetting wells?

A. We could design it and run that wellbore, yes.

Q. You haven't done it?

A. We -- I've talked to our simulator, and he has worked on it somewhat. However, this has been fairly

short-term, and we haven't had an opportunity to -- I have not seen the results of his simulation concerning this well.

Q. Are you a reservoir engineer, sir?

A. I've done both reservoir and production engineering.

Q. Okay. Within a reservoir concept, do you see any impediments to the migration of this gas as it moves upstructure towards your Bogle Farm wells?

A. With 640-acre control points as you have here?

Q. Uh-huh.

A. As it's been stated, I think by several people, the Conoco State Number 1 actually probably saw water later than was expected by many people.

There are heterogeneities in the reservoir that have to be built in, and those have to be built in as the dynamic situation occurs.

Q. My simple question, which I phrased badly, was, when the regulators are trying to handle equities in the pool, are we on safe ground to say that if Oryx doesn't drill this upstructure well at this location, gas that is currently underlying Section 2 is going to migrate off lease to the west?

A. Okay, if this well is not drilled, yes, they will not capture the reserves that are currently underneath

their acreage.

Q. All right. Can you quantify with your simulator at what rate the Conoco State well would have to be produced to capture only its share of the gas?

A. As I stated before, I did not build the simulation.

Q. Uh-huh.

A. I had input into the simulation --

Q. Uh-huh.

A. -- as did Mr. Rittersbacher.

Q. Uh-huh.

A. But we could probably simulate this well, yes.

Q. We don't know if this well deserves a penalty at all, right?

A. I think that would be grossly unfair to say.

Q. Okay.

A. As your initial document says, you were going to drill one well, keep the other well producing, and have no penalty. That was the initial document, and I think that is grossly unfair.

Q. Can you prove that wrong by your simulation?

A. I think our simulation would show that there is indeed a significant portion of Section 2 which is inundated with water at this time.

Q. Did Mr. Wolin, Oryx's geologist, come to your

office in Midland last Thursday on the 12th of December and tell you that they were proposing a 62-percent allowable for their well, and did you not respond, sir, It sounds fine to me?

A. My response was that .62 acreage factor shared between the two wells, at that time, with the information we had at that time, was acceptable.

MR. KELLAHIN: Thank you very much, Mr. Examiner. I have nothing else.

EXAMINER STOGNER: Mr. Carr?

EXAMINATION

BY MR. CARR:

Q. Would you like to finish your answer, Mr. Huzzey, that Mr. Kellahin doesn't want you to finish?

A. Yes, I would, very much so.

At that meeting which we had -- We actually had a meeting of the Indian Basin operators, which included Marathon and several other companies.

At that meeting it was noted that the Federal C Number 2 in Section 35 was producing significant volumes of fluid. However, at that point in time Apache assumed that it was making condensate or oil.

Post that meeting, I requested specifically for clarification, because at said meeting Marathon had indicated that they had seen no additional oil production

at the plant. Marathon handles all the oil, gas and water from these wells.

So we had Marathon stating that there was no additional oil from this well, and yet their total fluid was being reported as 80 to 90 barrels a day.

Apache went back, worked and talked to their production people, ran specific tests which indicated that, yes, it was not oil, that the production had dropped basically in half, and yes, the fluid was water.

That significantly altered my impression of how much acreage might be productive under this Section 2.

Q. Mr. Huzzey, you have not seen the results of the simulation on -- that Chevron has prepared concerning this well; is that fair to say?

A. That is correct.

Q. And you do not know whether or not it would say less of a penalty than either of the parties are recommending is required or more? You do not know that?

A. I could not state that way.

MR. CARR: That's all I have.

EXAMINER STOGNER: Thank you, Mr. Carr.

I have no other questions of this witness either.

MR. CARR: We have nothing further, Mr. Stogner. I have a brief closing.

MR. KELLAHIN: I want to recall Mr. Wolin for a

brief comment, Mr. Examiner, if I might.

EXAMINER STOGNER: Sir, if you want to be excused, recall the first witness.

Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

ROY C. WOLIN (Recalled),

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Wolin you've had a chance to listen to Chevron's geologist describe how he would interpret productive acreage remaining in Section 2?

A. Yes, I have.

Q. Do you, having heard his testimony now, want to change your opinion?

A. No, I don't.

Q. Do you agree with what he has concluded?

A. No, I don't.

Q. Summarize for us the reasons you don't agree and why.

A. I think by using the methodology of a flood front for the gas-water contact, that leaves a very vague impression about where it might be. And using the basal perfs as an indicator for where the gas-water contact is,

is a much better methodology, and it happens in either methodology that was used on the direct offset, the MW Petroleum well.

MR. KELLAHIN: Thank you, Mr. Examiner.

EXAMINER STOGNER: Mr. Kellahin.

Mr. Carr?

MR. CARR: I have no questions.

EXAMINER STOGNER: No further questions.

At this time we're ready for closing statements.

Mr. Carr, I'll let you go first, then Mr. Kellahin.

MR. CARR: Mr. Stogner, as the Chevron witnesses have indicated, we don't -- Chevron does not have an objection, nor in fact does MW, to a well at the unorthodox location.

MW objects, however, to having two wells producing on the unit at one time, and Chevron does not share that position.

But the bottom line is, neither of these companies object to a well at an unorthodox location if in fact their correlative rights are protected by the imposition of a proper penalty to offset the advantage gained on their acreage by the unorthodox well location.

We talked about the time frame within which the parties have been negotiating, most of it in the last few

days, and we have no simulation, but we do have geological interpretations, two of them, that are very different. And although we have different geological interpretations, everyone agrees that the penalty is there to protect correlative rights, and that penalty is only as effective as the geologic interpretations are accurate.

Let's look at what Mr. Wolin has said, and of course he doesn't agree with our position. But he has come in here and he has proposed a penalty based on productive acres. And if you look at Exhibit Number 2 and you compare it to Exhibit Number 3, Mr. Wolin has placed two assumed gas-water contacts on these exhibits, and they simply don't match.

One follows the minus-3400-foot contour, and another one follows something else. The one that follows something else is off to the east of the 3400-foot contour, and it tends to inflate the number of productive acres that he's interpreting exist under this tract.

If we look at his interpretation and we see where he has assumed the gas-water contact, it seems important to keep in mind that even Mr. Phillips, their own witness, admits that when these wells start to water out, they water out very quickly.

And because of that, we have placed the gas-water contact in much closer proximity to the two wells in this

pool that are in the area of interest which recently have started watering out at a very rapid rate: the MW well in Section 35, which within a month has had its production fall from 6 million to 3 million and has started producing 80 barrels of water a day, and we have their well in Section 2 that's now producing at 3 million a day and 75 barrels of water.

We submit to you that when you look at how the wells perform and when you look at the cross-examination, Mr. Stogner, and you see that there are wells offsetting these producing wells that are producing water at a higher interval, that the water is moving through the reservoir in a front or in a bank-type flow, and that in fact the gas-water contact should be as it has been placed by Mr. Rittersbacher.

That's the difference, and that's what we say, and we believe we have submitted to you an interpretation that isn't only accurate but it is the one interpretation you can turn to if you're to enter an order that will effectively protect the correlative rights of all parties in this pool.

EXAMINER STOGNER: Thank you, Mr. Carr.

Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, I'm a lawyer; I'm not a scientist. I'm not going to pretend to tell you how

to interpret this data. I'm not going to preach to you about what this is supposed to mean.

I will tell you, though, it's my recollection that Mr. Phillips, contrary to what Mr. Carr has just said, did not say that all these wells watered out quickly. It's an irregular occurrence. You're the expert, you decide.

What we have done is demonstrated, though, that the geologists that are before you have come up with significantly different productive acreage calculations because of different methodology applied.

You're the expert, you decide which one makes more sense to you, which one's more fair to the parties.

Me as a layman, my only sense of fairness is that it seems somehow incredibly unfair that Chevron would grant a waiver to Apache, using the penalty formula that we have proposed, based upon productive acreage as we determine it to be, based upon the lower perforations of the pay in these wells, and they come before you now and they change that position. That's significant to me as a non-scientist, that they flip-flop when it's convenient for them to do so.

We leave it to you to decide. There is no disagreement upon how the formula is structured. The disagreement is productive acreage.

There is no disagreement about how fair it is to

have two wells on this spacing unit. We think that is incredibly fair.

I am aware that Ms. Leonard, who had an opportunity to appear today on behalf of her company, has sent to this Examiner, by facsimile, her letter. I would very much appreciate it if you would ignore that letter. It is argumentative, it is conclusionary, and she did not feel it appropriate to come here under oath and be subject to cross-examination. She has hired competent counsel and he can make her arguments for her, but she is a technical person and she should come to defend technical statements. Not being here, it is hearsay, and we would be pleased if you would not consider her letter.

We think the solution here accommodates the needs of the parties, and it's within the framework of the rule that you may penalize this unorthodox location by taking a hit on the full spacing unit, and we will produce that penalized allowable in combination with both wells. And to do so will be in the best interests of the protection of correlative rights and the prevention of waste.

We thank you for your time.

MR. CARR: Mr. Stogner, I have a copy of Ms. Leonard's letter I will tender to you, and like Mr. Kellahin, I will trust you to give it appropriate weight.

EXAMINER STOGNER: Since her letter has become of

issue, it will become part of the record. But in a situation such as this where the parties come in and take the time to come in and present testimony, naturally the weight of the evidence will be put primarily on the information that was given us at the hearing process.

With that, since there's nothing else in Case Number 11,189, this case will be taken under advisement.

Thank you, gentlemen, for coming up today.

(Thereupon, these proceedings were concluded at 2:27 p.m.)

* * *

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL January 27th, 1995.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11189, heard by me on 19 January 1995.

Examiner
Oil Conservation Division