STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	
APPLICATION OF MEWBOURNE OIL COMPANY TO REOPEN CASE NUMBER 12,940 TO AMEND AND MAKE PERMANENT THE SPECIAL RULES AND REGULATIONS FOR THE SHUGART-STRAWN POOL AND FOR A DISCOVERY ALLOWABLE, EDDY COUNTY, NEW MEXICO	CASE NO. 12,940

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

November 20th, 2003

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, November 20th, 2003, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

November 20th, 2003
Examiner Hearing
CASE NO. 12,940

(Continued...)

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A P P E A R A N C E S

FOR THE APPLICANT:

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FOR GRUY PETROLEUM MANAGEMENT COMPANY
and HARVEY E. YATES COMPANY:

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110 N. Guadalupe, Suite 1
P.O. Box 2208
Santa Fe, New Mexico 87504-2208
By: MICHAEL H. FELDEWERT

* * *

ALSO PRESENT:

Gordon Yahney
Heyco

* * *

WHEREUPON, the following proceedings were had at 9:50 a.m.:

EXAMINER CATANACH: At this time I'll call Case 12,940, the Application of Mewbourne Oil Company to reopen Case Number 12,940 to amend and make permanent the special rules and regulations for the Shugart-Strawn Pool and for a discovery allowable, Eddy County, New Mexico.

Call for appearances in this case.

MR. BRUCE: Mr. Examiner, Jim Bruce of Santa Fe, representing Mewbourne Oil Company. I have two witnesses to be sworn.

MR. FELDEWERT: May it please the Examiner, Michael Feldewert with the Santa Fe office of the law firm of Holland and Hart. I'm appearing on behalf of the remaining two operators in this pool, Gruy Petroleum Management Company and Harvey E. Yates Company. I'm also appearing on behalf of a working interest owner in this pool, Pecos Production Company.

And we have -- Mr. Examiner, we have three witnesses today.

I also have a preliminary issue that may assist in streamlining some of the testimony. It's my understanding that they are seeking a discovery allowable for this pool. I'd like to, as a preliminary matter, address that issue, because the way I read Rule 509 this

pool does not qualify for a discovery allowable, because it already receives a special allowable by virtue of the Division's order that was entered back in October.

EXAMINER CATANACH: We'll take that into consideration, Mr. Feldewert.

Will the witnesses please stand to be sworn in?

(Thereupon, the witnesses were sworn.)

MR. FELDEWERT: Mr. Examiner, with respect to the request for a discovery allowable, we ask that that be dismissed on the grounds that under Rule 509 a discovery allowable is assigned to the discovery well. It is well-specific, it does no extend to the proration unit.

One of the proration units at issue here, the Mewbourne proration unit, already has three wells within it, and it is subject -- as you know, this pool is subject to a special allowable that was entered by the Division back in October of 2002.

If you look at 509.A -- that's where I'm focusing -- it says, In addition to the normally assigned allowable, an oil-discovery allowable may -- so it's discretionary -- be assigned to a well completed as a bona fide discovery well and a new common source of supply.

So the allowable, Mr. Examiner, you have to qualify as a discovery well, you have to be capable of producing in excess of the normally assigned allowable, so

you have to have the -- first, the capacity of producing the normally assigned allowable, and then the Division has the option of granting an additional allowable to that well if it qualifies as a discovery allowable.

Again, it's well-specific under this language. You can't bank a discovery allowable after your initial well and then hope to add some additional development wells and then come in later and say, Oh, now we want a discovery well, want to spread it out over the production unit. You can't do that.

Also, I think -- it exists in a situation where you have a normally assigned depth bracket allowable, which would be under Rule 505.A. In this case, back in October, Mewbourne made the election to come before this Division and seek a special depth bracket allowable. They replaced the normal allowable with a special one, they were successful in obtaining that change. And as a result, the discover well in this pool no longer qualifies under the language of the rule for a discovery allowable.

We think that since they have made their election this portion of their Application should be dismissed and we don't need to spend time and effort today on testimony addressing them meeting the qualifications for a discovery well.

EXAMINER CATANACH: Mr. Bruce, would you like to

respond.

MR. BRUCE: Yes, Mr. Examiner, a couple of things. The primary criterion for a discovery allowable is that a well discovers a new common source of supply. And Finding Paragraph 10 in Order Number R-11,856 states that Mewbourne demonstrates that the Mewbourne demonstrates that the Federal -- the Fren 8 Federal Com wells Number 2 and 3 have discovered a new common source of supply in the Strawn formation. So the Division made the finding that the discovery was by both wells.

Moreover, in addition to the normally-assigned allowable -- it doesn't say the Rule-505 allowable, it says normally assigned. I think this allowable was normally assigned, the 1120 barrels a day, by a normally entered order.

Furthermore Division Rules provide, even without special pool rules, that four wells can be drilled on a spacing and proration unit, and the allowable can be produced by one or more of the wells on that spacing and proration unit.

And finally I would point out that although we did not -- and for the life of me, I do not know why we did not apply for this discovery allowable. Originally, there is no time limit on applying for the discovery allowable, and Mewbourne has provided, in the original hearing, all

data in the original hearing under 509.C. So I believe that a discovery allowable is proper in this case. And furthermore, since the data has been provided it is not going to take additional time to present this issue today.

EXAMINER CATANACH: Mr. Feldewert, Mr. Bruce, I think I'll accept testimony on this issue today, and I'll take that into consideration when I enter an order in this case, whether to approve or deny that request.

Mr. Bruce, you may proceed.

RALPH L. NELSON,

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

DIRECT EXAMINATION

BY MR. BRUCE:

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

A. My name is Ralph Nelson.

Q. Where do you reside?

A. Midland, Texas.

Q. Who do you work for and in what capacity?

A. Mewbourne Oil Company, as a geologist.

Q. Have you previously testified before the Division as a petroleum geologist?

A. I have.

Q. And were your expert credentials accepted as a matter of record?

A. Yes.

Q. And are you familiar with the Strawn geology involved in this prospect?

A. I am.

MR. BRUCE: Mr. Examiner, I would tender Mr. Nelson as an expert petroleum geologist.

EXAMINER CATANACH: Any objection?

MR. FELDEWERT: No, Mr. Examiner.

EXAMINER CATANACH: Mr. Nelson is so qualified.

Q. (By Mr. Bruce) Very briefly, Mr. Nelson, would you identify Exhibit 1 for the Examiner?

A. Exhibit 1 is a land plat showing all the wells drilled in Section 8 and Section 5 of 18 South, 31 East. And the second page denotes the Strawn completions in the Shugart-Strawn Pool.

Q. And it also identifies the three operators in the pool; is that correct?

A. That is correct.

Q. Okay. Let's talk about the geology of this pool, Mr. Nelson.

Mr. Examiner, perhaps what you should do is take Exhibits 2 and 3, which are a structure map and a Strawn isopach map. If you could leave those out in front of you Mr. Nelson will refer to these, but what he is primarily going to refer to is the cross-section which is marked as

Exhibit 4.

Now, Mr. Nelson, could you just identify for the record your Exhibits 2 and 3 and make your preliminary comments, and then go to your cross-section and describe the pool that we're here for today.

A. Exhibit 2 is a structure map made on the top of the Strawn with a contour interval of 50 feet.

Exhibit 3 is an isopach, gross-isopach, of the Strawn lime, also with a contour interval of 50 feet.

Also on Exhibit 3 I show all the pertinent well information as to completion date, perforations, treatment and initial potential.

On the cross-section, which is shown and denoted on Exhibit 2, which wells in which order, it starts with well number 1, which is the Fren 8 Federal Com Number 1, a Morrow well currently producing in the Morrow.

Number 2 is the Heyco Number 3 Parker Deep 5 Federal Com, completed as a Strawn well, although to my knowledge official papers have not been filed with the OCD.

Number 3 is the Fren 8 Federal Com Number 5, completed as a Strawn well.

Number 4 is the first well completed in the Strawn Pool.

And subsequent to that, immediately after, well number 5 was completed also.

Wells 5 and 7 were originally drilled as Morrow completions and made as Morrow completions with the Strawn behind pipe.

Q. You said 5 and 7.

A. Excuse me, wells 5 and 7 on the cross-section --

Q. Okay.

A. -- I'm sorry, were completed originally as Morrow completions and then recompleted as Strawn wells.

Q. Okay.

A. Then moving on, well number 6 on the cross-section is the Mewbourne Well Number 6.

Number 7 is the Gruy Number 2 Magnum Federal 5 Com.

And Number 8, excuse me, is the Gruy Number 3 Magnum 5 -- excuse me, the Magnum Federal 5 Com.

These wells, wells 2 through 8 on the cross-section, comprise the wells within the Shugart-Strawn Pool.

One thing, the cross-section is hung stratigraphically on the base of the mound. The perforations are shown in the depth track and colored green for highlight.

And also colored is the porosity above 3-percent density. You'll notice we used a light, light green to color between 3 and 6 percent, and then we used a darker green from 6 to 9 percent, and everything else above 9

percent is in dark green.

And one thing that you can see, that the interior wells in the mound, that being wells 5 and 6, have the most amount and the highest amount of porosity in the pool, and that the wells along the fringe, wells 2, 3, 7 and 8, are much lower in porosity.

Q. In looking at this -- well, let's stay on the -- First of all, is this a new source of supply, separate from other Strawn pools in this area?

A. Yes, it is.

Q. And then a couple of features. Looking at the Well Number 5 on the cross-section, which is the Fren 8 Number 2 over on the --

A. Uh-huh.

Q. -- density-porosity log where you highlight the porosity, uphole from the green you mentioned there appear to be some features that you haven't highlighted. Why is that?

A. They exhibit severe washout on caliper. Again, I say Number 5 as well as Number 7 were drilled as Morrow tests, open longer. I can't speak as to the samples in the Gruy well, but that was a chalky interval in our well, and we believe that was a less competent bed that washed out. And as a result, the pad contact of the density log lost contact and shows -- the bulk density has quite a bit of

correction to it, and therefore we don't believe that's valid porosity.

Q. And as a result, you did not complete in that interval, perforate in that interval?

A. We did not complete in that interval, and I did not highlight intervals like that in both wells 5 and 7 on the cross-section.

Q. Also in looking at this and comparing with the prior two exhibits, is the bulk of the reservoir on Section 8?

A. The bulk of the reservoir appears from these logs to be located in both wells 5 and 6, the Fren 8 Number 2 and the Fren 8 Number 6.

Q. Now, Mr. Nelson, you've had a fair amount of experience with other Strawn reservoirs in this state, have you not?

A. Yes, I have.

Q. You were involved -- I almost dread to mention this, but in the West Lovington-Strawn hearings for a number of years, were you not?

A. Yes, I was.

Q. And you've also had experience outside the West Lovington-Strawn --

A. Yes.

Q. -- with Strawn production?

How does this reservoir compare to other Strawn reservoirs that you've experienced or looked at over the years?

A. Those Strawn wells in the Lovington area don't show as overall thickness as these do. In this area that the Shugart-Strawn is in, there are other wells that have these thick mound sections like we see in well number 4 on the cross-section, that being the Fren 8 Number 3. And like the Fren 8 Number 3, all the other wells that are thick are generally tight.

The two unique wells, from what I've been able to find in my research, are the wells number 5 and 6, the Fren 8 Number 2 and the Fren 8 Number 6, that are thick as well as having a great deal of ϕh.

Q. Just from a productivity standpoint, do those two wells also stand out?

A. They -- The 8 Number 2 exhibited high flow rates, which I believe Mr. Montgomery will testify to, and the 8 Number 6 is also -- is capable of high flow rates.

Q. Do you have anything else on these exhibits, Mr. Nelson?

A. No, I don't.

Q. Okay. Just very briefly, then, what is Mewbourne Exhibit 5?

A. Exhibit 5 are letters from other working interest

owners in Section 8 that agree with our Application.

Q. Okay. And was notice of this Application given to the operators in this pool?

A. Yes.

Q. Okay. And Mr. Examiner, that notice exhibit is submitted as Exhibit 6.

Mr. Nelson, were Exhibits 1 through 6 prepared by you or under your supervision or compiled from company business records?

A. That's correct.

Q. And in your opinion is the granting of Mewbourne's Application in the interests of conservation and the prevention of waste?

A. Yes, it is.

MR. BRUCE: Mr. Examiner, I'd move the admission of Mewbourne Exhibits 1 through 6.

EXAMINER CATANACH: Any objection?

MR. FELDEWERT: No objection.

EXAMINER CATANACH: Exhibits 1 through 6 will be admitted.

Mr. Feldewert?

CROSS-EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Nelson, in your Exhibit Number 3 up in the right-hand corner you show another blue dot. That's a

Strawn completion?

A. Yes.

Q. And in what -- do you know what pool that's in?

A. The Mesquite Pool, I believe.

Q. Mesquite?

A. Mesquite.

Q. Okay. And do you know what the pool rules are for the Mesquite Pool in terms of the GOR and the oil allowable?

A. I think they're just on statewide 40s. I don't know that for a fact.

Q. Which -- What was the first well that was completed in this Strawn Pool? Was it the Fren 8-2 or the Fren 8-3?

A. As I previously said, it was the Fren 8-3.

Q. Okay, so that was the -- Fren 8-3 was the discovery well for this pool?

A. Yes.

Q. Okay. Now, can you tell me the cutoff point that you used for your porosity in generating your isopach map?

A. I did not use a porosity cutoff in generating the isopach map.

Q. Okay, so it's just a gross isopach?

A. Yes.

Q. All right. Your cross-section on Well Number

9 --

A. Yes.

Q. -- you labeled the -- on there is the intermound facies, right?

A. That's correct.

Q. Can you explain how you determined that, please?

A. The intermound facies is one that I identified and classified based on the cherty nature of the limestone. If you'll notice that the density neutron exhibits some, quote, gas-effect crossover. However, from the literature and from samples I believe that to be a silicious, cherty limestone with some sponge spicules noted in other wells in similar rock.

Q. What other wells?

A. We noted that -- The sponge spicules were noted in samples from the Fren 8 Number 1.

Q. Any other wells?

A. None come to mind.

Q. Okay. Now, you determined that that was separate from the Magnum Fed -- 5 Fed Com Well Number 3; is that right?

A. Separate in what ways?

Q. Well, let me strike that question.

Now, you talked a little bit about your Fren 8-2, right? That's the one that's completed a little deeper in

the reef?

A. Sure, the perforations are shown on the cross-section.

Q. Do you have any -- Does Mewbourne have any current plans to perforate that well in the upper portion of the reef?

A. I know of no current plans to do that.

Q. Now, you talked about -- your Exhibit Number 5 lists some letters from Marbob, Pitch Energy and Occidental?

A. That's correct.

Q. And I apologize, I'm just reading through it real quick.

Can you tell me -- they have -- Now, these working interest owners have an interest in all of Section 8, or do you know where their interests extend?

A. I believe the Marbob interest is contractual and is only in the east half of Section 8.

Q. Okay, so that would include just your northeast -- well, the east half, okay, and the northeast quarter, all right?

A. And I believe the OXY interest is in the north half of Section 8.

Q. Okay.

A. But then also split contractually through all of

Section 8.

Q. All right. And what about Pitch Energy?

A. Only in the east half of Section 8.

Q. Same as Marbob?

A. Yes.

Q. Okay. Do you know whether these companies have a working interest in any other sections that are involved in this pool?

A. I don't have that knowledge.

Q. Now, I want to talk about your isopach map which has been marked as Exhibit Number 3. Did you develop this map, Mr. Nelson?

A. I did.

Q. Did you contour this map?

A. Pardon me?

Q. Did you do the contouring on this map?

A. I did.

Q. All right. Did you do this strictly based on well control?

A. I did.

Q. Does Mewbourne have 3-D seismic in this area?

A. Yes.

Q. Have you ever looked at that seismic for this particular area?

A. I have.

Q. So at the time you did this map you had, in your mind at least, the well-control data and then the information from the 3-D seismic; is that right?

A. The map was generated, contoured based on the subsurface data only.

Q. Okay, but you also have reviewed the 3-D seismic that you have in this area?

A. That's correct.

Q. And you were familiar with that?

A. Yes.

Q. All right. And that's the 3-D seismic that Mewbourne did not provide to Gruy and the other objectors here in response to a subpoena?

A. That's correct.

Q. Your 3-D seismic, does it extend into Section 5?

A. Yes.

Q. It does?

A. It does.

Q. Okay. Did you use that seismic information at all in stopping your contouring into Section 5?

A. No, I did not. As I said earlier, this is based on subsurface data.

MR. FELDEWERT: Okay. I think that is -- That's all the questions I've got at this time. Thank you.

THE WITNESS: Okay.

EXAMINER CATANACH: Thank you, Mr. Feldewert.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Nelson, there appear to be seven producing wells in this Strawn pod?

A. Yes, that's correct.

Q. And according to your geologic data they are all -- all seven wells are within this one common source of supply?

A. Yes.

Q. And are they in -- How's the communication in this pool? Is it --

A. Pressure communication is good.

Q. And the two best wells would be the Number -- I'm sorry, the Number 2 and Number -- I'm sorry, Number 2 and Number 6?

A. That is correct.

Q. The Fren 8 Number 2 and Number 6?

A. Yes.

Q. 2 and 6. Okay. And the discovery well was the Fren 8 Number 3?

A. Yes.

Q. Now, the 200-foot gross contour line, is it your opinion that that defines the extent of the reservoir?

A. It may and it may not. In other Strawn pools in

this area, the reservoir can extend out in the thinner areas, but to date none of the wells below 200 feet have had any reservoir rock in them.

Q. So did you look at wells outside of the 200-foot contour interval, did you look at the logs on any of the --

A. Yes, I did --

Q. -- wells outside?

A. -- and none of them show any evidence of reservoir rock in them.

Q. Okay.

A. You may note on the isopach map that the numbers in purple are the net porosities over 3 percent, and they're all zeroes surrounding it.

Q. So is it true that the wells that are structurally higher are typically the better producers in this pond, or does that have any effect?

A. The structurally highest well is the Fren 8 Number 3 --

Q. Uh-huh.

A. -- and as you can see, it's quite thick, and there is definitely a relationship, a partial relationship, between structure and mound buildup. However, the 8 Number 3 is not a significant producer in any way compared to the Fren 8 Number 2 or Fren 8 Number 6.

Q. Okay. Is there any water associated with this

reservoir?

A. None that we've noticed, none on the logs.

EXAMINER CATANACH: Okay. Mr. Bruce, with regards to the notice issue, notice was provided to Harvey E. Yates and Gruy; is that correct?

MR. BRUCE: That is correct, the Division-designated operators in the pool. Since we weren't seeking at this time to expand spacing, thereby altering any interest in any well units, we did not notify other working interest owners or overrides, et cetera.

EXAMINER CATANACH: How about any operators outside the existing pool boundaries?

MR. BRUCE: To the best of my knowledge, there are none within a mile.

EXAMINER CATANACH: There are no different operators?

MR. BRUCE: No different Strawn operators within a mile.

EXAMINER CATANACH: Okay.

MR. BRUCE: I mean, there was a question about the Mesquite-Strawn Pool. That well appears to be plugged and abandoned, and that's about a mile away. But that would be in a different pool, so we wouldn't have to notify them.

EXAMINER CATANACH: Okay, I believe that's all I

have right now.

MR. FELDEWERT: Mr. Examiner, if I may --

EXAMINER CATANACH: Go ahead.

MR. FELDEWERT: -- and I don't know who to direct this question to, but I guess the question I have, did anyone examine and give notice to all Division-designated operators of wells within the same formation, which would be the Strawn formation, as is pooled within one mile of this pool boundary? Do you know that, Mr. Nelson?

MR. BRUCE: I don't think Mr. Nelson would know that. I looked at the Division well files, and I did not notice any other Strawn operators within a mile.

FURTHER EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Nelson, that Strawn well that's shown up here in the top right-hand corner of your Exhibit Number 3 --

A. Uh-huh, yes.

Q. -- do you know the status of that well?

A. It's P-and-A'd.

Q. Do you know who the operator is?

A. No, I don't. The well is P-and-A'd as to the Strawn. It may be currently operated by Heyco as a Bone Spring well. I don't know that.

Q. Okay. But to your knowledge -- you don't have anyone here to testify today that they examined the --

whether there were any Division-designated operators within the same formation as this pool, within one mile of this pool?

A. I don't know that.

MR. FELDEWERT: Okay, that's all the questions I have.

EXAMINER CATANACH: I believe -- Did you answer that question, Mr. Bruce?

MR. BRUCE: Yeah, I did look at Division records, Mr. Examiner.

EXAMINER CATANACH: Okay.

MR. BRUCE: I just had one follow-up question for Mr. Nelson.

FURTHER EXAMINATION

BY MR. BRUCE:

Q. The Fren 8 Number 3 was the first well completed, actually completed, in this pool?

A. That's correct.

Q. But the Fren 8 Number 2 was drilled before the Number 3?

A. It was drilled before.

Q. And it was drilled to and produced from the Morrow?

A. From the Morrow, yes.

Q. And when you drilled the 8 Number 3, you drilled

it with the knowledge of what was in the logs of the 8 Number 2?

A. Absolutely.

Q. And so you knew the Straw was present when you drilled the 8 Number 3?

A. Yes, we did. We had excellent oil shows in the 8 Number 2.

Q. Just -- I don't know whether to ask this question or not, but as far as the seismic data, any seismic out there was done and paid for solely by Mewbourne, was it not?

A. That is correct.

Q. Thank you.

FURTHER EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Nelson, was the Mag 5-3 -- I'm sorry, the Mag 5-2, which is in the southwest quarter of Section 5 -- wasn't that drilled and completed in the Strawn before your Fren 8-2? I'm sorry, in the Morrow?

A. No. Oh, say that again, I'm sorry.

Q. Wasn't the Mag 5-2 in the southwest quarter of Section 5, wasn't that drilled down to the Morrow before the Fren 8-2?

A. I don't believe -- You didn't drill it in the southwest quarter.

Q. I'm sorry, southeast quarter?
A. It was drilled first.
Q. Okay, that was drilled before your Fren 8-2?
A. That is correct.
MR. FELDEWERT: All right, thank you.
EXAMINER CATANACH: This witness may be excused.

BRYAN M. MONTGOMERY,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name for the record?
A. My name is Bryan Montgomery.
Q. Where do you reside, Mr. Montgomery?
A. I live in Tyler, Texas.
Q. Who do you work for?
A. I work for Mewbourne Oil Company as manager of evaluations and reservoir engineering.
Q. Have you previously testified before the Division?
A. Yes, I have.
Q. And were your credentials as an expert engineer accepted as a matter of record?
A. Yes, they were.
Q. And are you familiar with engineering matters

related to this pool?

A. Very much so.

Q. Did you also testify at the original hearing in this matter?

A. Yes, I did.

MR. BRUCE: Mr. Examiner, I tender Mr. Montgomery as an expert petroleum engineer.

EXAMINER CATANACH: Any objections?

MR. FELDEWERT: No objection.

EXAMINER CATANACH: Mr. Montgomery is so qualified.

Q. (By Mr. Bruce) Mr. Montgomery, you have a number of exhibits to go through, but first why don't we address perhaps your conclusions and main points. First of all, do you view this as a correlative-rights issue?

A. Yes, yes, we do.

Q. Could you discuss that issue?

A. Well, this -- I don't think we would be here, all of us, if we didn't all believe that to a great degree, that this is an area where there's very, very high productivity and competition for reserves between wells. And so any restriction on one operator for their production rates will directly benefit the offset wells to the detriment of the restricted wells, and we'll go through and show several points to point that out.

Q. With respect to restricted wells, what wells are restricted in production at this time?

A. At this time only the northeast quarter of Section 8 have wells that can produce over the temporary allowables. That would be the Fren 8-2 and the recently drilled Fren 8-6 in conjunction. I believe either/or of those wells individually can produce in excess of the current allowables and -- oil allowables and gas-limiting allowables.

Q. Okay.

A. None of the other wells in the pool have ever been restricted. They've all been produced aggressively by all parties.

Q. And is this reservoir in pressure communication, in your opinion?

A. Absolutely.

Q. Another issue that the Division needs to address is, by granting the Mewbourne request today, would there be any damage to the reservoir? What is your opinion on that?

A. I don't believe there would be if we are able to increase rates to protect our correlative rights. This will be evidenced as I go through my exhibits, but a lot of it has to do with the type of fluid we're talking about here.

This is a volatile oil fluid that below the

bubble point exhibits more gaslike qualities. And what we'll find is, it's just a pressure depletion with the condensate coming out of the gas, being the bulk of the liquid recoveries.

And so the allowable rules that work with this oil reservoirs -- and this started out as an oil reservoir, above the bubble point -- are difficult to apply here.

Q. Okay. So in your opinion, limiting production would not increase recoveries?

A. No, it would just shift recoveries from one operator's account to another.

Q. Okay. Now, we'll get to this in a little bit more detail later, but the current allowable is 1120 barrels a day, and what do you seek an increase to?

A. We seek an oil increase to 1350, one thousand three hundred and fifty, barrels of oil per day per proration unit.

Q. Even at that level, will production from the northeast quarter of Section 8 still be restricted?

A. Yes, it will. We believe that currently we have three wells in that quarter section. The 8 Number 3, the poorest well, has the ability to produce about 100 barrels a day against line pressure, or compression sometimes, as that well struggles. The other two wells are quite prolific, and they probably each can produce a thousand

barrels a day against line pressure.

So over 2000 barrels a day is the capacity of this quarter section, in my opinion.

Q. So you're not here seeking to produce the wells at capacity, you're just seeking to slightly increase the daily allowable?

A. That's correct.

Q. And will you go through other pools that will show that increasing the rates will not damage recoveries?

A. Yes, I will.

Q. One lake in particular [*sic*], the Cedar Lake Reef Pool, have you looked at that?

A. Yes, that is a very prolific pool consisting of two wells we'll get to in a minute, dominated by one well that EOG drilled, produced over a thousand barrels a day, shows no sign of damage.

Q. Secondly, you've already mentioned the good wells on Mewbourne's acreage. Whether they're producing at a low rate or a high rate, do you note any change in the GOR?

A. No, the change in GOR happens over time with cumulative production, as you'd expect a volatile reservoir to react. In any short period of time, as we change the rates on our big wells, the GOR just stays constant.

Q. The second item we're here for today is the GOR. The statewide, of course, is 2000 to 1, and when the

hearing was done previously that was increased to 4000 to 1; is that correct?

A. That's correct, these wells basically came on at GORs above 2000 to 1 initially. That's one of the indications of a volatile oil, initial GORs in that range, 2500, 3500, some of these wells. 3000 would be a good average number for the initial GOR for this pool.

So we were already limited at that point, and we asked for 4000 so that we could test wells for a period of time and then determine the proper field rules in the future.

Q. Okay, and what are you requesting today?

A. We're now requesting an increase to 10,000 to 1 on a limiting GOR allowable.

Q. And does that number seem to fit in with what the other pools in this general area end up producing at?

A. That's correct, almost every pool that we'll show, without fail, progresses from around 3000 GOR to 10,000 GOR in a natural trend of depletion over time.

We have current wells in our current pool, including the Mewbourne and the Gruy wells, that are 6000, 7000, 8000, 9000 GOR already. Whether you pinch the wells back or not, they still produce that GOR.

Q. Okay. So the GORs won't go down regardless?

A. That's correct.

Q. Okay. Now, you've studied this pool for quite some time, have you not, and the offsetting pools?

A. Yes. Yes, I've been intimately familiar with this pool for about a year.

Q. And besides looking at offset pools, has Mewbourne gathered additional testing and PVT data?

A. We have. When we saw the nature of the productivity of this reservoir and the potential, we began to take pressure-test measurements, fluid samples that we went on to have high-dollar evaluations, PVT sampling analysis done, extensive pressure testing over time to determine the proper development and recoveries for this reservoir.

Q. Now I asked this question from a geologic standpoint of Mr. Nelson, but from an engineering standpoint, is the vast bulk of the reservoir and the reserves on the Mewbourne acreage?

A. Yes, it is. We've got production for all the wells to go through here in a minute, and it's obvious that the significant producers are in the northeast quarter of Section 8 on the Mewbourne acreage.

Q. And since you will be restricted regardless, are you simply trying to protect your correlative rights by increasing the allowable slightly?

A. Yes, we are.

Q. Let's move on to your exhibits, Mr. Montgomery. Let's start with your Exhibit 7. What is this?

A. Exhibit 7 is a cover sheet to the PVT analysis that I mentioned earlier, performed by FESCO, a company that normally performs this type of analysis.

Early on in the life of the reservoir, we captured a fluid sample to determine characteristics of the fluid to aid in our develop strategies and calculations, and I'd like to point out just a couple things on this study.

If you'll look at the second paragraph, in bold letters it says, "A bubble point was observed at 4583 p.s.i.g. and 155 degrees Fahrenheit." And that means they took the sample which was all liquid above that pressure, and as they reduced the pressure they saw gas evolving at that point. That's where we determined the bubble-point pressure.

The actual static reservoir pressure, in the next sentence, is greater than 5500 p.s.i.g. And so we believe initially this was an oil reservoir, undersaturated above the bubble point, but it was a volatile reservoir, as we'll see.

If we turn the page over and look at the second paragraph where it starts, "The reservoir fluid was identified as a volatile oil" and then moves on, through

extensive testing that was their determination.

There are some simple tests that you can use in reservoir engineering to determine whether you have a volatile oil. We typically talk about fluids, we start with a black oil that has low gas-oil ratios and low gravities. We move into volatile oils which have higher gas-oil ratios initially, like the 3000 that we'll be talking about, and higher initial API gravities, which in this case we started at 55 degrees and is now up to 50 degrees API.

And what happens is, you move beyond that, you get into gas reservoirs and you start out with a very wet gas with high yields, but it's existing in a gaseous state initially, which this was not, then all the way to dry gases that have very little yields.

And what I think has happened is, below the bubble point -- which we've gone through already -- there's been a serious flashing of gas in this reservoir. It's a natural occurrence. And what happens is, from there forward it seems to be more about gas reserves and the associated condensate that's trapped in that gas. And that's why by restricting rates you don't help the GOR any, you don't preserve, you don't limit damage. It's not as applicable as it is to a black-oil reservoir.

The last page shows a little bit of that, and

this is a long report, I just didn't bring the whole report. It's been provided to the other parties. And this last page shows one of the plots that is typical for a volatile oil.

You see at the bottom a pressure scale from zero to 8000, and on the vertical scale the absolute liquid volume during their test. It's starting at 1. At over -- at 7000 [*sic*] pounds when they hit the bubble point at about 4600 pounds, there's an extreme shrinkage in oil, which is caused by the release of large amounts of gas. Remember, that gas has heavy, heavy condensates in it.

And typically over time, from this point forward, you start flowing more and more gas in the reservoir and less and less liquid until you finally do just simply have gas reserves, and most calculations you make will be based on gas calculations, including the liquid, the equivalents.

Q. Mr. Montgomery, and I know you'll address this later, but in fact is this reservoir acting more like a gas reservoir now than an oil reservoir?

A. Yes, a very rich condensate gas reservoir.

Q. Let's discuss the pools that you have looked at in this area, Mr. Montgomery, and if you'd take out your Exhibits 8 and 9 together, could you just first identify 8 and 9 and then run through some of these offsetting pools?

A. Okay. 8 and 9 are exhibits that were prepared by

myself to do a field study of other fields in the area. We've heard discussion about the Mesquite field, a single-well field. You see that on the map. Our Shugart field is highlighted in blue in the center. The other fields we'll talk about in a minute, represent other fields that are in the Strawn. In this area they're all at similar depths, similar initial pressures, I believe originally similar temperatures. We found, when we looked at our reservoir, we had virgin pressures and determined we'd found a new pool.

Along with that is a box next to each pool to help us with a few things that also are on the table you see in Exhibit 9, so we can go back and forth. The box includes the pool name, the pool rules. A couple of them were older that I think are just statewide, I don't have in there. Then the initial production date, the initial producing gas-oil ratio, the current producing gas-oil ratio.

As we move through the table, I think it's simplest to show what I'm trying to show -- in a nutshell what I'm trying to show is, these are all volatile oil reservoirs. They all have GORs initially around 3000, they all progress through a GOR increase over time. Whether they're high rate or low rate, there's no damage noticed when the rate -- when the wells are just more prolific than

when the wells are a little more modest.

And as I go through this, I'll just point out a few of those to highlight this is the type of animal, the type of reservoir fluid we're talking about.

Starting with the first pool, alphabetically is how I did this, the Cedar Lake Pool is a Mewbourne-operated pool to the most part. There are four wells in that pool. I actually believe there's a well just north of us there in the Cedar Lake Reef Pool that really should be in our pool, but let's -- these are from the Commission records, so these pools are associated with certain designations by the Commission.

The Cedar Lake Pool, if you'll flip to the first curve, you see the oil rates in green. Over time, a couple wells come on and the rates kick up. But in general the oil rates decline and the gas rates decline and the GOR trend at the bottom, in a bluish color, starts at 2500 or 3000 and drifts upward over time through the natural depletion of this reservoir in a typical volatile oil fashion, up to currently about 8000 to 1. It looks like it's continuing to go up and will so until it's no longer economic to produce this reservoir.

Interestingly enough also, we did a PVT study on that reservoir years ago and found the exact same results. I don't have that with me, but it's a volatile oil with a

similar bubble point and a similar initial pressure above the bubble point.

The next one on the -- And by the way, the field rules on that particular one are special. They're 160 acres; 560, as you can see, barrels of oil per day; and a 4000 GOR. The wells there never got so prolific that the limiting GOR became a factor. And so as the wells declined, that top allowable, the way the math is done in the OCD Rules, you just take the top allowable times the limiting GOR, and that's your magic gas cap. It never became effective.

The next field is the Cedar Lake North field. It's a 40-acre field, it's got two wells I mentioned. One of those -- no, I did not mention. They're on the map, though, you see, just north of the one I did mention. It's a much less prolific field on 40-acre spacing. But if you look at the curve, you see similar natural progression from a lower GOR around 3000, maybe 4000, up to 9000 or 10,000 at this point, indicating a similar fluid there also, a volatile oil going through depletion.

Interestingly enough, it's a 40-acre pool and there are just two wells, but if you add those two together they would be allowed 640 barrels per day at 2000 GOR. And if there were four drilled on a 160, the allowable would be, I guess, 1280 per day. And I know -- I would remind

you, we're now at 1120 and asking for 1350.

The next pool we alluded to a little earlier. It's a very prolific, the Cedar Lake Reef Pool, and it's interesting, because even though the wells -- There are just two, and it's dominated by this Big Oak Lake EOG well. There are two wells, but the production is really from the one well.

Even though that well was produced at very high rates, a thousand barrels a day -- and it took a special hearing to get that also, the pool rules there, 160 acres -- 1120 and 4000 were necessary because the GOR started at 3000. So it was already above 2000, typical again of the GOR that we're going to see in all these fields, and has now increased up to just under 10,000 and is certainly going above 10,000 in the future.

But I see no damage in any of the curves here. I see a natural progression, even though high rates were taken out of this well.

Q. So Mr. Montgomery, even just with the first three charts you have, as these wells -- these pools progress in age, the oil production decreases slowly, the GOR increases?

A. That's correct.

Q. You don't reach a certain GOR where all of a sudden the oil or condensate production just takes a

nosedive?

A. No, not at all.

Q. Go ahead.

A. There are really just two more I want to touch on, because -- in view of time. But they all show the same GOR trend if you flip through them.

But if we go to -- the next one I want to talk about is Lusk North. Now, Lusk North -- Mr. Feldewert may be familiar with -- is a pool that is on special rules, 160 acres, 1120 barrels per day -- I'm sorry, three -- strike that, I just got off track. Lusk North is a 40-acre pool, 365 barrels of oil per day and a 2000 GOR.

And if you look at the curve, you notice some additional wells getting drilled and the curves jumping around, but the general trend there also is from a lower GOR, around 2000, to a GOR above 10,000 to 1. And I say it's interesting in that if you look at a 40-acre basis and multiply that by 4, 365 times 4 is over 1400 barrels a day.

In addition, the GOR on this field has gotten so high that Chevron has asked for special field rules to be changed to 20,000 to 1 GOR in order that they can continue to produce this effectively.

Q. And that was just two or four weeks ago, that that hearing was held?

A. Yes. Yes, the hearing was just held.

Then the last one I want to look at before the Shugart is the Sand Tank field. That's on the far western side of the map. It represents four wells. It is actually designated as a gas pool, yet the GORs start very similar, trend very similar, and it's easy to mistake these for gas pools. They make a lot of gas. These wells, you're going to see rates making a lot of gas when you see the testimony. So it's easy to mistake these. And in fact, they're sort of in between gas and oil in their nature.

But again I would point out, the initial GOR is around 3800, moving up to over 10,000 up to 11,000, still producing, nothing strange about it, no damage seen, just the natural progression of GOR.

Q. So since that's a gas pool, that one is actually spaced on 320 acres, is it not?

A. It is, I believe so, and wouldn't have oil allowables, it would just be compete as you will for reserves. And you know, gas moves so much easier through rock than oil does and it's so much more competitive.

The last one is the Shugart Pool, and we're going to get into more detail on another exhibit, but I would just point out here that the Shugart Pool is a new pool, just a year old. You see the seven wells we've talked about on the geologic testimony. The pool rules here were temporarily established last year at 160 acres, 1120

barrels of oil per day, and 4000 GOR.

If you look at the GOR trend, we started around 2000. That was probably more like 2500 when we look at it on a daily basis. It has progressed up to 6000 or 7000 GOR. As of the last month I have it again, we have some additional data on a well-by-well basis that shows GORs even higher than that as the last month or two have gone by, and on an individual well basis they vary throughout this pool to some degree.

Q. Okay. So just in general, then, the GORs in these pools were initially in excess of 2000 to 1?

A. That's correct.

Q. And they have over the life of the pool naturally increased?

A. That's correct.

Q. In each and every pool?

A. As was expected.

Q. And again, there has been -- This has been a natural progression?

A. Absolutely.

Q. And as a result you see no damage to the reservoir by, number one, increasing the allowable in the Shugart Pool or increasing the GOR?

A. That is correct.

Q. There won't be any precipitous drop in oil

production if the GOR is increased?

A. That's correct.

One last thing on this, I'd like to point out, is that you see a decline in production on the Shugart field the last three or four months, and that's basically related to one particular well that we pinched back to rectify an over-allowable problem that we developed this year. The northeast quarter, as I can tell you, is the only quarter section that's ever been choked back out here, and our 1120 barrels of oil per day allowable is what we were focusing on, and we basically left the well at that rate.

But as the GOR climbed above 4000 we got out of balance with respect to allowables. And so the reduction there is an artificial reduction, a pinching back to half rate.

Subsequent to finding this out, we worked with Artesia OCD and the offset operators and put a plan in place to produce that quarter section at half gas rate. So instead of 1120 times 4, which is 4480 per day, we're basically at 2.2 million a day and began proceedings to get this allowable worked out with the Commission and this hearing.

We are now almost back in balance as to gas. We were back in balance as to oil within the first week or so of curtailing, we were just barely out of kilter on oil. I

believe we'll be back in balance around mid-December of this year as to gas, and then we'll be able to go back to the 4.4 million a day, pending the outcome of the new field rules that we're applying for here.

But that's the drop you see there. It's not a depletion or a damaged thing, it's simply a choking back of wells that we'll see again on the well-by-well data on my next exhibit.

Q. Let's move on to your Exhibit 10, which contains pressure data. And before you run through this exhibit, what are you -- Can you summarize what you're trying to show on this exhibit?

A. Yes. It's hard to read, I apologize, it's small. And what I'm trying to show is that initial pressure in the reservoir was determined, and we believe a new discovery was found by the 8 Number 3, and I guess we had the 8 Number 2 log all ready with a DST in the 8 Number 3 of 5849 pounds.

Additional pressures below that time period existed and began showing up in individual wells, such that when a new well came on, they would take a pressure -- "they" being Mewbourne or Gruy -- and it would be less than virgin, which was the indication in my mind that said this is one tank, not just geologically but productivitywise. There's going to be a very high degree of competition for

reserves, a very high degree of pressure communication.

There will be pressure differences, depending on how hard you pull your wells, but if you leave them shut in long enough -- and we're talking about just maybe a few weeks -- they would all probably stabilize to similar pressures.

So as we walk through this, you see the wells up at the top, the Fren 8-3, -2, -5, 8-6, Magnum 5-2, 5-3 and Parker Deep, and then the dates down the left-hand side chronologically to help show the pressure drop over time.

And then interestingly enough, in May, all the wells, basically, that were drilled -- except, I think, the Parker Deep that was -- had just been drilled -- were shut into pipeline, and we took the advantage to take some pressures, as did Gruy, and you find some of them still building, as I tried to note there, but you find the Fren 8-2, which is a very productive well, which would build quite quickly and probably represent a good pressure at 3619 after 55 hours shut-in, building only a half a pound an hour, it was about done, so the reservoir pressure was around there in that well.

But in the Gruy wells, 2900 pounds, 2650, not sure how much they were building. I'm sure they were still building. But they had not been choked back, as the Fren 8 Number 2 had been. And when I show some daily plots and

you see the flowing tubing pressures that we had to choke back to, they're quite high. At 1000 barrels a day, our flowing tubing pressures were still quite high. So our bottomhole flowing pressures were quite high. In other words, the Gruy wells were aggressively pulling the reservoir pressure down, as were some of the other Mewbourne wells that we did not have to curtail.

And then lastly, in September of '03, just recently, and then in October when we drilled the new well, we found a high degree of pressure communication in the Mewbourne wells, around 3100 to 3200 pounds, and that's where we're at today.

And from here forward, when you get to that point with a volatile oil, then you flash this much gas and you have the gravities that we have and you have the gas-oil ratios that we have, you're really just talking about gas reservoir competing for depletion reserves.

Q. So in short, you started out at something over 5800 p.s.i. in August 19, 2002?

A. That's correct.

Q. Four months later, the 8-2 is recompleted and you're at about what, 4900?

A. That's correct.

Q. Then you get down toward April of 2003 and the DST in the Magnum-Hunter 5-3 is about 4100, and --

A. Yes.

Q. -- and now after the most recent well, in October the Fren 8-6, you're down to about 3200?

A. That's correct.

Q. And that's what you'd expect with this --

A. That's right. You can kind of see where we went through the bubble point there, and it will be apparent on a curve I'll show later.

Q. But again, this is clear evidence of competition among the wells in the --

A. Yes.

Q. -- in the reservoir?

A. Yes, the high degree of consistency in the pressures and the high flow rates lead me to believe that correlative rights is a key issue here, and there's a high degree of competition for reserve between wells.

Q. Okay. And then looking at just, say, the May, 2003, and the September -- Yeah, let's look at the May, 2003, dates. Again, because the 8-2 well is an exceptional well, that came to its pressure quite easily, didn't it?

A. Quite rapidly, right, it would build up.

Q. And of course at times this summer, that well has been restricted, has it not?

A. The whole summer it was restricted. Every day from the beginning of -- when we first tested the well, it

has never flowed against line pressure.

Q. Let's go on to your Exhibit 11. Now, this exhibit just has to do with wells in the pool we're here for today; is that correct?

A. That's correct, right, the individual data that we really get down to the meat of the information between wells in the same pool and how they're acting, and you'll see some of the same things we've talked about, of course, show up, and I'll try to go through this and make those same points again.

Q. Now, on the first page of it, it's organized by chronological date of completion; is that correct?

A. That's correct, you see the Fren 8-3 at August of '02 and the Fren 8-2 of September of '02 and thereafter.

Q. Okay. Well, why don't you run through this --

A. Okay.

Q. -- Mr. Montgomery?

A. This is a similar table that we've seen before, just a few different columns. The well names, of course, the initial production date, then the initial daily rates, based on our estimates of the very first few days, first weeks, then the initial gas-oil ratio corresponding to those daily rates, then the cumulative oil, the cumulative gas, the cumulative GOR, which is just dividing those two numbers, and then the current GOR, which is the

instantaneous GOR that we find ourself today in these wells and on a well-by-well basis.

What I'd like to do is just sort of go through these one by one.

The 8-3, if you turn the page, you see it was the first well that produced. It represents, actually, the discovery well in the proration unit of the northeast quarter. Remember the DST discussed earlier. It had virgin pressure. But this one did have lower productivity overall, compared to these very productive wells we're going to see. It just didn't have the porosity and the permeability. But you note the normal GOR trend from 2000 or greater up to 9000 or so today, over time as the well is produced.

The next well is the Fren 8-2. This is the one that's so prolific and was curtailed recently, but if you look at that curve you see it's flat at about 30,000 barrels a month for the life of the well, basically, until the last three or four months where we have cut the well back even more. And again, I've got one more exhibit on this well that we'll discuss some of that daily information. You'll see some tubing pressures and some GOR's. But in general, the GOR was started at just under 3000 and then has gotten up to just over 6000.

Interestingly enough, you see about in January

the GOR began to increase from previously being flat, and that's because, if you'll remember the pressure information, that's when all these other wells began to show with initial pressures near the bubble point, and I believe that helps confirm the bubble point. And at that time gas began to evolve in the reservoir very rapidly, and so the GORs began to go up. And this well is sort of a nice barometer for that, because it's so productive and it did begin above the bubble point.

One thing to remember is that, you know, this well has been restricted the whole year. I think we mentioned that before.

Q. Well, and one reason for that is that the 8 Number 3 was produced at capacity, was it not?

A. That's correct, the 8- --

Q. It had always been produced at capacity?

A. Right, they share an allowable. And the 8-2 was sort of a 100-barrel-a-day, 200-barrel-a-day well, and we continued to -- until just recently -- produce that at full capacity, picking up the rest of the allowable with the 8 Number 2.

And then when we began curtailing, even though Mewbourne owns a bigger interest in the 8-3, we completely shut in the 8-3 and produced the 8-2. But by that time we had offset producers 660 off our north line competing for

reserves, and we felt like leaving the 8-2 would help compete better with those and also would be the fair thing to do, even though we own a smaller interest in that well.

Q. And you know, as an aside, the 8-3 is in the southwest of the northeast of Section 8, is it not?

A. That's correct, you can see it on my map, sort of, and of course on our geologic maps. The 8-3 is the furthest south well in that blue square.

Q. And then the 8-2 well, although it is in the northeast of the northeast, it is -- I'm not sure of the footage, but it's not 660 from the north line, it's quite a bit further south, is it not?

A. That's correct, right, it's sort of crowding the south.

Q. Okay. Go ahead with the next well --

A. Okay --

Q. -- Mr. Montgomery.

A. -- the next well that produced was the 8-5. Mewbourne -- We kept waiting for Gruy to produce their well and we didn't see a move, so we were sort of happy there. But we drilled the 8-5 and we came on at, as you can see, over 10,000 barrels a month, and the GOR was a little under 3000. It began to increase up to the current GOR, close to 5500, probably 6000 now. And when we brought it on we saw a slightly lower pressure again, close to the bubble point.

And we took a few other pressures. As you can see on these curves, I try to note some of the pressure data that was on the other table.

But this also confirms the typical trend of a volatile oil.

Then the Magnum 5-2 finally got recompleted. It had been shut in in the Morrow for some time. And interestingly enough, when we saw their OCD filing it said we'd like to recomplete this well, there's an offset operator to the south producing a thousand barrels a day and we need to protect correlative rights. And they did, they have a very fine well there. It came on at 20,000 barrels a month or so, as you can see. Never really had to be worried about the allowable at those rates, neither oil nor gas. But the GOR was slightly higher at maybe 3500 and has crept up now to 8000 or so.

Then the Magnum 5-3 was drilled. They pursued the development of this reservoir, found productive well in the 5-3, as was shown on the cross-section, and this was just a short time later in May, I believe, of '03. But again the initial reservoir pressure was lower when they tested it. The GOR was higher when they brought it on, just like we would expect as this reservoir is in communication and has begun its trend upward to 8000 or so at this time.

It's also 660 from the line. Both -- of course, their Morrow well was already 660 from the line.

And then the Heyco Parker Deep well began producing a couple months -- well, maybe a month later, in June. Now, it's a little different. It probably doesn't have the geologic capacity, the permeability, the thickness. It's on pump. They've just recently acidized it again. I don't think it's that significant to the picture, but it came on at about 30 barrels a day and has decreased on down.

Then came the 8 Number 6, which I don't have a plot for on this exhibit -- this will finish it up -- but I do have a daily plot. It was just drilled. And Mr. Examiner, I'd like to bring that in a minute so that we can see the development of the 8-6.

But it was drilled to protect drainage from the north, basically. We knew it had a lot of competition and we were going to be sharing reserves with ourselves and operators from the north, but we didn't have a 660 well, and we felt like we needed to do that. Indications were that we would make a very good well in between two very productive wells, the Gruy well to the north and the Mewbourne well to the south, and we did go in and make a fine well as you saw on the logs. It may be the best well, it may be where the highest porosity is of all the logs

we've seen.

And it came on as expected, it had initial pressures of 3200 pounds, very similar to the current pressures of the other wells. Actually, when we had this allowable problem, we took the time to have some -- just some shut-in time for all the wells, and then we could make it back up to get to half rate. And so we left the 8-3 shut in for two weeks, since it was so tight. The 8-2 and the 8-5 we left shut in.

And as you saw on the pressure data, everything settled in around 3100 pounds. This well, when we drilled it, we tested the pressure at 3200 pounds and then began producing it under this restricted allowable condition that we're under until December 15th or so.

Q. Okay. Now, going back to the first page of this exhibit, there's basically four well units that are productive in this pool, Mr. Montgomery. What, the southwest of 5, the southeast of 5, the northwest of 8 and the northeast of 8?

A. That's correct.

Q. Now, if you look at this, then the southeast of 5, which is where Magnum-Hunter has its wells, or Gruy has its wells, they're producing at about an 8000-to-1 GOR?

A. That's correct.

Q. Now, they're not limited because their oil

production doesn't match up to --

A. They're not able to produce the top allowable, so there's no limiting cap for them.

Q. Okay.

A. It's an extreme limiting cap for us.

Q. And then the Fren 8-5, that is in the northwest quarter of 8?

A. That's correct.

Q. So that one's producing at a somewhat lower GOR?

A. Right, but it's not able to do its top allowable either, and the GOR is not as effective there.

Q. And then there's, now, three wells in the northeast quarter of Section 8, and if you look at the GORs, they average out to about 8000 to 1?

A. Right, that's correct. The Fren 8-2 that hasn't been produced very hard doesn't have that low of a pressure. I believe it has a little lower GOR because of that.

Q. Because it hasn't been pulled at full --

A. That's right.

Q. -- top rate?

A. That's right, the bottomhole pressures aren't quite as low.

Q. Perhaps if you had been producing it or been able to produce it at 1400, 1500 barrels a day over the last

year, year and a half -- or year, I should say -- it might have that higher GOR?

A. That's correct. I believe we could have sped up the recovery of this and captured reserves that we believe are under our leases.

Q. But it has been, in essence, restricted either voluntarily by -- just to make up the overage from the 8-3 well, so it has been restricted all this time?

A. Yes, the whole time it's been restricted.

Q. Well, let's just move on to your final exhibit, Exhibit 12. You've got a couple of daily plots here. I think they're for the wells that you said are the best in the pool. Could you describe how those wells are performing?

A. Okay. The first one is the 8-2, and as you can see, there's several lines on here, and I apologize, it's very busy. But down on the bottom are dates. These are daily estimates of the production from our records. On the right-hand side is simply the GOR plot, scale and the choke size times 100, and on the left side are the oil and gas and flowing tubing pressures on a per-day basis for those days.

So as you see, when we started out with this well, the green curve initially was over 1000. It actually got up to around 1350. And the GOR right up above it,

which is the burnt orange, was bouncing around from 2500 finally to 3000.

Then we curtailed the well before we had our hearing to see what would the GOR do? Would it make the GOR go up or down, or what would happen? And we felt like it basically just rocked along at around 3000.

Then we opened the well back up in 11 -- November of '02, back to a thousand barrels a day, and again the GOR just stayed right there at 3000.

We got our order, basically, effective back in about November of '02, and by the time the Gruy wells were starting to be drilled and the pressure we saw was at the bubble point in early January of '03, you see our GOR go up. Nothing else was happening, we're just producing at a thousand barrels a day, but gas is beginning to evolve out of the bubble-point -- below the bubble-point pressure in this volatile oil system.

Much of the oil that we are getting from that point forward is high-gravity condensate, and our API gravity is beginning to increase over time. They started at about 45 degrees in the early months with the DST and the production, and they're now over 50 degrees. And that's an example of a shift from flowing oil and liberating gas in the reservoir to really flowing gas and condensing that oil in the tubing and in the production

equipment.

You see the choke, which is the purple line, jump around. We tried a few things to see what kind of rates we could get as we started to determine how would we come back to the Commission for new pool rules? And with the GOR going up and -- like I say, it's just -- I apologize for an inadvertent error, that's when we got out of whack on the gas allowable. We began to accumulate an overage, and for a few months that was undetected. And then we began to rectify it.

And you see that happen in August of '03, you see the green line start to drop as the choke size is being closed. And of course, the gas drops precipitously. But look at the GOR. It was at about 5500, and it -- other than just readjusting, it basically stayed at 5500. Even though we had a dramatic drop in pinching the oil back, it didn't lower the GOR, other than just for a very short period of time, and it's now on its natural trend upward.

Also I wanted to point out, the last thing, is the flowing tubing pressure line, the blue line. It starts out at 2700 pounds. We were flowing this well over 2500 pounds initially and 1350 barrels of oil per day. Very prolific. No other well has matched that in this reservoir, save maybe the 8-6 that we just drilled.

And you see that slow decline in flowing tubing

pressure? That's just the decline in the reservoir pressure from our own production and offset production, which yet we are nowhere near 500 pounds, which is with all the other wells, Gruy wells, some of the Mewbourne wells, that are able to flow without restriction because there are no allowable problems against pipeline.

Right now, before we completely shut the well in, when the 8-6 came on, we're flowing at 1500 pounds flowing tubing pressure and about 500 barrels a day. So still restricted. Recently we shut the well in.

And if you'll flip the page over, we shut it in because we wanted to leave it at half rate for the quarter section. This well came on. We were very happy when we drilled it. The porosity is tremendous, and the production is pinched back, basically. You see it finally kind of stabilized. There's two choke sizes that we had it set on, and the final choke ended up at around 1600 pounds flowing tubing pressure with 250 barrels a day, which is not too far from what we were doing in the 8 Number 2.

And the porosity in this well and the flowing characteristics of this well lead us to believe that it also has tremendous capabilities of producing today, if not choked back by allowable, at somewhere near 1000 barrels a day. And the associated gas, 6 to 1, 7 to 1, that's 6 or 7 million a day. If we don't get that gas by opening these

wells up, it's just going to go to the other producers that are able to produce without restriction.

Q. You mentioned something earlier, Mr. Montgomery, regarding these wells now produce more like gas wells. Do you have any type of data, like fluid gradient tests, that would indicate that?

A. Actually, I do, I'm glad you mentioned that. I forgot to say that when we looked at the pressure data exhibit, there was a fluid static gradient taken. When we do these, we'll go in there for -- after 48 hours or 36 hours or 72 hours, we'll drop in there and get a pressure. Well, we'll leave it on the bottom for a while, see if it's still building. And then we'll come out of the hole every 2000 feet and take a pressure to see if we see a fluid level.

In the September pressures, there was no fluid level. Pure gas from top to bottom, with a bottomhole pressure at 3200 pounds and the surface pressure at -- whatever that would be, the gas gradient. There wasn't a drop of liquid in the tubing, even after being shut in for 72 hours.

Q. And once again, that indicates, as you said, it's almost like gas production?

A. It is, yeah, we -- reservoir engineers would treat this like a wet gas production from here forward.

Q. Okay. So again, you're here today for 10,000 to 1 GOR. The current GORs are about 8000 to 1. Why not ask for just 8000 to 1?

A. Well, we chose 10,000 to 1 because we saw all the other fields moving and surpassing 10,000 to 1 under their natural trend. We're already at, say, 7000 or 8000 or 9000 to 1, and if we're curtailed -- we feel like we're curtailed under the oil rate we're asking for, we're trying to be reasonable, and so the gas limit will just hit us again in a couple months if we don't get some room for that GOR to grow from the 8000 now to the 10,000 that we're asking for.

Q. And again, increasing the GOR is not going to damage the reservoir?

A. No, I think we've shown that on the 8-2, as the GOR increased -- we changed the rates, the GOR didn't move at all. It only moved with respect to natural depletion from pressure depletion and production.

Q. Okay. And for the allowable of 1350, that's approximately four times what the statewide allowables are out here?

A. That's correct.

Q. Some of them are at 320 barrels a day for 40 acres, some of them are at 365, so it's approximately four times that?

A. We think that's very reasonable. We asked for that before we knew what the 8-6 would do. In hindsight, I wish I'd asked for 2000 barrels a day, and I think we could defend it here today.

Q. And again, even if Mewbourne gets what it asks for, it will still be allowable-limited in the northeast quarter of Section 8?

A. Yes, absolutely.

Q. By quite a bit?

A. By quite a bit.

Q. Just one final matter. We've requested the discovery allowable. Have you calculated what that amount is or would be per day?

A. Yes, we basically take five barrels for every foot from surface to the top perf, and we believe that even though we had the 8-2 logged first and knew what we had, the 8-3's top perf was 10,452. Multiplying that times 5 is 52,260 barrels. The Commission spreads that over two years, which would be approximately 72 barrels of oil per day for two years for that quarter section, in addition to the 1350 that we're asking for.

Q. Were Exhibits 7 through 12 prepared by you or under your supervision or compiled from company records?

A. Yes, they were.

Q. And in your opinion, is the granting of

Mewbourne's Application in the interests of conservation and the prevention of waste?

A. Yes, it is.

MR. BRUCE: Mr. Examiner, I'd move the admission of Mewbourne Exhibits 7 through 12.

EXAMINER CATANACH: Any objection.

MR. FELDEWERT: No objection.

EXAMINER CATANACH: Exhibits 7 through 12 will be admitted.

Any questions, Mr. Feldewert?

MR. FELDEWERT: Yes, sir.

CROSS-EXAMINATION

BY MR. FELDEWERT:

Q. Since you were on the discovery allowable, you talked about 72 barrels of oil per day, and I think you said you were going to -- it would be for that quarter section. Is that how you intend to -- would produce that discovery allowable? You would spread it out over your quarter section?

A. The way I interpret the Rules, with allowables, based on the spacing that you have, you're supposed to share allowables. And that, in my mind, would be a shared allowable. I guess we could allocate the whole 72 to one well and then throw the others, but it seems a moot point, works either way.

Q. Well, how do you intend to produce the -- If you get a discovery allowable, how do you intend to produce it?

A. We intend to produce it in conjunction with any other allowable that we have, by competing with the Gruy wells to the north and leaving the 8-6 on production as best as we can -- as high as it will go. If it gets it all, we'll just shut the other two in, or we may produce the 8-2 a little bit, because it's got a little bit of position potential.

We just think it's so competitive here that even though we're restricted we've got to protect our correlative rights across lease-line competition.

Q. So if you get a -- as I understood your testimony, if you get a discovery allowable and the 8-6 is able to produce the special allowable plus the discovery allowable, you intend to produce it out of the 8-6?

A. That's correct. And that -- I'm not sure. The bulk of it, I think, would be at the 8-6. There probably would have to be some out of the 8-2.

Q. And the 8-6 is drilled -- well that you just recently drilled?

A. That's correct.

Q. Okay. You talked about correlative rights, and that was -- I understood to be the focus your testimony, and I believe you indicated that you thought any

restriction out here would, in essence, hurt Mewbourne and help the other operators?

A. That's correct.

Q. And that you don't want to see that -- what you call the gas in this area, go to the other operators; you want the ability to produce that gas yourselves?

A. We want to be able to take care of our correlative rights.

Q. Okay. Now, you recognize, though, do you not, Mr. Montgomery, that allowables exist in order to protect the reservoir energy and allow all operators to produce their fair share of the recoverable reserves?

A. Yes.

Q. Okay, and that would include the gas as well, does it not?

A. Absolutely.

Q. Everybody gets their opportunity to produce their fair share of the reservoir energy and the oil underneath their acreage?

A. I think the Commission is bound to try to protect correlative rights for both oil and gas, absolutely.

Q. Did you do any kind of oil-in-place calculations for the -- for this area?

A. Yes.

Q. You did.

A. Yes.

Q. But you didn't present any of that today?

A. No.

Q. Okay. Why did you pick 1350 barrels of oil per day, plus a 10,000 GOR, which amounts to, as I understand it, and correct me if my math is wrong, but about thirteen million five hundred thousand million [*sic*] cubic feet of gas a day, right?

A. Right.

Q. Why did you pick those numbers?

A. Well, from the performance of our wells, it was prior to drilling the 8 Number 6. We were currently producing about 100 barrels a day out of the 8 Number 3, in excess of 1000 barrels a day out of the 8 Number 2, and we thought we could open that well up and get to 1350 a day. We also thought that the 8-6 would produce, hopefully, somewhere between the Gruy wells and the Mewbourne wells.

So by sort of adding that up and also, you know, looking at a 40-acre field -- fields, times four, we thought it would be prudent and reasonable to ask for 1350 a day.

Q. That's the amount you want to produce from your 8-6 -- You're assuming the 8-6 and the 8-2 can produce that amount?

A. I don't know that they can produce that much.

I'm hoping they can each produce a thousand barrels a day, each, maximum.

Q. Okay.

A. That's difficult to know absolutely.

Q. So you want the ability to open them up?

A. Absolutely, yeah, that's what we're here for today.

Q. Okay. You talked about several kinds of -- about flashing gas. Do you believe that there's a free gas cap forming in this reservoir?

A. No, there's not enough structure. Typically -- We believe, first of all, there was no initial gas cap, because we were above the bubble point. Gas is certainly evolving, in tremendous quantities, in the reservoir, and being produced into the wellbores.

You know, I typically think of a secondary gas cap, we have a hundred oil wells with 2000 GOR, connected geologically a mile or two or three away from pure gas wells at 100,000 GOR, and there may be some benefit to keeping those gas wells from taking all the pressure off so that the oil wells don't lose reservoir energy. But here I picture it much more like just one gas reservoir with condensate production associated.

Q. And that's based on existing information?

A. Yes.

Q. Okay. Now, you have plans, do you not, to drill an additional well in the northwest quarter of Section 8?

A. That's correct.

Q. Okay. And are you aware that there's also plans to drill wells in the southeast quarter of Section 5, as well as the northwest quarter of Section 9?

A. I've heard rumors, I don't have any exact knowledge.

Q. Okay, but you all are at least -- have plans to drill an additional well in the --

A. That's correct.

Q. -- in your proration unit, which -- in the northwest quarter of Section 8?

A. That's correct.

Q. Which would then provide some additional data on this reef, would it not?

A. Sure, yes.

Q. Okay. Now, the original order that was entered in this case at your request, that applied the -- that allowed a special allowable for this pool has a timetable in it to revisit this issue in March of 2004?

A. That's correct.

Q. Okay, and what you're trying to do is accelerate that timetable, as I understand it?

A. We feel we're being drained, and have been

drained, all summer. We cannot wait till March, 2004.

Q. Okay.

A. We would love to have a very rapid turnaround here.

Q. And you feel that you're being drained unfairly?

A. Yes.

Q. Okay. But you haven't produced any information to demonstrate that today, have you?

A. Oh, yes, I have.

Q. You have?

A. The pressure communication between these wells, there's no doubt that --

Q. But you haven't produced any information on the oil in place --

A. No.

Q. -- to substantiate that statement?

A. No. We've got logs to show where all the oil in place is. We have 660 lease lines to help protect against correlative rights, but with -- one operator's curtailed, another operator will benefit. That's what they're here for today.

Q. Aren't you aware of pools out there, Strawn pools out there, in which operators are curtailed?

A. Yes.

Q. Okay, and they're curtailed to protect reservoir

energy, are they not?

A. I don't know. I'm not intimately familiar with why they're curtailed.

Q. Okay.

A. I know that you have a case pending to try to increase 1-to-20,000 GOR.

Q. Let's talk about that.

A. Okay.

Q. Are you familiar with that pool?

A. Yes.

Q. How many operators are in that pool?

A. I'm not intimately familiar with, but I know Chevron is in the pool, and I believe they're maybe the only operator.

Q. They're the only operator. So we don't have a pool there where there's other operators? In this case we have a pool with other operators, correct?

A. Right.

Q. So we have correlative-rights issues here that we don't have --

A. That's right.

Q. -- in that pool?

A. Exactly.

Q. And were you also aware that Chevron -- under the existing pool rules, Chevron, being the only operator under

the existing pool rules, had to shut in its wells because of the circumstances associated with that GOR cap?

A. Were they overproduced?

Q. They were overproduced and had to shut in their wells. You weren't aware of that?

A. No.

Q. Okay. You don't have that situation here, correct?

A. No, we tried to get that testimony, it wasn't available, so I'm not -- All I know is that they were seeking a 20,000 GOR, so I'm very limited in the facts of that case.

Q. Okay. Now, in August of this past year you were alerted to the fact that you were violating the liberal allowables for this oil and gas pool that you obtained back in October, were you not?

MR. BRUCE: Can you define "liberal", Mr. Feldewert?

Q. (By Mr. Feldewert) Twice what the state rules presently allow.

A. We got a letter for a hearing, we got no information from Gruy, nobody ever contacted us and said, hey, you're over your allowable. We got a letter from the Commission. I guess Gruy approached Ms. Wrotenbery and tried to get a hearing put together, and we knew we had

problems already, prior to that, and we had begun pinching back prior to that, to try to rectify that. But yes, we did get an application for a hearing, I believe.

Q. You also got a letter from Gruy, did you not, or were copied on their letter?

A. We got a copy of a letter a month or two later.

Q. Okay, so it was Gruy that brought to your attention the fact that you were in violation of the pool rules?

A. No, that's not correct, we knew it already.

Q. Okay, what did you do about it?

A. We began choking the well back.

Q. When did you start choking?

A. Early August of '03.

Q. Okay, and that was after Gruy alerted the Division, was it not?

A. I don't know about that. I'm not sure when they alerted the Division, but it was before I heard about it from the Division or from Gruy.

Q. Okay. Now, according to your chart, which is marked as Exhibit Number 12, if I'm reading it correctly, your overproduction of gas started in March of 2003, did it not?

A. Wait a second, let me check on that. That sounds about right, maybe the very first bit of overproduction.

Q. So it was almost six months before you undertook any effort to deal with that overproduction?

A. That's correct.

Q. Who was in charge, in your company, of modifying your production within these pools to ensure that you stay within the pool rules?

A. Well, that would be -- I will take full responsibility for that. I was intimately aware about the pool rules, and I was more focused on the oil rate and many other things in my company, and I inadvertently missed getting over.

Q. What is -- Can you tell us today what your cutoff point is for oil production, in terms of the GOR?

A. Can you explain that question a little more?

Q. I mean, are you able to produce oil at a GOR of 4000 to 1?

A. No. No well, that I know of can -- that we have, will even produce at 4000 to 1.

Q. Well --

A. Pinching it back, it will stay at 8000 to 1, no matter what you pinch it --

Q. You're right that's a bad question.

A. -- because of the way these rules --

Q. Under the present pool rules, how much oil are you able to produce out of the northwest quarter of Section

8?

A. The present pool rules are 1120 times 4, so 4480 gas, 4,480,000 a day gas --

Q. And you're able to that, right?

A. Absolutely.

Q. And how much oil are you able to produce at that gas rate?

A. At that gas rate? Well, I'd have to divide by 7 or so, whatever that number is.

Q. Well, I'm just trying to get an understanding, under the present pool rules, how much oil on a daily basis is Mewbourne able to produce out of those four --

A. Okay, just a second, I'll tell you approximately. 640 barrels a day, approximately, at the current producing GORs that we think we have in that quarter section.

Q. Is there any other proration unit out there that is producing 640 barrels of oil a day?

A. I don't believe so anymore.

Q. Okay.

A. The Gruy, southeast quarter of 5, looks like they're at about 7000 plus 9000, 16,000 a month. So they're at about 533 barrels of oil per day, but that's a rough estimate.

Q. Okay. But under the present pool rules, you're producing more oil than any other spacing unit out there?

A. Except, say, for the fact that we're restricted to half-rate by being overproduced, and are rectifying that, that's correct.

Q. Okay. Now, just briefly, I want to take a look at the other Strawn pools that you have identified on Exhibit Number 9. Do you have that in front of you?

A. Yes, go ahead.

Q. What would you consider to be the most analogous Strawn pool to the Shugart-Strawn Pool?

A. Well, in different senses they're all very analogous, they all have very similar GOR trends, the fluids are very, very analogous.

As far as productivity, maybe the Cedar Lake Reef field was the most analogous because of its higher flow rates initially. The Lusk North would also have some high flow rates. But, you know, there's variability in all these fields and -- pools, excuse me, but they're all very, very similar to ours, I believe.

Q. Do you know -- In terms of the Cedar Lake Reef Pool, do you know how many operators are in that pool?

A. I can find out. I know EOG is producing in 25. And in 36 just give me a minute, I think I have that somewhere.

Q. Well, let me ask -- you know, let me ask you -- let me ask you --

A. Do you have it?

Q. -- let me ask you a better --

A. I may have it in my notes.

Q. -- maybe a better question.

A. Okay.

Q. There's more than one operator in the Cedar Lake Reef Pool, is there not?

A. I don't know.

Q. Do you know whether there's more than one operator in the Lusk North Pool?

A. I think you told me already that Chevron is the only operator.

Q. That's right. Now, in terms of these other pools, can you identify the ones that have multiple operators?

A. Yes, it'll just take me some time to go through it.

Q. You mean you have to go through the data?

A. Right. Yeah, my notes.

Q. You don't know off the top of your head?

A. No.

Q. Okay.

A. No.

Q. But none of these what you call analogous pools have anything close to the allowables that you are

requesting here today, do they?

A. The Cedar Lake Reef was granted 1120 barrels per day, and we're asking for 1350, so I would consider that very similar.

Q. Okay, the Cedar Lake Reef has exactly the allowables that you are presently operating under in the Shugart Pool?

A. That's correct.

Q. Okay.

A. They were never really ever to produce in excess of that. They started at that point and began declining immediately, so it didn't become important for them to seek any new pool rules, even though their GORs got way up above 4000, which was their limiting factor. The top allowable was never obtained, except for that first month or so.

Q. Now, didn't you testify before this Division in October of 2002 that those rules for the Cedar Lake Reef Pool were adequate to equitably drain the area?

A. I don't remember saying that.

Q. Turn to page 29.

A. Okay.

Q. Would you just read for the record your answer, beginning on line 14, on page 29?

A. "What we found as we developed this reservoir was something we think is very similar to other reservoirs in

the area, both geologically, as we've heard, and fluid- and permeability-, porositywise, and that those other reservoirs are producing in such a manner that these field rules are adequately put together to drain these reservoirs."

Q. Go ahead.

A. "There's -- We've talked about the Oak Lake well in the Cedar Lake Reef Pool. It's on 160-acre spacing with an increased oil allowable of 1120 barrels of oil per day and 4000 GOR, and I'm going to show that those are proper spacing rules for good recovery of what's there volumetrically.

"Also, there are other pools we've seen that are spaced at 160 and with a special GOR of 4000."

Q. Okay. Now, you don't have any evidence here today that the pool rules that are in effect are going to result in an unequitable drainage of this Shugart-Strawn Pool, do you?

A. Yes, I do. I think I've shown that evidence.

Q. Okay, other than the fact that your wells could produce more, you haven't done any kind of oil in place or any kind of allocation of the oil in place or the reservoir energy to make a determination as to whether there's going to be an equitable drainage in this pool?

A. What I said, I think, through geologic testimony

and my own testimony, is that the porosity exists under our quarter section that's tremendous compared to other quarter sections, the productivity of our quarter section is tremendous, and that since this is a volatile fluid and much of what's moving is simply gas with the reservoir condensing oil -- or condensate out of that gas, that any restriction put on by the Commission to one set of wells will directly benefit the others, because there's a high competition for reserves between wells, and the only ability we have is to drill 660 off the lease line and be able to commit production rates similar to other operators with respect to flowing it against line pressure in an unrestricted manner. Otherwise drainage will occur.

Q. You just want to get as much as you can grab in an unrestricted basis?

A. We want to get the oil and gas reserves that we feel were under Section 8, the northeast quarter, without being restricted so that those reserves aren't produced into other wellbores --

Q. I understand.

A. -- and sold in other bank accounts.

Q. But we don't have any indication of how much of those reserves within the pool are under your acreage, do we?

A. No, not an exact figure.

Q. Now, didn't you also testify back in October that the GOR for these Strawn reefs generally start at about 3000 and naturally move to about 5000 or 6000 GOR?

A. I may have, I don't remember that.

Q. Okay, and you testified that that was normal for a solution gas drive reservoir?

A. I may have, I don't remember that.

Q. Isn't that your -- is that your -- is that -- Is it still your statement that a 5000 to 6000 GOR is generally normal for a solution gas drive reservoir?

A. I guess what I would say today is that it's obvious from these offset fields these GORs are getting above 5000 or 6000 -- most of them were 8000 or 10,000 -- and that this is more of a volatile oil reservoir with properties that exist that -- that's a natural increase in GOR and that we expect the GOR, as we've already seen in this reservoir, to go past 5000 or 6000 and continue on to maybe 20,000 or greater.

Q. Now, if I look at your Exhibit Number 12 --

A. Okay.

Q. -- you're showing a leveling off of the GOR, beginning in April or May, of about 5000 to 6000, are you not, for your Fren 8-2 well?

A. Just a minute, let me catch up to you. Yes, that's correct.

Q. Okay, now...

A. "Leveling off" is probably a poor word. It's still increasing, but there was a dramatic or a more rapid increase prior to that, I believe in sort of a transition phase as the bubble point was reached and gas came out of solution, and then a slow increase from that point forward that would more model these offset analogies that we saw in other wells in this Shugart-Strawn Pool.

Q. At least for your Fren 8-2, before you -- or even after you curtailed in August, you had some leveling out of the GOR at 5000 to 6000, did you not?

A. Yes, yes, the slope changed. "Leveling out" would just be your term. Mine would be a lesser increase.

MR. FELDEWERT: That's all the questions I have. Thank you.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Montgomery, the wells that Section 5, the -- I assume there's two different proration units in Section 5, in the southwest and southeast quarters. Do you know what those wells are producing at, like in the southeast quarter, the two wells?

A. Yes, I do. The exhibit -- I forget the exhibit it is, but it's -- Number 11, I guess, here it is -- show curves that are accurate through -- I think estimates and

daily information through October and actual through September of this year, so I don't have it up to the last minute like I do our own wells.

But the Magnum 5 Federal Com Number 2 is producing at an approximate oil rate of 900 barrels per month -- I'm sorry, 9000 barrels per month, and 60 to 70 million per month, or 300 barrels per day, and over 2 million cubic feet of gas per day. That's the 5 Number 2. That works out to a gas-oil ratio around 8000 to 1.

The 5 Number 3 in that same time period, October of '03, is producing approximately 7000 barrels of oil per month or just under 250 barrels of oil per day, and approximately 50 million cubic feet of gas per month, or just under 2 million cubic feet of gas per day, for a gas-oil ratio of about 7000 or 8000.

Q. Okay, so that's 550 barrels per day, oil, total. And what was the total on the gas?

A. Let's see. Maybe a total of 120 million a month. So on a daily basis it's at 4 million a day. So they're right -- They're just pretty close to the allowable at 4.4 million a day, is their limiting cap.

Q. Okay. So under the current rules, that proration unit is producing about the same as what you're allowed to produce in the northeast quarter? Is that -- Because I believe you testified you're currently able to produce 640

barrels of oil per day?

A. If we are restricted by allowable under the current 4000 GOR --

Q. Uh-huh.

A. -- and yet we're producing at about 7000, effective, there's no way for us to change that, I can do the math and yes, that's where it comes out to six hundred and something barrels of oil per day, that's correct.

Q. So under the rules that's what you're able to produce now?

A. Yes, and it would diminish every day. We would have to continue to cut our well back -- They would never have to touch their choke, we will continue to cut our well back month after month, it would just get worse and worse, and our oil would go down, because the GORs are going up, and we're limited to a gas cap, we're applying oil rules to what's really a gas reservoir, in effect.

But that would deteriorate -- whereas those wouldn't, theirs wouldn't, they would just naturally decline both oil and gas, never seeing a cap. The would have us believe that that's the proper allowable, when that's -- it only affects Mewbourne. You know, it's saving energy only just above their ability to produce.

Q. Okay. So under your proposal, you'd be able to produce from that northeast quarter 1422 barrels a day, and

there would essentially be no restriction on gas, right? --

A. You'd multiply --

Q. -- that 10,000?

A. That's correct, because we're at 8000. We -- Just like in their situation now, we would not have that limit until such time where -- it may be a few months down the road, where we would naturally increase to 10,000, then we'd have to start cutting the well back to leave it at 14-whatever-million-a-day that number works out to be.

Q. Okay. So you believe that you're being drained at this point because your wells are restricted because of the allowable?

A. Exactly, and it's such a highly competitive reservoir. It's more like gas where we know drainage occurs. We show on our logs our superior -- production rates are superior. The reservoir energy is just going to decline with respect to cumulative production, no matter who produces it. We're not going to get any more oil or gas. It's just going to be if we restrict the Mewbourne wells, they're going to end up with more oil and gas in their bank accounts, and at the detriment to the Mewbourne --

Q. Okay.

A. -- recoveries.

Q. So if you go to 1422 a day oil allowable, and

whatever gas that works out to be, how do you know that that's the rate that would be fair to the operators in the pool? How do you know that at that point you're not starting to drain from Section 8 -- or, I'm sorry, from Section 5?

A. Well, Section 5 has two wells 660 feet off the lease line. The have the porosity and the permeability, whatever was underneath that ground, they've got it, and they're restricted -- unrestricted producing. So we don't believe that the Commission needs to worry about, you know, protecting them in that case when it's sort of like gas reserves being produced.

They -- Whatever reserves they are able to capture at full rate should be their equitable share. They can drill more wells and share allowables within the rules of the Commission, but these allowable rules are only hurting Mewbourne and not the Gruy. And we know that -- We feel that's just not fair.

Q. Well, if your wells are producing at a rate of 1422 barrels a day, how do you know that you're not starting to drain reserves from Section 5?

A. I think that you never know where the underground reserves are going. But I feel like if you have no-flow boundary at half the distance between the wells -- We have one well that's 660 off the line, they have two wells.

We're not asking for the full deliverability of what those wells will do, but in proportion to those logs that we saw, it's not unusual for Mewbourne to be producing at much higher rates instead of equal rates. That just doesn't seem equitable.

It's hard to pin down the exact number. I don't have a good question -- answer to your question. You know, you can do all the modeling, all the pore volume, we've done it all, and you can make it look any way you want. But you've got those wellbore penetrations to make those models with, and that's what it boils down to. Put contour lines anywhere, draw your no-flow boundaries anywhere, create boundaries you want to create out of the clear blue. But if you just let people have 660 leaseline competition and there's no damage to producing at these high rates, then you're simply allowing everybody to get what their wellbores in their sections have underneath their leases.

Q. Well, they're not at unorthodox locations.

A. No, nobody is, right. Yeah, we're competing -- That's fair. There's no encroachment.

Q. You say you did do original oil-in-place calculations?

A. Yes.

Q. Why did you choose not to present that data?

A. Well, we feel like this is an issue that has to

do with correlative rights and waste and that the bulk of the information we've put out here is sufficient to have our case won.

We -- It's difficult to do volumetric estimates, especially with volatile oils. We did take a stab at it in many different ways. We used material balance above the bubble point. You need relative permeability estimates, which nobody has core data from, to calculate recoveries below the bubble point. It's a very complex exercise, and there are some simple and basic facts here and data that is, I think, irrefutable that shows where the pore volume is under Section 8, the deliverability of our well, the pore volume in the logs.

And so it was -- it seemed -- would only be confusing and would be hard to say between two models, two volumetric estimates, well the pore volume is on our side or your side, how that would work out. This didn't seem to be an equity hearing if we were trying to unitize, but more simply how to best develop this reservoir, letting two operators compete on an even playing field.

Q. If we increased the GOR in this pool to 10,000 to 1 and left the oil allowable the same, would that provide sufficient relief for Mewbourne? That would give you --

A. That would be -- that would -- you know, I think preferably to Mewbourne is the GOR problem, because we do

believe this is a gas. I believe that it's still fair for us to -- but -- to get the oil. But yes, that would be something that we would weigh more heavily the GOR than the oil rate.

Q. And the GOR issue in these Strawn reservoirs, it's not -- it's fairly common to these Strawn reservoirs --

A. Yes.

Q. -- the GOR issue?

A. Right, this comes up at the Commission all the time. It's typical for volatile reservoirs, and the Strawn is -- in this particular area is sort of a volatile oil part of the country. It will turn more to gas if you go several miles west, or more to oil several miles east.

EXAMINER CATANACH: Okay, any further questions?

MR. BRUCE: I've just got a few follow-up, Mr. Examiner.

FURTHER EXAMINATION

BY MR. BRUCE:

Q. First on the overproduction, I just want to clarify this, Mr. Montgomery. Mewbourne started restricting production before it knew that Gruy had written to the Division about overproduction?

A. Yes, that's correct, about a week or two before.

Q. Secondly, Mr. Feldewert asked you questions about

opening up the wells or unrestricted production. You're still going to be restricted?

A. Yes, the only wells that are unrestricted are the wells outside that northeast quarter including the Gruy wells.

Q. So whatever the oil and gas allowable is, Mewbourne will be restricted, nonetheless, either on oil or on gas or on both?

A. That's correct.

Q. And Mr. Feldewert asked you some questions about the hearing last year on this issue. There's a lot more data in this pool since last year, is there not?

A. That's correct.

Q. There were only two wells at the time, before? Maybe just one?

A. There were two producers.

Q. Two producers.

A. That's correct.

Q. Now there's seven?

A. That's correct.

Q. And you've conducted additional analysis, PVT data, and you've determined a lot of other data since that time?

A. We've taken pressure data, we've produced wells, drilled wells, yes, a lot of data has come in since then.

Q. Now, Mr. Feldewert also asked you questions, you know, about the Lusk North Pool. He says, Well, there's only one operator and therefore there's no correlative-rights issues. But it doesn't have to do with who's operating a well, it has to do with who the interest owners are in wells, does it not?

A. Right, and he didn't mention waste. If it's wasteful there, it's wasteful --

Q. And there are five wells, by your count, in the North Lusk Pool. We don't know who all the interest owners are in those wells, do we?

A. No, I just simply took the production from the Division and looked at the whole total package.

Q. Even if -- in this pool, if Gruy operated all the wells or Mewbourne operated all the wells, there'd still be correlative-rights issues?

A. Absolutely, ownership would still be important.

Q. And finally, about, you know, allowing you to produce what Gruy is producing, by the same token, should everybody be limited to what Heyco is producing?

A. No. Heyco produces 30 barrels per day, and I don't think anybody wants to limit to some operator just arbitrarily because it's the -- you know, that's equitable, you know, that doesn't make sense.

MR. YAHNEY: I'll go for that.

(Laughter)

MR. BRUCE: I think we've heard from Heyco.

(Laughter)

MR. BRUCE: That's all I have, Mr. Examiner.

EXAMINER CATANACH: Anything further?

FURTHER EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Montgomery, you talked about -- You have some additional data now that you may have not had back in October. There's still active drilling going on in this pool, is there not?

A. That's correct.

Q. Okay, so --

A. We're getting ready to drill, we haven't spudded yet.

Q. Right. So we're going to have some more -- So we're going to have some drilling that's going on, and it's going to provide some additional data, particularly data that we'll have in March of 2004, will we not?

A. I'm not sure how that will all pan out, but it could be such that we have additional wellbores and obviously production between now and March.

Q. And that would help everybody in trying to set field rules, would it not?

A. I believe I've got all I need at this point.

Q. Okay. Now, your northeast quarter -- you know, and correct me if I'm wrong here -- you're producing more gas -- you're producing more oil than any other spacing unit out there?

A. Not so, we're restricted -- right now we're producing -- we have the much more prolific wells and have the capability to produce much more than other quarter sections.

Q. Well, I understand that, but you're producing more oil now than any other spacing unit out there?

A. Well, maybe I'm wrong, let me look. We have zero at the 8 Number 3, zero at the 8 Number 3 --

Q. Is that because you're curtailing to make up the overproduction?

A. That's my point, yes.

Q. Okay, well, let's back up then --

A. Back up.

Q. -- re-frame my question.

A. Okay.

Q. Once you get back into balance and deal with your overproduction that occurred for about six months --

A. Yes.

Q. -- and finally caught notice --

A. Yes.

Q. -- once you deal with that and you begin

producing your wells at the present -- under the present pool rules, you're going to produce more oil than any other spacing unit out there?

A. What we're going to do is be limited by the gas-oil ratio limit, so we won't be able to produce 1120, even though our wells are capable of that. And I'm assuming a 7000 GOR, let's say, which gets us close to 640. If our GOR is 8000, that will be lower, and that will be similar to what the Gruy wells are currently producing across the lease line right now.

Q. There's 640 barrels of oil per day --

A. Okay.

Q. -- which you said is what you'd be allowed under the current rules?

A. That's correct, once we get back in balance. Except every day the GOR goes up we've to pinch that oil back. It would only be instantaneously that number.

Q. Okay, at --

A. Month by month it would be less and less.

Q. At 640 barrels of oil per day, you're producing more oil than any other spacing unit out there?

A. I think so, barely more than the Gruy would --

Q. And everybody else is doing -- producing what they can --

A. They're --

Q. -- they just can't match what you're able to produce?

A. Right, they don't have the capability in their wellbores to produce any more than they can. They've always produced wide open, never been restricted.

Q. Because you've got -- your 8-2 and your 8-6 have more porosity than any other well out there?

A. I believe so.

Q. Okay.

A. I think that's obvious by the flow rates and the logs.

Q. Okay. Are you aware that the oil production in the other wells out there in the non-Mewbourne spacing units are on a decline?

A. Yes.

Q. Okay.

A. Yeah, just like our tubing pressure is on a decline. The whole field is on a decline. That's why the field GOR is going up.

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

EXAMINER CATANACH: Okay.

MR. BRUCE: That concludes my direct case, Mr. Examiner.

EXAMINER CATANACH: Mr. Feldewert, you have three witnesses?

MR. FELDEWERT: I do.

EXAMINER CATANACH: Can you give me a reasonable estimate of your direct case?

MR. FELDEWERT: I think between the three witnesses, Mr. Catanach, we would probably take, depending upon the cross-examination, an hour would be my guess. I think we've been here what, two hours on this -- on two witnesses. Our case is, I think, a little quicker, but I think we'll take an hour.

EXAMINER CATANACH: On direct --

MR. FELDEWERT: Yes.

EXAMINER CATANACH: -- for all three?

MR. FELDEWERT: I think so.

EXAMINER CATANACH: Well, let's go ahead and take a lunch break at this point and come back at 1:00.

MR. FELDEWERT: Do you want me to try to call Mr. Kellahin?

EXAMINER CATANACH: I think he's -- Well, if you want. He's supposed to show up at 1:00, but we're not going to start that case at 1:00, obviously, so --

MR. FELDEWERT: I'm wondering if we can -- maybe Jim and I can get ahold of him, you know, and tell him --

EXAMINER CATANACH: It's going to be a long day.

MR. FELDEWERT: -- two o'clock.

(Thereupon, a recess was taken at 11:55 a.m.)

(The following proceedings had at 1:04 p.m.)

EXAMINER CATANACH: Okay, call the hearing back to order, and at this time I'll turn it over to Mr. Feldewert.

MR. FELDEWERT: We call our first witness, Mr. Examiner. Mr. Mark Hawkins is going to testify about -- briefly about the -- he's got some isopachs of the area -- about some future development in the field.

Our next witness is going to be Aaron Dover, and he's going to talk about the correlative-rights issues that Mr. Montgomery identified as an important point in this case.

And our third witness is going to be Billy Juroska, who's going to talk about his concerns about waste and his opinion that it appears to be a gas cap forming out there.

So with that introduction we'll call Mr. Hawkins.

MARK HAWKINS,

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

DIRECT EXAMINATION

BY MR. FELDEWERT:

Q. Could you please state your full name and address for the record?

A. My name is Mark Hawkins, and I live in Midland,

Texas.

Q. And by whom are you employed and in what capacity?

A. Vice president of exploration for Pecos Production Company.

Q. Is Pecos Production Company -- are they an operator in this pool?

A. At the current time we're not an operator. We will be shortly. But I think it's safe to say we're the largest working interest owner in the pool.

Q. Do you have a working interest throughout this pool?

A. We have a working interest in all of the three 160-acre proration units that are currently in the pool, and we have a working interest in the southwest of 5, which Heyco operates, which I understand is -- they've applied or will apply to be part of this pool.

Q. Okay. Have you previously testified before this Division?

A. I have.

Q. Okay, have your credentials as an expert witness in petroleum geology been accepted and made a matter of record?

A. Yes, they have.

Q. Now, are you familiar with the Application filed

by Mewbourne in this case?

A. I am.

Q. And have you conducted a geologic study of the area, and in particular the Strawn reef, that is the subject of this Application?

A. Yes, I have.

MR. FELDEWERT: Mr. Examiner, I would tender Mr. Hawkins as an expert witness in petroleum geology.

MR. BRUCE: No objection.

EXAMINER CATANACH: Mr. Hawkins is so qualified.

Q. (By Mr. Feldewert) Would you turn to what's been marked as Opposition Exhibit Number 1? Would you identify that for the Examiner and please review it? And it's contained within the notebook, I believe.

A. Okay, Exhibit 1 is a land plat, and I think it -- it's a simple exhibit but it shows some very important points. And it's a 1-to-2000 map, it shows the North Shugart-Strawn field, it shows the existing 160-acre proration units, and the Strawn reef producers are colored in green. It also shows the Heyco 160-acre proration unit in the southwest of 5, which will be part of the pool.

But probably the most important thing about this map is, you'll see there are three new locations highlighted in yellow, and those are all locations that will be drilled before year end. And the reason why I make

that point is, to me it seems -- it's almost preliminary to try to set permanent field rules at this time when we have active development going on in that field. And again, all of these -- each of these wells will be drilled by year end.

Q. The proposed well that you see in the northwest quarter of Section 9, is that going to be drilled by Pecos?

A. Yes, that was a Bone Spring well that we have already started. In fact, I think today or tomorrow we'll deepen that well to the Strawn, the Baish Fed Number 6.

And then Gruy Petroleum will drill another location in the north half of the southeast quarter of 5. That will be their Magnum 5 Fed Com Number 4.

And then Mewbourne before year end will drill the Fren 8 Fed Com Number 7, over in the northwest quarter of 8, so...

I heard in the testimony earlier today that we've learned a great deal about this field since the first hearing. Well, in a very short amount of time we're going to learn a lot more. We'll have new logs, more pressure data.

So I think it's very important that we note that it is an ongoing field development.

And one of the other points I want to make is, in many large fields you'll set field rules before the fields

are fully developed. In this case, this thing is about to be fully developed, because we know where the reef is not present, and so it's not going to go on forever. By March, which was the original time that we were going to revisit these temporary rules, we'll pretty much know the extent of this field. And so that's a very important reason why I think now is not the time to try to increase the temporary field rules, the allowables, or to set permanent field rules.

Q. In your opinion as a petroleum geologist, would it be more prudent to wait until sometime in the first quarter of next year before we make any decision about changing these pool rules?

A. Oh, sure. I mean one thing is for certain, as much as we've proposed to know the geology and the engineering, every time a well is drilled we learn something new. And we're not going to have to wait very long to get three new data points.

So I think it makes a lot of sense to let these wells get down and completed and see what they do.

Q. Okay. Having said that, I want to turn, though, to what geologic information we have now about this --

A. Before I leave that --

Q. Sure.

A. -- plat, let me make one other point, and -- to

note, is that in the northeast of 8 we've got a 25-percent working interest, in the southeast of 5 Pecos has a 37.5 percent, over in the southwest of 5 we've got almost 50 percent, and then in the northwest of 8 we've got 50 percent. So we do have an interest in all of those proration units.

Q. And as a working interest in all these proration units, are you here in opposition to Mewbourne's request to change the pool rules at this time?

A. Yes, we are. In fact, all of the operators in the pool, with the exception of Mewbourne, are opposed to what they're wanting to do.

Q. Shall we turn to what we know about the geology now?

A. Sure.

Q. Okay, why don't you in this notebook turn to the next exhibit, which has been marked as Opposition Exhibit Number 2? Or, let me back up. I guess we ought to move to the cross-section, which should be in the inside cover of this --

A. Correct.

Q. -- of this notebook, which has been marked as Opposition Exhibit Number 2. Would you go over that and review that for the Examiner, please?

A. Yeah, this cross-section is not a great deal

different from the one that Mewbourne showed. It starts on the -- It's hung structurally. It starts on the northwest side of the field in a non-reef or, I would agree with Mr. Nelson's testimony, intermound well. It proceeds to make its way through all of the existing Strawn producers in the field and finally ends up on the south side in another well that, what I would interpret, does not have reef development.

And let me just make a few points from this cross-section.

Number 1, I think it's pretty obvious where the reef is and where it isn't. You have a real clean gamma-ray throughout the reef, where the reef is present, as opposed to the intermound or non-reef facies in the Strawn, which has a more erratic gamma-ray signature.

And the -- on each of these wells I've highlighted in green where those wells are currently perforated.

And let me make a point here, is that in the Gruy Petroleum Magnum 5 Fed Com Number 2, which is the fourth well from the left on the cross-section, they did perforate the washout zone. And we do -- they agree -- they believe and we agree that that is pay. And so when I look at the Mewbourne Fren 8 Fed Com 2 that has a significant washout zone in the upper portion, I would look at that and say I

believe that that has the potential to be pay as well.

And from what I heard this morning, although there may not be any plans currently to perforate that zone, I did not hear that they were never going to perforate that. So I think that will come into play later on, that there is additional height to perforate in that well at some point in the future, and it will come into play with the discussion with the GORs and things like that.

Let me see. What I've shown in blue is what I interpret to be the top and the base of the reef. And on the maps that I'll go through in a minute, my structure map and my isopach map, the structure is not on the top of the Strawn formation, it's on the top of the Strawn reef reservoir. The isopach is not of the overall Strawn formation, it is of the Strawn reef which again is reservoir.

So it's a pretty straightforward cross-section just to demonstrate where the reef is, where the wells are perforated, and I think that's the only points I need to make. And as we look at the map you can refer back to the cross-section.

Q. Okay, why don't we move on, then, to what's been marked as Opposition Exhibit Number 3? Would you please identify that for the record and then review that for the

Examiner?

A. Okay, Exhibit Number 3 is my interpretation of the structure of the Strawn reef. And it's a 1-to-2000-scale map. Again, the existing Strawn producers are shown in green. Again, the new locations that will be drilled before year end are highlighted in yellow.

One of the things you may note is that wells that surround the reef have a -- they're designated RNP. That means the reef is not present. So again, I think we have a pretty good feel for the ultimate extent of the reef.

There are a couple areas we're not sure. Let me back up and say this. My map was constructed from both the well control and the 2-D data that I was able to purchase, that's available off the shelf, that I bought a license for.

And so let me clarify that from the outset, that when I purchased the 2-D, had a geophysicist make a depth conversion and make a structure on this reef. As we drilled additional wells, as will always happen, the structural tops don't come in exactly like you expect.

But what I did note is that I can use the 2-D to -- How should I put this? Not determine -- It gives me an indication where the reef is. I didn't -- As far as absolute subsea depth to the top of the reef, as far as absolute isopach thickness, there's a little -- there's

some error built in there, in the depth conversion in the velocity model. But I have only contoured this reef to be present where they have well control or where I see that reef on those 2-D lines.

The question may come up, am I going to show the 2-D? I cannot, that's not proprietary data like Mewbourne's 3-D which they own. This is data that I bought a license to, and I'm not -- legally, I cannot enter that into the record, I can't give copies to anybody. I can just show it. I don't own it, I just have a license to it.

Q. Now, the -- one of the differences I see between your structure map and then what has been marked as your isopach map is this north-plunging nose into Section 5. Did you develop that nose as a result of what you saw on the 2-D seismic?

A. Correct. As you can see, the lines that I purchased pass through the reef, and so I was able to image the reef character, and I see the reef on that line and I believe it enough that we're going to risk the capital to drill a well here by year end. So it's not just an attempt to map the reef onto our acreage. I feel like it's there, and we're going to drill a well there to find out. And by March we may know it may not be. But at this point in time I believe that it has a very strong chance of being present as it plunges to the north.

Q. Now, you made a point of pointing out that you only did the contouring where you had -- the well-control data and 2-D seismic indicated the structure. Is that a fairly conservative approach or a liberal approach, or how would you characterize your approach to this mapping?

A. I would say that it was as accurate as I could make it. I don't think it was liberal. Again, it's -- this reef is fairly tightly controlled by wells that are on the map where the reef is not present. So you know, it's not like you can use your geologic license to put it everywhere. You know where it's not.

Really, probably the main area or the main part of the map where there is some question is what happens on the east half of Section 5. And again, my interpretation was based on the 2-D data that I purchased to determine if the reef was present there.

Q. Now, is this map and the other maps, the isopach maps, were they used -- have they been used by the opposition in this case to construct calculations of the oil in place and to try to allocate the percentage of oil in place among the various spacing units?

A. Oh, yeah, that's exactly why we did it. And although -- I heard earlier this morning that it is difficult to make volumetric calculation, and there can be -- there obviously is some error, we didn't shy away

from the attempt to do that, because -- and I think this is a point that was not made earlier, that the issue of correlative rights really doesn't have anything to do with what your well is capable of producing. It has to do with what share of the reservoir that you have under your leases.

And although Mewbourne made a case that they feel like they should get a higher allowable, we didn't see any information or any data that would try -- that attempted to do a volumetric calculation as to where that reef sits. And again, by March we may find -- my maps may prove to be wrong, but at least we took the existing data and made the maps to try to determine what the share of the reef -- where it lies under the leases and the units that are out there.

Q. Okay, and is this map based on the best geologic information that we have available, both well-control data and your seismic?

A. Right, right. That is the existing 2-D data. I bought the lines that were there, and that's -- used the well control. So I don't have any other data that I could use to try to change that at this point in time. But I will here in about a month.

Q. All right, let's turn to what's been marked as Opposition Exhibit Number 4. Would you just go through

that, what the -- identify it for the record and then go through that with the Examiner, please.

A. Okay, 4 is a Strawn reef isopach. And like Mewbourne's, that's a gross isopach, thickness of the reef, just the overall clean carbonate. And let me back up and say that I think this map is important in leading to the volumetric calculations. The structure map is just to get a feel for the structural position of the existing wells.

And I neglected to mention on that map, as you can see, the northeast quarter of Section 8 is the highest structural position, and I think that's going to come up later in my colleagues' testimony. Again, that map has nothing to do with volume or share of the reef. It's just simply a structure map.

Now I move to Exhibit 4, which is the isopach, and I took the existing well control, contoured it. Based on the 2-D data, I was led to believe -- or I believe that the reef extends into the east half of Section 5. And so I took the same contour interval, the same spacing of contours, and just wrapped it up around into the Section 5.

And again, we're going to drill a well there. We think it's there, and we're going to drill a well to find out.

And I don't mean to belabor the point, but I do think that the correlative-rights issue is not an issue of

what your wells are capable of producing; it has to do with what share of the reservoir and the hydrocarbon that you have. And that's what we're to do here, we're trying to get to that point, make a volumetric calculation.

And let me say something else -- this will come up -- that we made a volumetric calculation based on these maps and then approached it from a completely different direction. Our reservoir engineer, Aaron, will testify that he did a material-balance calculation, and it was amazing how close they were. They could both be wrong, but they were close. And that's pretty unusual, that the volumetric calculation matches very closely with the material-balance calculation.

So I think we're taking engineering data, the geologic data, and doing -- to the best of our knowledge, trying to determine where that reef exists.

Q. Okay. Now, let me have you then turn to what's been marked as Opposition Exhibit Number 5, and just briefly identify this for the record, and how is it different from the prior exhibit?

A. Okay, the next step in making that volumetric calculation was to -- you know, you can take a gross isopach and apply a uniform porosity. But it would be more accurate to do a ϕh map, and that's what Exhibit 5 is, is the ϕh map.

Aaron Dover, the reservoir engineer, gave me the values for ϕh, and then I contoured those based on the overall gross isopach. In other words, I used the gross isopach as a guide to contour that ϕh. And let me make a few points. I'll let Aaron discuss that map, but I'll make a few points there.

From the values that we have, you can see that there is an axis that projects into the east half of 5. Okay? You can also see that I didn't put additional reservoir volume north of the Magnum 5 Fed Number 2, because I don't have the data there. I'll have it when I drill the 4. So I don't think this is an optimistic map at all. It just honors the existing data.

And I guess there's really -- I'll let Aaron discuss that map, but just to -- I did contour it and I did use the overall Strawn reef isopach as a guide, and I used the values that he supplied me from his calculations of ϕh from the lots.

Q. So is -- Your porosity height there shown on the Magnum Number 2 is 9.5. Does that support the extension of this nose out to the north?

A. Yeah, clearly you see that it's greater than the wells to the east and to the west. So that would make me think -- it would indicate that there is an extension to the north. And again, we're fixing to find out here --

Q. Okay.

A. -- within a month.

Q. I think you've pretty much discussed your conclusions that you drew from this map as a working interest owner, Mr. Hawkins. In all of the spacing units in this pool, what is Pecos' position with respect to Mewbourne's Application?

A. We've -- There are a number of points to make here, and I guess first of all, from a correlative-rights standpoint, we don't think that they're being curtailed unfavorably. And my colleagues will make a stronger case for that point.

From the waste issue, we do think there is the potential -- you know, no one knows for sure, but we do think there is the potential that the increased allowable could cause waste.

And so probably most important point that I see is that why would you change the rules or set permanent rules when you know -- it's not a question of "if" -- these three wells will be drilled by year end, and you will have logs, you'll have structural points, thicknesses, porosities, you'll have pressure data.

And the Mewbourne engineer testified this morning that a great deal has been learned about this field since the first hearing. We went from two wells to seven. Well,

we're fixing to go to 10. And you know, we're not going to have to wait a very long time. So why would you make that decision now?

Q. Okay, were Opposition Exhibits 1 through 5 prepared by you or compiled under your direction or supervision?

A. Yes, they were.

MR. FELDEWERT: Mr. Examiner, at this time I move the admission into evidence of Opposition Exhibits 1 through 5.

EXAMINER CATANACH: Any objection?

MR. BRUCE: Mr. Examiner, I would like to ask a couple of questions.

VOIR DIRE EXAMINATION

BY MR. BRUCE:

Q. Mr. Hawkins, your Exhibits 3, 4 and 5 incorporated seismic data, did they not?

A. Yes, they did.

Q. Is any of that backup data being presented today?

A. No, it is not. And just -- the point that I made earlier was, I'm not -- I legally cannot bring that. It is data that I license. I don't own it, I didn't purchase it, it's just -- I bought a license to it.

I have offered to share that -- to show that to Mewbourne. I can show it, but --

Q. So you don't have any background data, and you're not presenting a geophysicist to testify about that data, are you?

A. I do have background data. I am not presenting a geophysicist to testify about that data, that is correct. But I do have it and I have looked at it and I did use it to make the map. And they're welcome to come over to our shop to look at it at any time.

MR. BRUCE: Well, Mr. Examiner, since there's no backup, I can't ask any cross-examination questions on the seismic, I'd ask to strike Exhibits 3 through 5. Exhibits 1 and 2 are fine.

EXAMINER CATANACH: These exhibits were prepared with seismic data and well control; is that correct?

THE WITNESS: Correct. I think it's pretty common in the industry that people use purchased data, which is licensed, and --

MR. BRUCE: Mr. Hawkins is correct, it is common. It's just that we don't have that and we can't see what he put into this mapping.

EXAMINER CATANACH: Mr. Bruce, I believe that your witness this morning had access to 3-D seismic data that he did not produce, and I don't know the extent that he used that data to construct his map, but I'm going to go ahead and let these maps be admitted.

MR. BRUCE: Well, just for the record, Mr. Examiner, I would state that Mr. Nelson testified he did not use it.

MR. FELDEWERT: That concludes our examination of the witness.

THE WITNESS: Do you have any more questions?

MR. BRUCE: Yeah, I've got a few more.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Let's move to your Exhibit 1.

A. The land map?

Q. Just the land map.

A. Okay.

Q. There's a couple of other sections here I want to make sure of. Do you have that?

A. Yeah, right here.

Q. Pecos also owns interest in the southwest quarter of Section 4, does it not?

A. Yes, we do.

Q. And do you have an idea of what the rough percentage working interest is there?

A. Oh, boy, we may have -- we may have a hundred percent, but I'm not positive of that.

Q. Okay. Did Pecos ever permit a well in the southwest southwest of 4, Strawn test?

A. We have not, and I think you can see from the isopach map, which is Exhibit -- I get it mixed up -- 4, that based on the 2-D, the east-west line, the EOG line, and the northwest-southeast line lose the reef signature. So I would consider that a very risky location to drill.

I will say this, that when we do drill the Baish Fed Number 6 and 9, depending on what we encounter, then that will give me more confidence, or loss of confidence in the data. So not to say that we would never drill a well in the southwest of 4, but we have not permitted one and don't at this point in time have any plans to.

Q. Okay. Now in the northwest quarter of Section 9, that is Pecos acreage. What is your working interest there?

A. Let's see, I believe that we've got 87.5 percent. I think Gruy's got 12.5, I believe, in that west half of 9.

Q. Okay. Now that Number 6 well, that's a re-entry, is it not?

A. Yes, it is.

Q. I'm not sure, was it originally a Bone Spring?

A. Correct.

Q. So it just needs to be re-entered and deepened?

A. And we're doing it. I mean, it's -- yeah.

Q. As we speak, or shortly?

A. I believe that -- Well, the mudlogger was

supposed to be on location, rigged up, today. So we've cut out a -- we've cut a window. We ought to be cutting new formation today.

Q. Okay. When did you -- Now, Pecos acquired its interest from Anadarko?

A. Correct.

Q. Roughly when?

A. We bought the Anadarko deal in January of this year.

Q. Okay. And when did you permit the re-entry of the Number 6 well?

A. We -- I'm going to tell you outright, I'm not positive, but it was -- We must have just received the permit back, we're just now starting on it. So it was probably not that long ago.

Let me make a point here. You can see from the isopach map that that's a risky location. I won't be surprised if we don't have any reef there. But because it's a re-entry, and because I have some indication that the reef projects there, we felt like it was a risk worth taking, because of the lower cost to do so. We kept hearing that sucking sound over on the other side of the section. We felt like we had --

Q. You bought your interest in January, 2003, and you know you had a direct offset to a thousand-barrel-a-day

well?

A. Yes.

Q. And you waited until November, 2003, to do anything?

A. Correct, because we were not aware that we had a Bone Spring well that was at a low enough production level to leave the remaining Bone Spring and go to the Strawn. I'll say this, and again, I don't know what's -- I asked Mewbourne specifically whether they felt like I had a location in 4 and 9 based on their 3-D, and they said no. That's -- you know, we discussed it. I was never able to look at the 3-D but they said, You don't have a location over there.

Because of the opportunity to re-enter a well we thought, You know what, it's worth the chance, let's take it and see, because we may not encounter the reef, we may encounter reef detritus, as you see in many of the Strawn fields down around Querecho Plains. There sometimes are some reef detritus built up next to a tall, tight reef.

So that location, the Baish Fed Number 6, deepening, is certainly -- we're moving forward with it, based on the lower cost and -- Well, that's the primary reason we thought, let's just go -- Let's just try it and see.

Q. When you look at your Exhibit Number 2, what are

the best-looking logs on that exhibit?

A. That's the cross-section?

Q. The cross-section, yes, sir.

A. Well, the best-looking logs, I would say, are the 8 Fed Com 5 is the -- no, the -- Let me stand up here. Well, the 8 Fed Com 2 is very good. The new well is good, the 8 Fed Com 6. And I think that Gruy has a -- the 5 Fed Com 2 is a good-looking well.

And let me further state here, because I don't think this point has been made, the correlative-rights issue is about how much of the reef and reservoir is beneath our leases -- Mewbourne's, ours, Gruy's. It's not about deliverability. And I think that just because you have a well that's capable of producing -- There are a lot of wells in the Lovington -- We mentioned there was one Strawn field that could have produced a lot more than the allowable, but they didn't all go get a higher allowable. It has to do with where you believe the reservoir is beneath those lands.

And so what I heard this morning was that Mewbourne felt like they had a bigger share, and they weren't able to produce at rates to allow them to produce their share, but yet they showed no volumetrics to support that they had a larger share. I think that's a real key point. If that's -- It's not just about deliverability,

it's about who owns where that oil is.

And so if you really believe that you've got more and you should have a higher allowable, then you should show the calculations that say that you do.

Q. Well, let's talk about correlative rights, Mr. Hawkins. Let's say Mewbourne drilled a well or two in the northeast quarter of Section 8, and you and Gruy in the east half of Section 5 decided, Well, we just don't want to spend the money right now. Should Mewbourne then be restricted in production because you guys don't want to drill?

A. Maybe I can answer that by saying this: This field is overdrilled, and it's overdrilled because of Mewbourne. We're being forced to -- we were forced to participate in the 6, and we were forced to -- we forced Mewbourne to drill the Number 7 well, because -- The race is on. I think Bryan made that point earlier, that it's highly competitive. That's being driven by the three wells in 8. And we feel like we've got to drill additional wells.

Q. Well, by that same token, why did you drill the Gruy 2 and 3 wells as close to the south line of that well unit as possible? Why don't you move them further north so that there wouldn't be that impetus to protect correlative rights?

A. Well, because at the time -- You know, you kind of work out from existing well control. And although I do believe that the reef extends up into 5, I'm certainly going to work my way out. In other words, those are the most logical -- those are the two smartest locations to drill, because you know where the reef is. And as you can see, the three wells have been proposed that are going to be drilled this month -- we're starting to step out.

Some of those are not going to find the reef, you know, it's going to -- we're beginning to define the limits of that field, so... I hope that I answered your question, but -- Those are closer to where the known reef is.

Q. Okay. But those Number 2 and 3 wells in the southeast of 5 were drilled before the Fren 8 Number 6 was drilled, offsetting them.

A. Okay, so I've -- I've forgotten what your question -- yeah, what your question was. Say that again.

Q. Well, why did you need to drill two wells --

A. Oh, in 5?

Q. -- in Section 5, if you were so concerned about this competitive --

A. Well, because they already had the 2 and the 3 --

Q. And they're located quite a ways from the lease line, are they not?

A. Yeah, but we're within -- We're no closer than

660. That's -- I guess, to answer, what we're doing is drilling wells where we're allowed to drill them and where I think the reef is. It was not an attempt to drain hydrocarbon off Mewbourne's lease, it's -- That's where the reef is, and --

Q. And Mewbourne is drilling wells where they're allowed to drill them?

A. Yes, they -- yeah, they have, uh-huh. But I'm not sure what -- where you're going on that deal.

Q. Well, are you aware that correlative rights is -- you're not entitled to everything under your property, it's the opportunity to produce what's under your property?

A. Okay, so -- but again, I'm not sure --

Q. Well, if you have 500,000 barrels of oil under your property --

A. Right, hypothetically.

Q. -- you're not entitled to 500,000 barrels, despite what anybody else offsetting you does?

A. Okay, I agree with that.

Q. Okay, so you would agree with that?

A. Yeah. And I think that that's -- I mean, I think that point supports what we're saying, is that we made an attempt to estimate where the oil is, and when we look at the current allowables, we don't see it as an inequitable position for Mewbourne. And as we look into the future,

which -- I mean, there's pitfalls with that too. We don't see that as a problem. We think that the existing allowable rules are sufficient.

I'm not going to get into the GORs and all the engineering, I'll let the engineers talk about that, but --

Q. Well, let's move on to your -- some of your exhibits, 3, 4 and 5. How do you -- what is your -- You mentioned the reef. What is your definition? How is that determined?

A. If you look back at Exhibit 2, I based my interpretation of where the Strawn reef is -- well, I've marked it on those wells. You see the top and the base, and it's the -- it stands out from all the other -- from the surrounding wells. It's a very, very clean, unusually thick development. And that's what I've made those maps based on.

Q. No, in the -- Perhaps you can't answer this, but since seismic was used in these maps, what is "sideswipe", as it's used by geophysicists?

A. Sideswipe is -- It's one of the pitfalls of 2-D lines that you may image a feature, but it may not be beneath the line. It could be -- heck, it could be -- I could be seeing the reef on the south, but it could be on the north as well. There could be another reef pod on the north, just as easily as the south --

Q. Okay.

A. -- when you're talking about sideswipe.

Q. Okay. So what you're projecting, even though you've got -- Let's look at your Exhibit 3.

A. Which is the --

Q. -- the structure map.

A. Okay.

Q. And I don't think it matters which one we look at here.

A. Okay.

Q. You've got the wells where there was -- the reef's not present.

A. Correct.

Q. And you extrude an elbow of reef present to the north. How do you justify that?

A. Okay, when I look at the lines that I have, that I purchased, over where I know the reef is, where I see the reef in existing well control, I see what I would term a reef character. I see a thickening on the seismic, and -- so that I'm able to take that analogy and look at the other lines I've purchased -- and that line was purchased specifically to try and determine whether or not we felt we had a location. And that's going to be -- what? The north half of the southeast of 5.

And when I purchased that line, I saw that same

character there. And again, I don't think that -- I think that issue gets lost in the fact that if you'll just wait a month, we'll know. It may not be there. Why would you do this now, when we're fixing to find out? So whether I'm right or wrong is not the issue. Let's get the hard data.

Q. Why do you not propose a similar extension of the reservoir -- or of the reef, to the southwest like you do to the northeast?

A. Instead of going into --

Q. Southwest quarter of Section 8.

A. Eight? Okay, two reasons. The first reason is, on Line 6, which is the north-south line, I lose the reef character at shotpoint 795. So where I've stopped contouring I lose that character. Again, I'll be the first to admit that there is some error there, but I did not contour past where I saw reef character.

But even more importantly than that, if you remember from the original testimony, whenever that was, Mewbourne had a pod projected to the southwest. It's not on their map today, and I was told by Mewbourne that they don't think it's there. And they've got the 3-D. So that's why I didn't do it.

Q. And the 3-D is preferable to the 2-D?

A. I think that's a -- that's one of those trick questions. It's -- obviously, 3-D has advantage over 2-D.

But again, even though I asked to see it, to purchase it, to participate -- you know, it was already shot -- I was told no. And I understand that it's proprietary data. So I had to rely on what I could get my hands on, and that was 2-D data. So yes, 3-D data is -- That's why we shoot 3-D.

Q. In your mapping of the Strawn, did you make any shallower maps to help confirm these seismic-assisted maps?

A. Oh, yeah, I mapped from the Yates down, you know. I had to. The original depth conversion on the structure map, I had to map -- I mapped Bone Spring, I've mapped Wolf- -- I've mapped every horizon out there, to try to -- The problem is, as you can see, that there is a -- You've got lots of shallow well control but down to a certain point. Once you get below, say, the Bone Spring, then you're just dealing with wells that went either to the Morrow or the Strawn. So you don't gain a lot by mapping below that, you know.

And I think that a map on the Bone Spring horizon is not a real good indicator of what happened at the Strawn, because by the time the Bone Spring sediments are deposited, you've infilled and masked a lot of that stratigraphic -- I call it stratigraphic structure, in the Strawn.

Q. What about the base of the Wolfcamp? Would that be indicative?

A. It's getting closer, yeah.

Q. Did you map that?

A. Yeah, I did.

Q. Do you have those with you today?

A. No, I do not, because I don't think they're -- What's the word? I don't think -- know that they're -- add a great deal to my testimony. I -- Again, from the outset, I've maintained that there are -- I don't know that the 2-D is always going to be right. Clearly, it's not always going to be right. But I used what I had, and I do see the reef character on that line. And that's why we're going to drill a well. I mean, we're going to drill -- Gruy and us are going to spend the dollars to go find out.

Q. Just a couple more questions. On your Exhibit 5 --

A. Which is -- the ϕh map?

Q. Did you calculate these ϕh numbers?

A. I did not. Aaron Dover, who will testify -- It's not so much a calculation as just a looking at the log and -- I guess you'd call it calculation. It's just reading the log. And he gave me those numbers and I contoured it for him. So he can testify as to how he arrived at those numbers.

Q. Based on your testimony, it seems to me you believe that the reservoir is highly competitive for

reserves between wells. Is that a fair statement?

A. Yeah, that's true.

MR. BRUCE: That's all I have, Mr. Examiner.

EXAMINER CATANACH: Anything else?

MR. FELDEWERT: I just -- one thing.

REDIRECT EXAMINATION

BY MR. FELDEWERT:

Q. You asked Mewbourne to -- whether you could -- whether they would share the 3-D seismic data with you?

A. Yes, uh-huh.

Q. Did you offer to pay for that?

A. Yes.

Q. And they refused?

A. It was verbal, it's not written. Yes. But I -- And again, I understand: It's proprietary data that they shot, and so that's just -- that's part of the business. And that's why I went out and purchased the 2-D.

Q. But you made an effort and they said no?

A. Yeah.

MR. FELDEWERT: Okay, that's all the questions I have.

EXAMINER CATANACH: Just a couple.

EXAMINATION

BY EXAMINER CATANACH:

Q. The structure you've got mapped going into the

northeast quarter of Section 5, was that primarily based upon the 2-D seismic data, that you extended that?

A. Yes, it is. Uh-huh. Because when you've got wells like that you want to know, where does this thing go? And that's the only data that I could get my hands on to try and make a determination as to whether or not that reef is there.

Q. And on the porosity-feet map, do you know what porosity was used? What the cutoff --

A. Well, it's not a cutoff as much as it is the actual porosity multiplied times the foot. In other words, he takes the porosity value for that foot, multiplies it and gets the value. It's not a cutoff situation. It's -- Let's just say, with the existing data, we did the best job we could to make as accurate a volumetric calculation as we could.

Q. The Number 6 well is currently being re-entered?

A. Yes, the Baish Fed 6 in Section 9.

Q. The Number 4 well, when do you plan on commencing that?

A. The Mewbourne guy can probably address that better than me. I know it's going to be -- Last I remember was December the 15th. Is that still the case? Do you -- Yeah, the --

MR. JUROSKA: In the next two weeks.

THE WITNESS: Yeah. And then Mewbourne can address the Number 7 well -- I don't know, I guess it's still scheduled for this month?

EXAMINER CATANACH: Well, we'll just drop that.

THE WITNESS: Okay, all right.

EXAMINER CATANACH: I have nothing further of this witness.

MR. FELDEWERT: That concludes our examination of this witness.

AARON DOVER,

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

DIRECT EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Dover, would you please state your name and place of residence?

A. My name is Aaron Dover and I live in Midland, Texas.

Q. And you're a petroleum engineer with Pecos Petroleum?

A. Yes, that's correct.

Q. Okay. Have you previously testified before this Division?

A. No, I have not.

Q. Would you just briefly outline your educational

background, please?

A. I have a bachelor of science degree from Texas Tech in chemical engineering and began working in 1980 for ARCO, worked in the Permian Basin. And 1985 I began working for Parker and Parsley/Pioneer, 13 years, and then worked for CMS for two years, and have just most recently begun working for Pecos Production. All of that in the Permian Basin, experience.

Q. So for the last, what, 23 years --

A. Yes.

Q. -- you've been working as a petroleum engineer in the Permian Basin?

A. Twenty-two.

Q. Twenty-two, I'm sorry.

Are you a certified professional drilling engineer?

A. Yes, I am.

Q. Are you familiar with the Application filed by Mewbourne in this case?

A. Yes, I am.

Q. Have you conducted a study of the area and the Strawn reef that is the subject of this Application?

A. Yes, I have.

MR. FELDEWERT: Mr. Examiner, I would offer Mr. Dover as an expert witness in petroleum engineering.

EXAMINER CATANACH: Any objection?

MR. BRUCE: Just one question. When did you start working for Pecos?

THE WITNESS: Pecos in February of this year.

MR. BRUCE: I have no objection.

EXAMINER CATANACH: Mr. Dover is so qualified.

Q. (By Mr. Feldewert) Mr. Dover, did you conduct an examination and study of the Strawn reef that is relevant to Mewbourne's Application?

A. Yes, I have.

Q. Before you get to that work, would you just briefly summarize what you did and what your conclusions are?

A. Yes, I'd be happy to do that. I have made a study of the Strawn reef and -- both by volumetric analysis and by material balance, attempting to calculate the oil in place in the pool, and have studied that, by those two independent methods have come up with a very agreeable, close estimate on both basis.

And I've also studied the cumulative production in the Mewbourne-operated northeast quarter of Section 8, and under the current rules believe that the cumulative production to date has been equitable in terms of that oil in place that I calculated. And I believe that this request by Mewbourne to increase an allowable will be

inequitable in terms of correlative rights.

Q. In your opinion, will increasing the gas and oil allowables as proposed by Mewbourne negatively impact the correlative rights of the other operators in this pool?

A. Yes, I do.

Q. Why don't you start with Opposition Exhibit Number 6, identify it, and please explain the basis for your opinion?

A. Exhibit Number 6 actually flows from Exhibit Number 5 where I performed the ϕh calculations that Mr. Hawkins referred to earlier in this testimony, and that was done on a foot-by-foot -- or actually a two-foot interval of porosity times the crossplot, the density and the neutron curves, in each of the logs, in each of the wells in the field, to calculate the total porosity-feet in each well.

We then took that map that Mr. Hawkins contoured, and we calculated the areas under each proration unit and thickness, and calculated the oil in place for those proration units, as well as the total field, to come up with an estimate of oil in place in the field, based on the trapezoid rule of volumetric calculation, which is displayed up there in the far left corner --

Q. Of Exhibit 6?

A. -- the formula is displayed for you.

Q. Of Exhibit 6?
A. In Exhibit Number 6, yes --
Q. Okay.
A. -- that's correct.
Q. And what did you calculate as the original oil in place for the field as a whole?
A. My conclusion I came to was that the oil in place, volumetrically, was about 7.15 million barrels of oil in place for the pool.
Q. And then on this exhibit were you able to allocate it to the four proration units out there?
A. Yes, I was.
Q. Okay, and those numbers are reflected at the bottom of this exhibit?
A. They are reflected there in the following columns under each of those four proration units.
Q. And just to orient ourself to the land plat, the -- what you identify as the Fren 8-2 and 8-3, that would be the --
A. -- the northeast quarter of Section 8.
Q. Okay, and then the Fren 8-5?
A. Would be the northwest quarter of Section 8.
Q. And then what's the Mag 5, Fed 5?
A. That would be the southeast of Section 5.
Q. Okay. And then you have Heyco's there?

A. Yes, and that would be the southwest quarter of Section 5.

Q. Is there anything else you want to cover on this Exhibit?

A. No.

Q. Okay, why don't you then turn to what's been marked as Opposition Exhibit Number 7? Please first identify that, orient us, and then explain what it shows.

A. Number 7 is just a display of the pressure history in the Shugart-Strawn Pool, associated with each attempt to measure bottomhole pressure. And then I've converted that bottomhole pressure to a datum, a common datum in the entire field, to a minus 6900-foot subsea level, and related those pressure points to a point in time and also a cumulative production point in the field.

Q. What is that yellow line on the left-hand side? What does that represent?

A. The yellow line indicates that October production is an estimate from the daily production numbers; it is not an official number that's been filed yet with the State.

Q. Okay. Is this -- What is the significance of this exhibit with respect to the remainder of your testimony?

A. This exhibit just indicates the number of attempts that were made to take pressure points, the type

of measurement that was attempted, whether it was a DST or a static or a buildup, and then the quality of that data point as to whether it was a good point, or it was still building, or irrelevant because it was not a good point.

Q. So is that what all the colors are on the right-hand --

A. Yes, uh-huh.

Q. -- side of this exhibit? Okay.

Is there anything else you want to cover on this exhibit, Mr. Dover?

A. No.

Q. Okay. Let's turn to, then, Opposition Exhibit -- what's been marked as Opposition Exhibit Number 8. Would you please identify that and explain what it shows?

A. Yes, this is a calculation of oil in place by volumetric method -- I mean by -- I'm sorry, I'm going the wrong way -- by material-balance method below the bubble point, which flows from the previous exhibit of the pressure history versus cumulative production.

And what I've attempted to do here is take the cumulative oil to bubble point and then calculate the oil in place as calculated by the given formulas there for a reservoir with no water influx and no gas cap -- originally this was an under-saturated reservoir -- and take three pressure points through three cumulative points in the

history of the field and then, as you work across those rows, plug in the numbers in the calculation for the fluid data that was provided by the PVT analysis that we have, and calculate an oil-in-place number.

The resulting oil in place, by material balance, that was calculated on those three points ranges from about 6.8 million to 7.2 million, which are in further relative agreement, I believe, in my opinion.

And I took an average, then, of those three points to come up with a 7-million-barrel estimate. And that also is in close agreement with the volumetric calculation that we've already presented.

Q. Which would have been shown on Exhibit Number --

A. On Exhibit 5 -- no, 6.

Q. Six, okay. So how did your material-balance calculations square up with your volumetric calculation, as shown on Exhibit Number 6?

A. They're in close agreement --

Q. As that --

A. -- and therefore I believe that lends some credibility to both analyses, that they are, in fact, in close agreement.

Q. Does that -- What does that indicate with respect to the accuracy of the isopach that is marked as Exhibit Number 5?

A. I think that that lends even more credibility that it, in fact, is accurate.

Q. Okay. Anything else you want to cover on this exhibit?

A. No, I believe that's it.

Q. Okay, then let's turn to Opposition Exhibit Number 9, and would you please first identify that for the record and then walk us through, I guess first, the top portion of this exhibit?

A. Okay, this exhibit has a lot of information on it, and I apologize, and I'll try to work my way through the table first.

It is an attempt to show, first of all, a comparison of the oil in place under each -- actually under the northeast quarter of Section 8 proration unit, which is operated by Mewbourne, with the volumetric oil in place in the rest of the pool, both on an absolute value and a percentage, and then also to show the current production rates in values and percentage under the current pool rules.

Q. Okay, let me stop you there. If I'm looking at this exhibit here at the top, and you have a line, Fren 8-2, 8-3 and 8-6, is that the northeast quarter of Section 8?

A. That is the northeast quarter of Section 8.

Q. And then "Other" represents all of the other --

A. All of the other --

Q. -- proration units.

A. -- proration units.

Q. As we move right across this exhibit, you've got original oil in place, and you show some percentages there. Is that your calculation of the original oil in place under the northeast quarter spacing unit, as compared to all of the spacing units in this pool?

A. Yes.

Q. Okay. And then what -- as we move across the right, what does that next table show us, the one that's labeled "Current Production"? What does that indicate?

A. Okay, that is attempting to show the current production under the northeast quarter of 8, both oil and gas, and their percentages to the other proration units under the current pool rules.

Q. Okay. And then you have the next column -- or the next table is "Cumulative Production". What is that, and how is that different from the prior?

A. It is a BOE cumulative number through October, and that -- barrels of oil equivalent calculation is done by dividing the gas by six and adding to the oil. So it's a six-to-one ratio. It's just an estimate to -- attempt to show the relative production from their proration unit to

date, compared to the rest of the field.

Q. Okay, now if I stop you right there, what does -- how do the -- your calculations with respect to -- if you look at it from the cumulative-production standpoint, how does the allocation of production to date compare to what you calculate to be the original oil in place under the northeast quarter versus the other spacing units?

A. They're very close, which I think is a point that I began with, is that the cumulative production to date, I calculate, has been very equitable in this pool.

Q. Okay. Now, when we look at current production, however, to be fair here, the numbers change slightly, do they not?

A. That's correct.

Q. Okay. Now, why is that, do you know?

A. The current production -- of course, Mewbourne is in the northeast quarter of 8. They have been restricted under the current pool rules. And we don't disagree with that, that their current percentages on a current rate are slightly lower than the oil in place and the cumulative production percentages.

However, we'd like to make the point that their proration unit is on a flat decline, as opposed to every other proration unit in the field is on a very steep decline. And so this percentage -- as time goes on, that

margin begins to grow so that their percentage continually increases with time.

Q. So is it your opinion that if we stay under the current pool rules, because of this change in the rate of production and this flattening out by Mewbourne and this decline by everybody else, if we continue under the current pool rules, are those percentages going to become more in line with the --

A. They will, yes.

Q. -- original oil in place?

A. Yes, those bars, those red and green bars under their proration unit will grow taller, to approach lining up with their percentages of oil in place and cum production to date.

Q. Okay. Now, we just looked at these two charts that -- One's labeled "Current Production" and one labeled "Cumulative Production". Does that compare to the bar chart down on the left-hand side of this exhibit --

A. Yes.

Q. -- the Mewbourne colors there?

A. Those numbers in the current production box and the cum production box relate to the bar chart on the bottom left.

Q. Okay, would you just walk me through -- walk us through that, please, those colors and what they represent?

A. Okay, in the bar chart to the bottom left, the black colors represent the -- my calculated percentage of oil in place under the northeast quarter of Section 8, as compared to the rest of the pool.

The magenta colored bar represents my calculation of cumulative production on a BOE basis under the northeast quarter of Section 8, compared to the rest of the pool.

And then the green and red bars represent the current production percentages of the northeast quarter of 8, compared to the rest of the pool.

Q. So the black line is our benchmark?

A. I believe so, yes.

Q. Okay. All right. Now, if we go back to the top, the next box over is labeled "Mewbourne's Proposed Production". Do you see that?

A. Yes.

Q. What does that represent?

A. The middle graph, labeled "Mewbourne's Proposal", are the same percentages, then, of production related to the proposal that Mewbourne has made in their proposed field rules with a 1350-barrel-a-day oil allowable and a 10,000 GOR.

Q. Okay, and what does that show with respect to the equitable nature or the correlative-rights effect of Mewbourne's proposal?

A. Well, it swings their relative percentage of production above their relative percentage of oil in place on a current-rate basis. And as I said before, going forward with their wells being flat and everyone else's being on a steep decline, as you go forward in time, that percentage just continues to get wider and further apart.

Q. Okay. Now, does that chart correspond with the graph in the middle of this exhibit, the colored graph in this exhibit?

A. Yes, that's the middle graph.

Q. And so if we -- the black line is the original oil in place, the green line, then, would show the oil that they would produce, compared to the original oil in place, under their proposal?

A. I'm sorry, repeat that question again?

Q. The green line would demonstrate the oil that they would produce --

A. Yes.

Q. -- as compared to the black line, which is the original oil in place?

A. Right.

Q. And that's not -- That's out of whack there, right?

A. Yes.

Q. Okay. Now, the red line reflects gas, right?

A. That's correct?

Q. What happens to the gas line under their proposal?

A. Well, the gas just grows even more disproportionate. The 10,000 GOR allows them to produce 13.5 million a day. And we don't know what those wells will make.

And I might make the point that was made earlier in Mr. Hawkins' testimony, is that the Fren 8-2, we believe, is productive up higher in that wellbore, and there's nothing to say that they can't go back and recomplete that porosity indicated in the upper part of that well, and produce even more than that well is currently able to produce.

Q. Let me ask you about that. There was some testimony from Mewbourne that they didn't think that that upper portion was productive. Do you recall that?

A. Yes.

Q. Okay. In your graphs here, in determining original oil in place, did you give them credit for that section that they say is not productive?

A. I did, I calculated the total porosity feet in every log that I believed was productive, and that included more porosity feet than they believe is productive, which means that I actually gave them credit, volumetrically for

more than they think is there.

Q. So if I understand you correctly, if they're correct that that interval is not producible, then the original oil in place percentage allocated to their northeast proration unit in your first column would actually be less --

A. That's correct.

Q. -- than 57.8 percent, correct?

A. Yes.

Q. Okay. Okay, now you have then -- and if I understand these graphs correctly, where you should end up is a situation where the black line and the green line and the red line are all level, right?

A. That's the ideal goal.

Q. Okay, that would be the optimum performance level with respect to correlative rights?

A. Yes.

Q. All right, and the production of their original oil in place under each acreage?

A. Yes, that's correct.

Q. Okay. Now can you then go to the last chart and the last graph and explain what you were doing there?

A. I have calculated, then, the relative production percentages for the northeast quarter of Section 8 relative to the other wells in the field, under another possible

scenario of an allowable situation where we could leave the oil allowable at 1120 barrels a day and increase the GOR limit to 6000. And by doing that, not only do we make those bars on the graph align more closely and more equitably, but as we have testimony coming later, and I think has been testified previously, the GORs seem to level out for a period of time at around 6000 in the field.

Q. Is that why you chose --

A. And so 6000, although it does calculate, in my opinion, to be more equitable, it also lends itself some credibility from the standpoint that the field has exhibited that GOR, at a level rate for a period of time.

Q. In your opinion, would raising the GOR to 6000 and keeping the oil allowable where it presently stands -- is that necessary to protect the correlative rights of all operators in this field?

A. My first -- as has been alluded before by Mr. Hawkins, my first preference would be to wait until we have more data and can more accurately determine what this field really needs in terms of field rules.

But if, in fact, that is not the case, we can't do that, my second preference, I guess, would be to propose this 1120 and 6000 GOR as a possible alternative,

Q. And just to be clear for the record, I know you are employed by Heyco's Production Company, but have you --

is this the position of all of the Objectors that are appearing here today, based on your discussions with them?

A. Yes, it is.

Q. If we're looking at that middle graph under Mewbourne's proposal, is it your opinion that Mewbourne, based on your calculations, would be afforded an opportunity to use more than their just and fair share of the reservoir energy, particularly when we look at the red gas line?

A. Yes, I do.

Q. Okay. I know there's been some discussion here today about Mewbourne's effort to -- you know, on top of their changing the pool rules, to also get a discovery allowable. What effect does their request to be granted an additional discovery allowable have on the analysis reflected on Exhibit Number 9?

A. Well, as you can see from the middle graph, you know, the proposal before us is already inequitable, in my opinion, and in the opinion of all of the other companies appearing here today against Mewbourne. But an additional discovery allowable on top of the request that Mewbourne has made just simply exacerbates that situation and makes an inequitable proposal even worse.

Q. As a -- In your opinion, will increasing the allowables as proposed by Mewbourne result in Mewbourne

recovering a higher percentage of the recoverable oil and gas in place than that which exists under their acreage?

A. Yes. They have the capability to produce it, but as we've said before, just because you can produce at a certain rate doesn't mean that you can produce the equitable share of oil under your lease.

Q. And do you agree with their observation that the northeast quarter of Section 8 is the only proration unit out there that would benefit from any increase in the allowable?

A. Yes, it is. No other well can increase their current production capability. And so that is the only proration unit that will benefit.

Q. Okay, so there's no other proration unit out there that can match the productivity that they have with their structural position --

A. Yes.

Q. -- and porosity in the northeast quarter of Section 8?

A. Yes.

Q. Okay. In your opinion, will the -- is Mewbourne's proposal -- is that in the best interest of conservation, the prevention of waste and the protection of correlative rights?

A. No, it is not.

Q. Were Opposition Exhibits 6 through 9 prepared by you or compiled under your direction and supervision?

A. Yes, they were.

MR. FELDEWERT: Mr. Examiner, at this time I would move the admission into evidence of Opposition Exhibits 6 through 9.

MR. BRUCE: No objection.

EXAMINER CATANACH: Exhibits 6 through 9 will be admitted.

MR. FELDEWERT: And that concludes our examination of this witness.

EXAMINER CATANACH: Mr. Bruce?

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Mr. Dover, Gruy's got two wells and -- Is the next witness from Gruy?

A. Yes.

Q. Okay. But you're an interest owner, and you've looked at the data on those wells, haven't you?

A. At what data?

Q. The production data --

A. The production data, yes.

Q. -- for the wells.

Roughly, what are -- This question came up. What are they producing, each of those two wells, today?

A. Currently, I think they're making about 400 barrels a day, between the two of them.

Q. You don't have any idea on the -- how that's allocated between the two wells?

A. One, I'm thinking, is about 150, and the other one is about 250.

Q. Okay, which one is 150 a day?

A. That would be the Mag 5-3.

Q. Okay, so that's 150 barrels a day of oil producing at 8000-to-1 GOR?

A. Well, I think I better defer that to the Gruy engineer's testimony.

Q. Okay. Did you study the production at all?

A. Yes, I did. But I don't remember that, and I don't have those numbers in front of me.

Q. All right. I'm trying to winnow these out a little bit, Mr. Dover. Let's start with Exhibit 5, which is the ϕh map. You calculated those numbers?

A. Yes, I did.

Q. Okay, so you used the cross-section, Exhibit 2, that was prepared by Mr. Hawkins?

A. I used the logs themselves --

Q. The logs.

A. -- from the wells, yes.

Q. Okay, okay. And you calculated it -- How did you

calculate it?

A. I took a two-foot reading of porosity --

Q. Okay.

A. -- off the crossplot between the density neutron porosities, multiplied that by two, added it up in each two-foot interval greater than 2 percent.

Q. Okay, greater than 2 percent. And you calculated the washout zones?

A. There were a couple places where I did not include washout, but most of the time I did go ahead and include a washout as a porosity number, realizing that it may or may not be accurate in that particular --

Q. Now, in which -- You said you did in some cases and you didn't in others. Can you tell me which wells you did and which wells you didn't?

A. Where the caliper reading was obviously spreading out too far, I took the nearby porosity reading and used that as an estimate for porosity.

Q. But you can't tell me which wells you favored over others, or --

A. I have those calculations here in my file.

Q. I mean, did you calculate all the porosity feet in the washout zones in the Gruy wells, not in any of the others?

A. No, I did not.

Q. Fren 8-6, I used the entire section, Parker Deep 5 Fed Com 3.

Q. Were there any washouts in the 8-6?

A. There were some slight hole enlargements in the 8-6, but none that I calculated as a washout.

Q. Okay.

A. In the Parker Deep 5 Fed Com 3, there is no porosity over 2 percent.

Q. Okay.

A. In the Mag 5 Fed 3, I did -- I took 3 -- no, I did not leave out any porosity.

But in the Fren 8-5, I did eliminate a 2-foot portion where there was a ledge there, and it appeared to me that the caliper left the side of the hole.

And the Mag 5 Fed Com 2, there was a six-foot interval in the very middle -- you may be familiar with that massive porosity interval -- and I cut that porosity back somewhat in that interval at about 10,800.

Q. You cut it back, you didn't eliminate it?

A. Yes, I reduced it in those six feet there where the caliper peaked.

And in the Fren 8-3 I did not -- I gave it the full benefit of the doubt in the Fren 8-3, which is the Mewbourne well.

And then in the Fren 8-2 I did in two intervals

where there were washouts in the upper portion that Mewbourne testified that they didn't believe that was pay. I did take three foot in one interval and reduce the porosity, and another two-foot interval where it appeared that there was a spike in the caliper and reduced the porosity slightly in that one to average the nearby adjacent porosities in the intervals.

Q. Okay, thank you, Mr. Dover.

Let's move on to your Exhibit 8, Mr. Dover. In your calculations, your various calculations here -- First of all, do you agree this is a volatile oil reservoir?

A. Yes, I do.

Q. And aren't volatile oil reservoirs typically underestimated with respect to oil recovery calculations like this?

A. That's a possibility. I'm not saying that that's the possibility here. I guess that's a possibility. But I took it to mean that since my volumetrics and my material balance both came so close, that I believe that I have some basis for saying that it was an accurate estimate of oil in place.

Q. Did you use the PVT study that Mewbourne provided to you?

A. Yes, I did. After we discovered that they had that, we used that.

Q. Okay. But these numbers are based on Exhibit 5, are they not, ultimately?

A. They are based on -- Which numbers are based on Exhibit 5?

Q. Aren't your Exhibit -- excuse me, Exhibit 6 numbers -- I mean, don't your exhibits on your calculations on whether -- original oil in place, et cetera, follow from Exhibit 5?

A. The volumetric calculation of oil in place follows from Exhibit 5, yes.

Q. Okay. So if this lobe heading up to the north of the reservoir isn't there, then your numbers would be -- have to be revised?

A. They would be revised, yes, and we'll find out soon enough here in another month or two.

Q. Okay. Moving to your Exhibit 9, Mr. Dover, now, the only proration unit out there that has been limited insofar as production goes is the northeast quarter of Section 8; is that correct?

A. Yes, under current field rules.

Q. So on Exhibit 9, when you draw your first block down in the lower left-hand corner, that's artificially -- the Mewbourne acreage for the 8-2, 8-3 and 8-6 wells, that's skewed because that unit has never been able to produce at top allowable -- at capacity, correct?

A. What is skewed?

Q. Well, you're talking about current production.

A. That current production is an estimate of the -- if you'll look in the table there, the 4.48 million top allowable gas rate, and the -- at a GOR of about 5500, which was the GOR back in July, I believe. It's actually an interpolation of that GOR --

Q. Okay.

A. -- to get to the oil rate.

Q. But the Gruy wells have never been production-limited?

A. No, they haven't.

Q. You have produced those at capacity?

A. Uh-huh.

Q. Regardless of the GOR?

A. That's correct.

Q. And did the Gruy wells ever have a GOR level out at 6000 to 1?

A. I think I'd have to defer that to the next witness who's going to talk about GORs and...

Q. And I think Mr. Hawkins agreed that there is a high degree of competition and connectivity between these wells in this reservoir?

A. Sure.

Q. Now, I think in response to a question from Mr.

Feldewert you agreed that no other proration unit can match the productivity of the northeast quarter of Section 8?

A. That's true.

Q. So you don't anticipate the Magnum Fed Com Number 4 to boost production up above the current allowable?

A. Can't say what it'll make.

Q. You have no idea?

A. No, not at this point.

Q. Do you have any expectation whatsoever -- has anybody at Pecos or Gruy made an estimate?

A. No, we haven't.

MR. BRUCE: That's all I have, Mr. Examiner.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Dover, is it -- do you believe that increasing the GOR for the pool to 6000 or 8000 or possibly even 10,000 would have a detrimental effect on the reservoir?

A. As my calculations -- well, from a correlative-rights standpoint, I don't -- I think that as my graph shows, the 6000 GOR would be a more equitable situation.

As far as detriment to the reservoir and a waste issue, I think I'd need to defer that to the next witness. who's going to address waste. And my testimony was more focused on correlative rights, trying to determine oil in

place and how all the oil is divided up among all the parties.

Q. Okay. On your Exhibit Number 9, on your last graph, you seem to have indicated there that by increasing the GOR to 6000, that you believe that would be the most equitable solution. Is that your testimony?

A. If we have to make a decision now, I think that would be a more equitable solution. Of course, again, my first preference would be to defer until next March when we have more data and see what actually -- how the reservoir continues to behave.

But yes, if we have to make a decision, that to me is a more equitable allowable situation.

Q. Okay. Now, that assumption there shows that Mewbourne would be allowed to produce 1120 barrels of oil a day from that northeast quarter; is that what that assumes?

A. Yes.

Q. But in fact, if we increase the GOR to 6000 they would not be able to produce 1120 barrels a day?

A. Well, if they produce at 6000 GOR, they could produce 1120. And again, I would defer to the next testimony about GORs, that we can show that the GOR did level at 6000 for a period of time.

Now, obviously it probably won't stay there, I'll have to admit. Eventually, the GOR will rise.

And again, you know, let me emphasize that this would be only on a current basis, but going forward with their proration being able to produce on a flat, limited basis and everybody else on a declining basis, their proportionate share just continues to grow.

Q. Now, in terms of your equitable solution here, is this basically saying that this would allow Mewbourne to recover approximately 57 percent of the original oil in place in this reservoir?

A. Actually, it just says that they would be able to produce about 57 percent of the current production rate and that as their -- through time, I think their percentage will grow. But it also tries to exhibit that to date they have produced a percentage of the cumulative production that closely matches my calculation of the oil in place under their proration unit.

Q. What period of time elapsed between the date of first production from one of the Mewbourne wells and the date that either Gruy or the other companies drilled a well and started producing? Was that a period of months?

A. Well, what was still discovery was back last year sometime, but I don't know exactly the dates.

MR. HAWKINS: The dates are on the cross-section.

THE WITNESS: Are they on the cross-section? So the discovery well, being the Fren 8 Fed Com 3, in --

MR. FELDEWERT: Let me interrupt just real quick, Mr. Examiner. I think that Mewbourne's Exhibit Number 11 gives you the initial production dates from the Strawn for each of the existing wells in the pool.

EXAMINER CATANACH: Okay, I don't have that handy, Mr. Feldewert.

MR. FELDEWERT: Here.

EXAMINER CATANACH: Okay, so it was a period of a few months, probably, between those dates. Okay.

I think that's all I have at this point.

Anything else of this witness?

MR. BRUCE: (Shakes head)

MR. FELDEWERT: I just have one question.

FURTHER EXAMINATION

BY MR. FELDEWERT:

Q. I want to make sure I understand in terms of the correlative rights, which everybody admits is an important issue. There's the correlative rights associated with the production of oil and the correlative rights associated with the use of the reservoir energy, correct?

A. Yes, that's true.

Q. In this case the reservoir energy is solution gas; is that right?

A. Yes.

Q. Okay, and what your graphs -- what Exhibit 9

indicates is that under Mewbourne's proposal, that a 10,000 GOR -- the red line indicates that their percentage production of the reservoir energy would exceed what you estimate to be the percentage of the original oil in place; is that right?

A. That's correct.

Q. Okay. And is it your opinion that they would then be using a disproportionate share of the reservoir energy to produce their oil?

A. That is correct. So by -- I guess what we can infer or deduct from that is that not only do you get into a correlative-rights issue where you're trying to protect correlative rights, but you also inequably drain reservoir energy, and all of those wells downdip, then, are not able to produce the ultimate recovery that they normally would, had the GOR been limited.

Q. Okay, and is our next witness going to address that point?

A. Yes.

MR. FELDEWERT: Okay, that's all.

MR. BRUCE: I've got a follow-up on that.

FURTHER EXAMINATION

BY MR. BRUCE:

Q. Are you saying that the wells that are downdip or in poorer positions should be allowed to produce as much as

the heart of the reservoir?

A. They should be allowed to produce their proportionate share of the oil in place.

Q. And just one follow-up question, on your Exhibit -- on your 6000-to-1 GOR, would the Gruy wells be restricted or limited in production in any way?

A. No.

Q. Would the Mewbourne wells be restricted?

A. Yes, the northeast quarter of Section 8 would be restricted.

Q. And would it be able to produce 1120 barrels a day?

A. Not currently.

MR. BRUCE: Okay, thank you.

EXAMINER CATANACH: This witness may be excused.

MR. FELDEWERT: We then call our last witness.

BILLY JUROSKA,

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

DIRECT EXAMINATION

BY MR. FELDEWERT:

Q. Would you please state your name and place of residence for the record?

A. Yeah, my name is Billy Juroska, I live in Forth Worth, Texas.

Q. By whom are you employed and in what capacity?

A. I'm employed by Gruy Petroleum Management Company, and I'm the reservoir manager for the Permian Basin.

Q. Have you previously testified before this Division?

A. No, I have not.

Q. Okay, would you just briefly outline your educational background?

A. Yes, I got a B.S. in petroleum engineering at Texas A&M University in 1994. Since then I've worked -- the first six years' experience was with Burlington Resources, two of which I was the reservoir engineer for southeast New Mexico. Four years of that was a production and facility engineer in North Dakota, Rocky Mountain area. And the last three years, I've worked a year and a half with XTO Energy as a reservoir engineer, and the last year and a half I've been employed with Gruy as the reservoir manager, for the Permian Basin in both of those cases.

Q. Now, your last three years, have you been involved in the -- has your responsibilities included the Permian Basin?

A. Yes.

Q. Okay. And are you familiar with the Application filed by Mewbourne in this case?

A. Yes, I am.

Q. And have you conducted a study of the area in the Strawn reef and a production history of the existing wells that is the subject of this Application?

A. Yes, I have.

MR. FELDEWERT: I would offer Mr. Juroska as an expert in petroleum engineering.

MR. BRUCE: No objection.

EXAMINER CATANACH: Mr. Juroska is so qualified.

MR. FELDEWERT: Mr. Juroska, I want you to turn to what's been marked as Opposition Exhibit Number 10. It is a page out of the Division's Rules, and I want to read to you Rule 505.F, just the first sentence, and it says, "Assignment of a greater than regular depth bracket allowable shall be made only after sufficient reservoir information is available to ensure that said allowable can be produced without damage to the reservoir and without causing surface or underground waste."

Did you conduct a study, Mr. Juroska, that is relevant to this determination?

A. Yes, I have.

Q. Would you please summarize what you did and your conclusions?

A. Yes, I'm going to present a number of exhibits that basically have two conclusions that I've come up with,

and one of them is that waste may be created with the increased allowable that Mewbourne is proposing. And I'm going to show a graph that shows that there is a relationship between the subsea depth of where the wells are perforated in this reef and the producing gas-oil ratio.

And I also will show on those exhibits that it appears that there has been a gas cap that's been forming, or is starting to form, in the reef.

And I'm also going to show that the gas-oil ratio does appear to be rate-sensitive. I'm going to be looking at the production charts and pointing out some things there.

We're also going to note -- and it's been noted heavily in this case -- that the northeast quarter section of Section 8 is the only proration unit that's capable of producing the current allowable, and it will be the only proration unit that will benefit from an increased allowable.

Mewbourne's proration unit is located on the top of the reef structure, as shown by Mark, Mr. Hawkins, and they will have the majority control of the gas cap or the reservoir energy for this reef if they are allowed to be able to produce at the proposed 1350 barrels a day with the associated 13.5 million a day in gas. No other proration

unit out here is able to produce anywhere close to that amount of gas or that oil.

And the other three proration units in this pool, again, are producing below the current allowable. And it's also to note that they are on a high rate of decline. So if Mewbourne's production is flat and everything else is declining, they're going to get more and more percentage of the production as time goes on.

Q. Okay, I want you to then turn to what's been marked as Opposition Exhibit Number 11. Would you please identify that and review that for the Examiner, please?

A. Yeah, this is a graph that shows where the top perforation is from a subsea depth perspective. And as you could see on the left-hand side, you see the subsea depth. And on the X axis you see the producing gas-oil ratio.

And for this graph -- I'm going to show another one that's similar to this -- for this graph I used the July of 2003 gas-oil ratio. And the reason that I used the July, 2003, gas-oil ratio is, that is prior to Mewbourne having to curtail their well for noncompliance. And I'll show you from the production graphs how that affected the gas-oil ratio.

Q. Okay, what does this graph show you?

A. Well, as you can see from the trend of the data, the wells that are perforated in the upper portion of the

reef tend to have a higher producing gas-oil ratio than the wells that are perforated in the lower portion of the reef from a structural position. This also implies that there may be a gas cap forming in this reservoir.

And I also -- even though this is the July of 2003 gas-oil ratio for all the other wells, I went ahead and added in the brand-new point, which is from the Fren 8-6. I took the first 15-day average and went ahead and plotted it to see how it would fit with this data, and it does fit the trend. But that gas-oil ratio is increasing quickly in that well.

Again, the northeast quarter proration unit has the largest control over how the free gas cap in this reservoir is produced, which is the reservoir energy for this solution gas drive reservoir. I'll show you some production charts that show that there's virtually no water production, and so it doesn't appear that the reservoir is a water drive reservoir, so it does appear that it is a solution gas drive reservoir.

And I believe that curtailment is necessary in order to not lose that reservoir energy for the other proration units.

Q. Okay. Would you then turn to Opposition Exhibit Number 12?

A. I want to make one other point --

Q. I'm sorry.

A. -- on this, I'm sorry.

The -- As you can see, I've drawn a line. The dark red line represents the top of the reef porosity as you refer back to the cross-section. We believe that the porosity in the upper portion of the reef would be productive in Mewbourne's 8-2 well, and what I tried to show there is that there's 208 feet of reef that is not open.

That 8-2 well, which is the most prolific well in this reservoir -- the 8-6 may have a little competition with how productive it is, but it shows that if Mewbourne is granted this Application for 13.5 million a day, there would really be nothing stopping them from going and perforating that part of the reef, and that could potentially greatly increase the gas-oil ratio for that well, and I'll show that on the next slide.

Q. Okay, why don't you turn to what's been marked as Opposition Exhibit Number 12, identify that and review that for the Examiner, please?

A. Okay, Exhibit Number 12 is essentially the same graph. It has the same information on there, with the exception that what I've tried to do here is show how the gas-oil ratio has changed over time for the different wells in the reef.

And so what you've got is the first point is the first month's production for each well, and I've notated the first month of production that was used.

And then the second point is the -- July of this year, which was on the previous graph.

And then the third point represents the estimate from daily production for October of this year, which is essentially the current GOR.

And as you can see from this graph, again, all the wells started in about a 3000 to 4000 gas-oil ratio, with the exception of the Mag 5-3, which was drilled later in -- or completed later in the life, which you would expect it to have a higher gas-oil ratio because of depletion and the gas cap forming.

This to me also shows that the wells that are on the top part of the reef, structural position, have had a higher increase in gas-oil ratio than the wells in the lower portion of the reef. This to me also indicates that there may be a gas cap forming in this reservoir.

And I also put a red arrow and notated it, that if the Fren 8-2 is perforated in the upper portion, which we believe is productive and we've included in our oil-in-place calculations that Mr. Dover testified to, there is a good possibility that that well will increase to at least a 9000 gas-oil ratio, based on this current trend.

And again, that well has very high productivity, and so that would allow them to have majority control over the -- from a total gas reservoir energy standpoint, they would have the majority control, a very large portion of the control, of how the gas cap is produced.

Q. Are the Mewbourne wells in the northeast quarter of Section 8, are they only wells that are capable and have the porosity and the structural position to produce at a 10,000 GOR?

A. Well, the -- As you can see from the graph, the Fren 8-3 is producing at a little over a 9000 gas-oil ratio now. The Mag 5-2 and -3 do produce at about a 7000 to 7500 gas-oil ratio. But the -- It's my opinion that the 8-2, which is a very high-productivity well, would be about 9000 gas-oil ratio.

And really, when we're looking at gas-oil ratio out here, what we're really talking about is the gas allowable, if you want to look at it that way, because if you allow them to have a 10,000 gas-oil ratio coupled with 1350, that gives them 13.5 million a day productivity for that proration unit.

There is -- every other proration unit -- the closest one is the Mag 5-2 and -3 proration unit, and it's only capable of producing around 3.5 million a day. So you're giving them three to four times more gas rate,

which, in my opinion, this is the reservoir energy. And that's really what's detrimental to the downdip part or downdip proration units.

Q. And from an operator in other proration units out here, are you concerned about the potential loss of reservoir energy if they are allowed the opportunity to produce at that level of gas?

A. Yes, I believe that that would be a disproportionate -- they would have a disproportionate control over the reservoir energy.

Q. Did you want to say anything else about Opposition Exhibit Number 12?

A. No.

Q. Okay, let's turn to Opposition Exhibit Number 13, please. Identify that first and review that for the Examiner.

A. Okay, Exhibit Number 13 is a semi-log graph of the gas-oil ratio over time. And I have plotted the daily rates for -- or the daily gas-oil ratio for every well in the pool. And as you can see, the dark, bold brown line represents the gas-oil ratio for the entire reef. In other words, you take the total production for the reef, and you determine the gas-oil ratio from that.

As you can see, the gas-oil ratio for this reef started at about a 3000 gas-oil ratio. I would agree with

the previous testimony that it appears that this is a volatile oil reservoir that was confirmed by the PVT study.

You can see that around January the gas-oil ratio for the reef started to increase, and that's approximately where we believe bubble point was hit. And as you can see, the gas-oil ratio inclined to about 6000 GOR in about May of this year. And in my opinion, for the last six months, the gas-oil ratio for this entire reef has been relatively flat.

Q. And it's relatively flat at what level?

A. It's relatively flat at a 6000 GOR.

Q. Okay, and if you're looking at the pool as a whole, what does that mean with respect to -- this leveling of the 6000 GOR, what does that mean for the pool as a whole?

A. Well, at this time, again, we're kind of early in the life of this pool. Waiting till March would give us more production data to allow us to determine whether or not the gas-oil ratio is going higher than this. And again, it appears that it has flattened out at about a 6000 gas-oil ratio. So at this point all of the opposition companies are recommending that if there is gas-oil ratio relief, that it only goes to 6000.

Q. Is that the level that the pool as a whole is operating under --

A. Yes.

Q. -- in essence?

A. Yes.

Q. Okay. Why don't you turn to Opposition Exhibit Number 14? Identify that and review that for the Examiner, please.

A. Okay, what this graph is --

Q. And I'd start with -- would you please explain what these lines are across the graph?

A. Yes, this is a graph of the total reef production with the current and proposed allowables.

The dark green line, as you can see at about 4500 barrels a day, represents the current allowable for all the proration units, for the entire reef.

And as you can see, the magenta curve represents the total gas allowable, which is at about 18 million a day. And again, that's a summation of all the proration units.

So as you -- And then what we've got in the red and blue lines at 5400 barrels and 54 million a day in gas is what Mewbourne is proposing that this reef goes to in their current Application.

So what you see with the -- the green line with the triangles represents the current oil production from the entire reef. So as you can see, the entire reef is

making about 1200 barrels of oil a day, and the total allowable for the reef is 4480. So we're well under that.

And the red-square line is the daily production for the gas for the entire reef. And so the entire reef is making about -- Let me orient you on the axis. The oil and water is oriented on the left-hand side. That's the scale for the oil and water. And then the gas-oil ratio and the gas production is on the right-handed scale.

So as you can see, we're making about 9 million a day, 8 or 9 million a day in gas, and we've got an allowable of 18 million a day for the reef.

The gas-oil ratio, again, is in the brown curve, and that's the gas-oil ratio for the entire reef.

So as you can see from this, the entire reef as a whole does not need an increase in the allowables. And really, as I'll show in the following exhibits, there is only one proration unit that's going to benefit from an increase.

Q. Okay. Now we're going to go into another set of exhibits, but before we get there, what conclusions do you draw from this set of exhibits?

A. Again, with little to no water production from this reef, it's my opinion that this is a solution gas drive reservoir. With the gas-oil ratio going above -- or increasing, and the high-GOR exhibited in the wells on top

of the structure, it appears that a free gas cap is forming.

The northeast quarter of Section 8 will have the majority control of the gas cap if Mewbourne's Application is granted. And it does need to be curtailed at some point to avoid blowing down that gas cap and -- in order to conserve reservoir energy.

In the last exhibit I show that the current rules are sufficient for the entire reef as a whole, and a large increase in the oil and gas allowables is not warranted, compared to the deliverability of the entire reef.

Q. Okay. Now you have, in the next set of exhibits, production graphs for each of the proration units; is that correct?

A. That's correct.

Q. All right. Now, I just want to quickly go -- if we can, go through these. Start with Opposition Exhibit Number 15, identify the location and then orient us to the Exhibit, please.

A. Okay, the Exhibit Number 15 is a production graph for the northwest quarter of Section 8, that proration unit. The only well producing in that is the Fren 8 Number 5. Again, the oil and water scale is on the left hand -- it's out of the graph -- and the gas-oil ratio and the gas scale is on the right-hand side of the graph.

The dark green line, again, represents the current allowable for this proration unit, and the magenta line that's flat represents the gas-oil ratio -- or the gas limitation at 4480 for this proration unit. Again, as you can see, the oil production is well below the current allowable, which is the green triangles. And then the red square, the gas line, is well below the gas allowable.

And again it's good to note on this that the gas-oil ratio is relatively flat and has only climbed to about a 5000 to 5500 gas-oil ratio, and this is one of the wells that's perforated lower in the reef from a structural position.

Q. Okay. Now just for the record, what are the -- briefly, what do the brown -- the big spikes indicate? Do you have any idea?

A. Yeah, the spikes are basically -- This is raw daily production data. Again, it's uncorrected for BS&W, and there may be a day or two that there was some gas reported with very little oil, and that's the spikes you see in the gas-oil ratio, gas-oil-ratio curve. And so you've really got to kind of look at the trend of the data and, again, take it as the daily production data. I wanted to show that instead of the monthly data, because it shows more detail.

Q. Okay, let's turn to Opposition Exhibit Number 16.

Identify that for the record and explain it, please.

A. This is the production for the Magnum 5 Federal Number 2 and Number 3 combined. Those reside in the southeast quarter of Section 5, that proration unit.

Again what you can see here is, the Mag 5-3 came on in March of 2003, and it exhibited a high initial decline. It was well below the allowable on both the oil and the gas.

And then the Mag 5-3 was drilled in June of 2003. And as you can see, that increased the production from this proration unit. But this proration unit, that has -- it's been noted before, has really not been affected by the current allowables, and an increase in gas -- or increased allowable will not benefit this proration unit as the production stands today.

Q. Okay. Now let me ask you real quick, is this the one that's operated by Gruy?

A. This is the section that's operated by Gruy. And I do want to note that these wells are on about an 85-percent decline rate.

Q. Now, you're planning on drilling a third well up in the northern half of this quarter section; is that right?

A. That is correct.

Q. Okay. When do you plan on commencing -- When do

you plan to commence drilling on that well?

A. We plan on spudding that well sometime around the middle of December.

Q. Okay. And if you're successful and you hit a bonanza well, are you content to proceed under the current pool rules?

A. We are. We would be curtailed at that point.

Q. All right. Let me have you turn, then, to Opposition Exhibit Number 17, and I think you can just briefly go through this one. Is this the same type of exhibit for the southwest quarter of Section 5?

A. That's correct, it's the production from the Heyco well, the Parker Deep 5 Federal Number 3. Again, as you could see, it's making about 30 barrels a day and very little associated gas.

Again the thing to point out here is that the gas-oil ratio is between 3000 and 4000. It's drilled later in the life of the reservoir, but it was in the lower structural position, and so therefore it has a lower gas-oil ratio, which also supports that trend of lower wells have lower gas-oil ratios.

Q. Anything else about this exhibit?

A. That's it.

Q. Okay, let's turn to Opposition Exhibit Number 18.

A. Okay, this -- Exhibit Number 18 is a production

plot for the combined Fren 8 Federal Number 2, 3 and recently drilled Number 6.

Q. Okay, this is Mewbourne's proration unit?

A. This is Mewbourne's proration unit in the northeast quarter of Section 8, and this is the proration unit that will -- the only proration unit that will benefit from an increased allowable.

As you can see, the Fren 8-3 came on first in August of 2002, and in September of '02 the Fren 8 Number 2 well was recompleted into the Strawn interval and, as you can see, had really high productive rates initially. They were -- Mewbourne was doing that to test the well for the hearing, and again shut that well back in in October until they got the order, the temporary field rules, in November of '02, when they opened it back up.

And as you can see from the brown gas-oil ratio curve, this proration unit was producing flat at about a 3000 gas-oil ratio, until about January of this year. At that point it went on an incline to 6000 GOR in May of this year.

And as you can see, the daily numbers -- they spike up and down. There were several times when they were above the 1120-barrel-a-day rate, but it's important to note that it was basically the beginning of March. As you can see, the red-square line which represents the gas

production, went well above the 4480 allowable for this proration unit.

And so -- One thing I want to note also is that these wells were producing at a pretty high rate during March and April of this year on the oil production. And as you see that oil production decline down from about 1300 barrels a day to more in line with the 1100 barrels a day, that's about when the gas-oil ratio started to flatten out for this proration unit.

And then when Gruy obtained the production information from public data and noticed that Mewbourne was in violation of the pool rules, that's when we wrote a letter to the OCD.

OCD sent it to Mewbourne -- and this is my understanding of the events -- Mewbourne agreed that they would curtail their proration unit and they agreed to cut it in, as Bryan Montgomery testified, to half the gas allowable, which is 4480 divided by 2.

So you can see that they cut it down to about 2.3 million a day or 2.2 million a day. And when they did that, the oil dropped from 1100 barrels a day down to about 450 barrels a day.

Q. Okay, here at the point where it says "Curtailment due to non-compliance"?

A. That is correct.

Q. Okay, and what's significant about that event?

A. The significance to me from this graph is that the gas-oil ratio, that had been flat at about 6000 GOR, for about four months declined down to 5000 GOR. And so you had -- whenever you reduce the rate and you quit pulling on this thing as hard as they were, the gas-oil ratio declined.

And so this, to me, makes it -- in my opinion, the gas-oil ratio is rate-sensitive for this reservoir. And again what you see in October is, there's a spike in gas there. That's when they turned the Fren 8-3 back on, which is the 9000- to 1000-GOR well, and so that's what attributes that spike there.

And then the Fren 8-6 was drilled in this proration unit while they were still -- and they're still at this point in a noncompliant situation.

Mr. Montgomery testified that he thinks it will be about the middle of December before they become even on this proration unit. But they did choose to drill a third well in an already overproduced proration unit, and I do not have much production data on this graph.

And again, you know, that's going to be another good data point that's going to give us some production and producing capabilities of this reservoir, if we do wait till March of next year.

Q. Okay. Could you just summarize the conclusions, then, that you draw from these production charts?

A. Again, the northeast quarter of Section 8 is really the only proration unit that is able to meet the existing allowables under the current producing scenarios. Increase in the oil and gas allowables will only benefit this one proration unit.

It appears that whenever the production was decreased in the northeast quarter of Section 8, that the gas-oil ratio went down, so it makes me feel like the gas-oil ratio is rate-sensitive.

And I believe that curtailing the gas production out here will conserve reservoir energy and increase the ultimate recovery from this reef.

Q. Now, I want to just briefly address the timing of this request, Mr. Juroska. Is it your opinion that the Division ought to stick to its original timetable and revisit these pool rules in March of 2004, as was envisioned under the initial order?

A. Yes.

Q. Okay. Will you have more data available at that point?

A. Yes, we will. There's going to be three additional data points that will give us reservoir pressures, producing capabilities, and also delineation for

our determination of how large this reef really is.

Q. In your opinion, is there sufficient reservoir information available today to ensure that increasing the oil and gas allowable will not damage the reservoir or cause waste?

A. No, I do not believe that we have sufficient reservoir information.

Remember that this Application represents a 20-percent increase in the oil production, coupled with a 150-percent increase in the gas-oil ratio. And again, it's only going to benefit that one proration unit, to the detriment of the other proration units.

And again, the structural map shows that Mewbourne's northeast-quarter wells are on the highest structural position of this reef, and the proposed allowable will allow, in my opinion, Mewbourne to perforate the 8 Number 2 well and will give them a higher producing capability, 13.5 million a day, and that's going to give them a very disproportionate share of the control of the reservoir energy, which is the gas cap production.

And they could blow the gas cap down. With, you know, with high gas prices over the winter they could blow it down, to the detriment of the downdip proration units.

Q. Based on the information that we presently have, is it -- in your opinion, will increasing the oil and gas

allowables as proposed by Mewbourne result in the inefficient, excessive or improper use or dissipation of reservoir energy?

A. Yes, I believe that it will.

Q. In your opinion, will increasing the oil and gas allowables as proposed by Mewbourne reduce or tend to reduce the total quantity of oil that can ultimately be recovered from this pool and result in waste?

A. In my opinion, yes.

Q. Again, based on the information that we presently have available?

A. That's correct.

Q. All right. In your opinion, will the granting of this Application be in the best interests of conservation, the prevention of waste and the protection of correlative rights?

A. No, it will not.

Q. Were Opposition Exhibits 10 through 18 prepared by you or compiled under your direction and supervision?

A. Yes, they were.

MR. FELDEWERT: Mr. Examiner, at this time I would move the admission into evidence of Opposition Exhibits 10 to 18.

EXAMINER CATANACH: Any objection?

MR. BRUCE: No, sir.

EXAMINER CATANACH: Exhibits 10 through 18 will be admitted.

MR. FELDEWERT: And that concludes my examination of this witness.

EXAMINER CATANACH: Mr. Bruce?

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Let's go through your production charts, starting with Exhibit 13, Mr. Juroska.

A. Okay.

Q. Actually, let's start with -- try and cut this short a little bit -- your Exhibit 15.

A. Okay.

Q. Just briefly, do you agree that the GOR is slowly increasing on the Fren 8 Number 5?

A. Yes.

Q. Move on to your next exhibit, the Magnum -- the Gruy -- two Gruy wells. I don't see any leveling out there. It appears to me the GOR has been increasing consistently since the first well was completed. Am I incorrect?

A. No, that's correct.

Q. And won't you be at a -- based on just a simple extrapolation, you'll be at about 9000 to 1, oh, with the next -- by January 1 or so?

A. Somewhere in the 8000 to 9000 range, yes.

Q. What are these two wells producing at? I asked that of a prior witness.

A. Okay, the Mag 5-2 and -3 both combined are producing a little under 500 barrels a day, and that is split out at about -- the best I can recall is a little over 200 barrels a day for the Mag 5-3 and right under 300 barrels a day for the Mag 5-2.

Q. And what are the gas rates?

A. The gas rates for the Mag 5-3 are approximately 2 million a day, and then I think it's -- I think both wells are making about 1.8 million a day, 1.9.

Q. Okay. So then actually one of them would have a substantially higher GOR than the other?

A. Let me double-check those -- that information here. The Magnum 5 Federal Number 2 is producing about 290 barrels a day, with about 2.1 million a day --

Q. That was the Number 2, excuse me?

A. It's 290 barrels of oil a day.

Q. I'm sorry, I didn't mean to --

A. The Mag 5-2, I'm sorry.

Q. Yeah, okay. Thank you. 290.

A. And about 2.1 million a day. And that represents a gas-oil ratio of about 7500.

Q. Okay.

A. Okay, the Mag 5.3 is producing at about 200 barrels of oil per day and about 1.5 million a day, and that represents about a 7500 GOR.

Q. What months was that production?

A. That's the estimate on October of this year. It's the last month.

Q. Okay. And these wells are declining, are they not?

A. They're declining at a rate of about 85 percent.

Q. Well, if that's the case, if they're declining that rapidly, how can there be a good-sized reservoir to the north of these wells?

A. Well, I don't know. I mean, when you look at the wells -- if you look at the decline curve for both of the wells, they did -- you know, both of them did have communication with each other, these two wells did. Okay, every well out here, with the exception of the Fren wells, are on a decline of 60 to 85 percent.

Q. Doesn't that indicate that the superior reservoir is on the Mewbourne acreage in the northeast quarter of Section 8?

A. It does. As Mr. Dover testified, they have approximately 58 percent of the oil in place. And I think that's a very good point -- or 58 percent of the oil in place. I think it's a very good point that you're making,

is that they do have -- they are curtailed in the northeast quarter. And if they are allowed to produce at 13.5 million a day, none of the other proration units can even produce the current allowable.

And so if they're allowed to produce 13.5 million a day, they're going to be at a much greater production rate than what their proportionate share of the reservoir is, in my opinion.

Q. And they will still be restricted in production, will they not?

A. That's correct, and that's a very good point, because they're going to be producing flat while we're declining at 60 to 80 percent, so it's going to get even more inequitable over time, from the downdip proration unit perspective.

Q. Well, once again indicating that they really do have the best part of the reservoir, and perhaps the calculations of original oil in place as allocated by the prior witness are incorrect.

A. I can't testify to his calculations.

Q. As an aside, what is the footage of the proposed Gruy Fed Com Number 4?

A. Off the top of my head, I'm not sure.

Q. You don't know?

A. No.

Q. Let's move on to the next exhibit --

A. Okay.

Q. -- Exhibit 17. Do you agree that this well doesn't have much potential?

A. Potential -- Well, it's producing at a very low rate compared to the other wells.

Q. And it's on pump?

A. It is on pump, yes.

Q. Okay.

A. As are a couple of other wells out there.

Q. And moving on to your Exhibit 18, now let me get this straight. Starting with the initial production, the green triangles --

A. Yes.

Q. -- the higher numbers, are the oil production?

A. That is correct.

Q. Okay. And then the brown line is the GOR?

A. That is correct.

Q. And starting August, approximately --

A. Uh-huh.

Q. -- this proration unit was restricted. And so it's producing, if you look at the green line, somewhere between 400 and 500 barrels of oil a day?

A. That is correct, they --

Q. August of --

A. -- produced --

Q. -- August of '03, excuse me.

A. Oh, well, that's only the production from the 8-3, which it doesn't have the productivity to meet the allowable, and that's why it's down there.

Q. Wait a minute, we're on Exhibit 18.

A. Exhibit 18, August of 2003.

Q. August of 2003.

A. Oh, I'm sorry, I was back in -- a year back. I'm sorry. In August of 2003 -- Repeat your question?

Q. From August, 2003, to now or to your latest available data, the oil production has been somewhere -- it has been relatively flat at around 400 to 500 barrels of oil a day?

A. That is correct.

Q. Now, looking at your brown line, during that same period the GOR has been increasing substantially?

A. It has increased from about -- it dropped at first curtailment from 6000 GOR down to 5000 GOR, and it increased back up to about 5500 to 6000 before October came around. And that's when you start seeing the Fren 8-3 come back on, which has the higher gas-oil ratio, and that's why that gas jumps like that.

And that's, in my opinion, why the gas-oil ratio jumps like that.

Q. I believe Mewbourne testified that the Fren 8 Number 3 has been shut in.

A. Okay, well, the data that they provided me -- Let me just double-check my individual --

Q. While you're looking for that --

A. It did come back on in October, according to the data that Mr. Montgomery provided.

Q. But that is -- that well doesn't contribute much to the production of this proration unit, does it?

A. No, when it came back on it was producing about a million a day, so it did.

Q. Just a few follow-up questions, and go to your Exhibit 11.

A. Okay.

Q. And you're making a point about wells that are perforated high, have a higher GOR. If that's the case, why did Magnum-Hunter perforate its wells, based on the logs, at the top of the Strawn?

A. Why did we perforate it on initial completion?

Q. Yes, sir.

A. We perforated the entire reef interval to try to maximize the recovery for our proration unit.

Q. Okay, so you didn't care about GOR?

A. At that point we were real close to -- it was January when we were completing that well, and at that

point the production data we had showed that the well was still under the bubble point -- or pressure was above the bubble point.

Q. Well, should all wells in this pool be restricted to perforations below a certain subsea depth?

A. In my opinion, no.

Q. So it's okay for Magnum-Hunter -- You're complaining about waste and a gas cap, et cetera, but you want to perforate at the top of your wells?

A. Every well out there has been perforated at the top with the exception of the Fren 8-2.

And what we're worried about is that if the Fren 8-2 is perforated in the upper portion, which we believe is productive with very high porosity and permeability, then it's going to have -- the thing that we're worried about is Mewbourne having -- the northeast quarter of Section 8 having a disproportionate share or a disproportionate control over the reservoir energy, which is the gas cap.

And if you produce it at 13.5 million a day, then I do think that you are going to see some waste. And that is why we need to have lower gas production rates for this reservoir.

Q. The Fren 8-6 is not perforated at the top, is it?

A. That is correct, they've got one porosity lobe, according to the cross-section, Exhibit Number 2, there is

one porosity lobe at approximately 10,560 or 10,570 to 10,580.

And that's another good point, that if they're allowed to have 13.5 million a day, nothing from having them go out and perforate that upper portion of the reef.

I want to also note that this well -- according to the stuff that Mewbourne gave us, this well has not been stimulated, and it is producing natural. We did see an increase in production upon stimulation, so there's really nothing to keep them from going out and putting a good acid job on this well too.

Q. That's a good point. Have any of the Mewbourne wells been stimulated?

A. To my knowledge, every well that Mewbourne operates has been stimulated, with the exception of the 8-6.

Q. Have both Magnum-Hunter wells been stimulated?

A. They have.

Q. You mentioned a gas cap. What evidence do you have of that?

A. I do not have any physical evidence, and that's why I testified to that there *may be* a gas cap forming in this reservoir.

Q. The well at the top, which is the Fren 8-3 --

A. Uh-huh.

Q. -- I mean, if there was a gas cap wouldn't that be producing at substantially higher GOR than -- It's producing at essentially the same GOR as the other wells.

A. The Fren 8-3?

Q. 8-2.

A. 8-2.

Q. Or no, excuse me, 8-3, 8-3.

A. Okay. Well, as you can see from Exhibit Number 12 -- or 11, whichever one you want to look at -- the gas-oil ratio is the highest in the Fren 8 Number 3, and it is the highest well perforated in this Strawn reef.

Q. Well, let's get Exhibit 11 again --

A. Okay.

Q. -- since you mentioned it.

A. Okay.

Q. On your data here --

A. Uh-huh.

Q. -- I mean, I think Mr. Montgomery did testify that the Fren 8-3 is still currently at about 9000 to 1, but your two wells are now approaching 8000 to 1, are they not?

A. That's correct, and that fits --

Q. They're almost at the same level as the Fren 8-3?

A. That's correct, and that's why this is such an effective chart, because it shows that the wells that are

perforated in the lower portion of the reef have a lower producing gas-oil ratio. And that's what leads me to believe that there may be a gas cap forming, because the higher you're producing from the reef, the more gas you're bringing out of the reservoir, and that's your reservoir energy.

Q. And the Fren 8-2 is still producing at about 6000 to 1, right?

A. That's correct, it's because it's perforated in a lower portion of the reef, in my opinion.

Q. But you have no evidence of a gas cap?

A. No physical evidence for sure, no.

MR. BRUCE: That's all I have, Mr. Examiner.

EXAMINER CATANACH: Any follow-up, Mr. Feldewert?

MR. FELDEWERT: No.

EXAMINER CATANACH: I have no questions of this witness.

Do you have anything further?

MR. FELDEWERT: Just briefly, I -- No, not in terms of evidence, Mr. Examiner.

EXAMINER CATANACH: Okay.

MR. BRUCE: Mr. Examiner, I do want to put Mr. Nelson back on for about five minutes.

EXAMINER CATANACH: All right.

MR. BRUCE: Mr. Examiner, I recall Mr. Nelson to

the stand, and let the record reflect that he was sworn and qualified.

EXAMINER CATANACH: The record shall so reflect, Mr. Bruce.

RALPH L. NELSON (Recalled),

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Mr. Nelson, I've handed you what I've marked as Mewbourne Exhibit 13, and there's been some talk about structure and its effect on various things. Could you identify your Exhibit 13 and describe what that shows?

A. Exhibit 13 is a structural cross-section hung on a subsea datum of 7000 feet. Mr. Hawkins also submitted one.

The reason to submit this, I have the -- like Mr. Hawkins, I have the completion dates, the perforations, but I also have the treatments for the various wells.

I believe the previous witness said that the Fren 8 Number 2 was acidized. It was not, it was a natural completion, as was the Fren 8 Number 6.

Like my previous cross-section, I've highlighted the porosity in a similar manner as I did on that stratigraphic cross-section, and again did not count those

washed-out areas.

Q. And what does that show?

A. Well, in the next exhibit it will -- We'll take into account the ϕh map that I have constructed for the pool and the reasons why my numbers differ to some degree to those from the other -- to the opposition.

Q. Would you identify Exhibit 14, the ϕh map, Mr. Nelson?

A. Exhibit 14 is a ϕh map contoured on a one-foot interval. Also -- The ϕh numbers are in blue. Also shown are HPV numbers, hydrocarbon pore feet numbers, excuse me, in green.

Q. Now, I think with respect to the map that was previously presented by the other side, their numbers show that the thicker reservoir is on Mewbourne acreage, does it not?

A. But they also show some high numbers for the Gruy 5 Number 2.

Q. And you disagree with that?

A. I do. From previous experience in these hearings, I believe it was Mr. Kellahin who taught me that we need to be fairly precise about our log calculations. And to that degree, we went to a study to determine which might be the fairest porosity cutoff.

And in doing so, we consulted with Dr. George

Asquith, the Texas Tech University professor of geology and AAPG Distinguished Lecturer on log analysis. And some of the points that he made concern the caliper and the washout effects that were so noted in both the Gruy Number 2 and the Fren 8 Number 2.

Once the caliper exceeds a certain limit and the delta well correction exceeds .15, the porosity becomes invalid. There is no estimate for it; it's invalid. There's no reading for it. We so use that.

According to Baker-Hughes, the washouts that exceed 18 inches, from their caliper, their arms can't extent past 18 inches. Therefore automatically, whether there's pad contact, partial pad contact or no pad contact, the reading is invalid. To use any estimate for that porosity is suspect interpretation.

Q. So their particular map of the ϕh you do not think is correct?

A. Well, their map was generated, as it was testified to, a two-foot average.

I have the half-foot by half-foot calculations and corrections with me, if we'd like to go through them on every half foot -- I don't think so -- but I can support how we went about doing this in a scientific way, in accordance with the way Dr. Asquith instructed us to do.

Q. Does it support the contention that the heart of

the reservoir is on the northeast quarter of Section 8?

A. Absolutely. The highest ϕh well, without any question, and higher than, really, any other well is the Fren 8 Number 6. And the second highest, by almost twice the number of the others, is the Fren 8 Number 2. And the 8 Number 6 is twice as thick as the 8 Number 2.

Q. Do you have anything further on that exhibit?

A. No.

Q. Finally, what is Exhibit 15, and what would it indicate regarding the extent of the Strawn?

A. There was testimony given as to the extent of the mound to the northeast. We also have greatly studied this area, this reservoir. We found this reservoir.

As Mr. -- I believe Mr. Hawkins testified to, the Bone Spring map, even the Wolfcamp map -- I'm not sure he said that, but he did say Bone Spring -- showed little evidence of the mound below us.

And the reason for that is, we're very close to the shelf edge for the -- the Abo shelf edge, and you have a lot of sediments being shed off of the big shelf-edge complexes into the Basin that mask and cover up and fill in any evidence of deeper structure. However, at the Basin Wolfcamp evidence of the deeper reef, I believe, starts to show up.

One thing I would point out on this map. No well

below a subsea of 6200 feet has any mound rock in it. And the well in the I location in Section 5 is at a subsea of 6237.

We're unsure where they intend to drill their well. I believe Mr. Bruce asked for the footage calls. Their well would look like, to me anyway, that it would be in danger of missing the reef.

The fact that the -- and also, to me, if there were substantial reef to the north, you would see that in a production anomaly in the Gruy wells.

Q. And that would indicate that there is no reservoir, say, in the northeast of the southeast of Section 5, or to the north of there in the Strawn formation?

A. That's what I believe, yes.

Q. And that would, then, impact adversely their figures with respect to the amount of reservoir under their acreage?

A. Yes.

Q. Thank you. Were Exhibits 13, 14 and 15 prepared by you or under your supervision? Mr. Nelson? Were they prepared by you or under your supervision?

A. Yes, I'm sorry. Yes, they were.

MR. BRUCE: Thank you.

Mr. Examiner, I'd move the admission of Exhibits

13, 14 and 15.

EXAMINER CATANACH: Any objection?

MR. FELDEWERT: No.

EXAMINER CATANACH: Exhibits 13, 14 and 15 will be admitted.

Any cross-examination.

MR. FELDEWERT: No.

EXAMINER CATANACH: This witness may be excused.

MR. BRUCE: I'll quit.

EXAMINER CATANACH: Is that all you have, Mr. Feldewert?

MR. FELDEWERT: Presentation? Yes. I have one short statement.

EXAMINER CATANACH: And that's all you have, Mr. Bruce?

MR. BRUCE: (Waves hand)

EXAMINER CATANACH: Okay. Go ahead, Mr. Feldewert.

MR. FELDEWERT: Mr. Examiner, I think this boils down to burden of proof. We have raised -- We have presented evidence that there are concerns out there over waste. The have presented nothing.

Rule 505.F is a very high threshold, and that's why I put it within our exhibit file. They have presented nothing for you to try to address the issue of waste or

their concerns over waste and have not presented evidence to ensure that what they are proposing is not going to result in waste and the dissipation of reservoir energy.

What they have said in this hearing is that the most important thing is correlative rights. Yet when it comes to correlative rights they offer you no evidence about the oil in place, they offer no allocation of the oil in place, nor to determine what the correlative-rights issues -- how they should shake out. And they do absolutely nothing other than to sit here and say, Well, maybe our projections are wrong. Okay?

The most telling exhibit that has been presented today is Mr. Dover's Exhibit Number 9, and the evidence, based on what we have today, indicates that if you look at correlative rights, what they say is the most important issue, the adjustment that is appropriate, if any, based on the information that we have, is to keep the oil where it is and increase the GOR to 6000 to 1.

Now, the issue here is not the level of GOR. The issue here is how much oil are they going to be allowed to produce, and how much gas are they going to be allowed to produce? And the determination of the gas, and the amount, is a function of the oil and the GOR. So they play together. What's of concern here is the volume, not so much the ratios, and that's what we have tried to indicate

here today.

The bottom line is, Mr. Montgomery -- when you asked him, How do they know that their proposal is not going to harm correlative rights, he couldn't give you an answer. All he said was, Well, we can make it look -- the data, look any way you want to and come up with something.

Well, they didn't come up with anything. And I don't agree with him that you can take the data and make it look any way you want to. But the bottom line is, they didn't come up with anything to indicate to you that what they are proposing is going to have -- is going to not have an adverse impact on correlative rights, their most important issue. We have presented evidence to indicate that it is. All they've done is attack our information, say maybe we're wrong.

But the bottom line is, Gruy is willing to put their money where their mouth is when it comes to their interpretation of the isopach map and extent of this reservoir. And in the end, I'd submit that when you're willing to put your money where your mouth is, that is the most telling as to how confident you are in your projections.

So I would submit to you today that they have not met their burden, they have provided you no information on which to change these pool rules. There's going to be

development out there. Let's wait and see what that evidence shows before we go tinkering with these existing rules.

EXAMINER CATANACH: Thank you, Mr. Feldewert.

Mr. Bruce, anything?

MR. BRUCE: I think I was at a different hearing than Mr. Feldewert, Mr. Examiner.

Yes, correlative rights is the issue. All the evidence, even the evidence presented by them, shows that the vast bulk of the reservoir and the reserves are on Mewbourne Oil Company acreage. Mewbourne Oil Company is the only party restricted currently, and it will still be restricted severely, even if the request of Mewbourne is granted.

Secondly, as far as waste or damage to the reservoir, they have shown nothing. They theorize a gas cap. There's no evidence of one. The evidence shows that virtually every Strawn pool within a two- or three-township or a four-township area, has generally declining production and generally increasing GOR. What does that show? It shows that it's natural, it shows that nothing is going to be harmed by increasing both the allowable and the gas-oil ratio.

You know, as far as production, who gets what, I've raised it once before and I'll raise it again: The

West Lovington-Strawn Unit, when you look at how production was allocated there, it was allocated on HPV, and tract that had substantial HPV got a lot more production allocated to it than a tract on the fringe of the unit that didn't have that HPV.

In essence, we're looking at the same thing here. Instead of production allocated to it, we're looking at producing rates. But the fact of the matter is, under the same theory there's no problem with Mewbourne producing more than any other tract, because it has a multiple -- three, four, five times more reservoir and reserves on its acreage than any other tract does.

As far as waiting until March, when the initial hearing was done there were two wells. Gruy took part in the case. Now there's seven wells. One of the witnesses said the reservoir is overdeveloped, but then they say, Well, we've got to do more development before we can do additional pool rules. That doesn't make sense.

We think there's sufficient evidence to establish the pool rules at a higher GOR and at a higher production. No damage will come to the reservoir. Some people have better tracts than other people, that's life, and we'd ask you to grant the Application.

EXAMINER CATANACH: Thank you, Mr. Bruce.

Gentlemen, draft orders?

MR. BRUCE: (Nods)

MR. FELDEWERT: (Nods)

EXAMINER CATANACH: Okay, there being nothing further -- anything further? -- this case, 12,940, will be taken under advisement.

We'll stand in recess for about 20 minutes.

(Thereupon, these proceedings were concluded at 3:40 p.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____ heard by me on _____.

Oil Conservation Division, Examiner

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 November 28th, 2003.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006