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 GILLESPIE-CROW, INC., FOR UNIT EXPANSION, STATUTORY UNITIZATION AND QUALIFICATION OF THE EXPANDED UNIT AREA FOR THE RECOVERED OIL TAX RATE AND CERTIFICATION OF A POSITIVE PRODUCTION RESPONSE PURSUANT TO THE "NEW MEXICO ENHANCED OIL RECOVERY ACT", LEA COUNTY, NEW MEXICO

CASE NO. 11,724

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS (Volume II)

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

May 16th, 1997

Santa Fe, New Mexico

This matter (Volume II) came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Friday, May 16th, 1997, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

May 16th, 1997
Examiner Hearing
CASE NO. 11,724 (Volume II)

(Continued...)

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E X H I B I T S (Volume II)

Applicant's/Enserch (Continued)

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* * *

WHEREUPON, the following proceedings were had on Friday, May 16th, 1997, at 8:17 a.m.:

EXAMINER CATANACH: Call the hearing back to order this morning, and I think I'm going to turn it over to Mr. Bruce who has one last witness in his presentation.

Mr. Bruce?

JOHN McDERMETT,

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. John McDermett.

Q. And where do you reside?

A. Midland, Texas.

Q. What is your occupation?

A. I'm a reservoir engineer, retained by Charles Gillespie.

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.

Q. Would you give just a very brief outline of your

experience with the West Lovington-Strawn Unit and the West Lovington-Strawn Pool?

A. Okay, I was retained by Charles Gillespie in early 1994. They obviously had a good reservoir, and they were wanting help in evaluating it for possible secondary enhanced recovery.

Q. Did you prepare a study at that time?

A. Yes, I did. The study was dated August of 1994. And the Exhibit 6 from yesterday is a slightly modified version of the same curve from that report, and it, as Exhibit 6, has been presented previously.

The previous versions were based on a 14-million-barrel oil in place. In the last month or so I've revised to 15-million-barrel oil in place, just to match this -- match the later points on the curve a little better. Either way, they both -- The prediction from back in 1994 matches the actual production versus pressure pretty well since then.

MR. BRUCE: Mr. Examiner, I would tender Mr. McDermett as an expert engineer.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Bruce) Now yesterday, Mr. McDermett, the Hearing Examiner asked about ultimate recoveries. Would you discuss that issue and perhaps give us a range?

A. All right, the -- First of all, the primary

recovery off of this curve is about 2.1 million barrels. We never had a real forecast for the secondary reserves. There's not a -- We don't have a simulator and we don't have an analogous field to look at.

I did do a literature search and testified in a previous hearing we might expect under ideal conditions 40- to 60-percent ultimate recovery of oil in place.

For our economic purposes in the past, we've used a 25- to 30-percent total ultimate recovery, primary plus the -- due to the injection.

We think now that the 25 to 30 percent of oil in place, which translates to 4 to 4.5 million barrels, we think we're getting evidence that those are pretty good estimates.

Q. Okay, so that 4 to 4.5 million would be a reasonable estimate for ultimate recovery from this pool?

A. Yes, primary plus secondary; 2 of that would be primary, and then the rest would be due to the gas injection.

Q. Do you have anything else to say on that issue?

A. No.

Q. Okay. Now, on a related matter, are -- a question that came up yesterday, are off-unit tracts, current off-unit tracts, being drained by unit wells?

A. I don't think they would be now, because as long

as we keep the pressure constant, whether -- that oil is just going to basically sit out there, and whether a well is drilled now or two years from now, as long as the pressure is constant, it's not going to be moving, because there won't be any differential causing it to flow anywhere.

Q. One other matter. You were here yesterday, correct?

A. Yes.

Q. And you heard questions being asked about recovery of the injected gas?

A. Yes.

Q. What is your comment on that?

A. There were comments that at the end of gas injection eventually you will recover that gas that you did inject, and that is true.

One thing to remember, unless you escalate your gas price higher than a discount factor of, say, 10 percent, you're still going to be losing money on the gas you inject.

Another thing, even more important than that, is the oil that's being pushed out to the edge wells from the injection in the middle. So that's the main point, rather than just the cost of the gas to the unit.

Q. So what you're saying by the oil being pushed out

to the edge wells, it could be -- oil could be being pushed off the unit if the reservoir extends off the unit?

A. If it extended that far, it could, if there was a well out there.

Q. If there's a well out there.

In your opinion, is the granting of the Application in the interests of conservation and the prevention of waste?

A. Yes.

MR. BRUCE: Pass the witness, Mr. Examiner

MR. CARR: No questions.

EXAMINATION

BY EXAMINER CATANACH:

Q. Just one question. The remaining reserves, do you have an estimate on how long it might take to recover those reserves?

A. Well, at this point it's kind of up in the air. You know, the unit is restricted now to the 250. If that's -- If the State "S" and the Chandler well are brought in, that would increase that rate. So we're kind of -- All the history has been kind of artificially controlled, the rate.

So I would expect at whatever rate the allowable is ultimately fixed, it can produce at that allowable at a constant rate for quite some time. And then towards the end of the life, when we decide it's no longer economic to

inject gas, well, then, it's going to go pretty fast, I would think.

So you can take this remaining secondary and divide it by whatever allowable we had and get most of that constant rate, I would think.

EXAMINER CATANACH: I have nothing further.

Anything else of this witness? This witness may be excused.

MR. BRUCE: That concludes our direct case.

EXAMINER CATANACH: Okay, we'll at this point turn it over to Mr. Carr.

MR. CARR: Mr. Catanach, at this time we call David Boneau.

DAVID F. BONEAU,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. My name is David Francis Boneau.

Q. Where do you reside?

A. Artesia, New Mexico.

Q. By whom are you employed?

A. I'm employed there by Yates Petroleum Corporation.

Q. Dr. Boneau, have you previously testified before this Division?

A. Yes, I have.

Q. At the time of that prior testimony, were your credentials as an expert witness in petroleum engineering accepted and made a matter of record?

A. Yes, they were.

Q. Are you familiar with the Application filed in this case on behalf of Gillespie-Crow?

A. I'm familiar with that.

Q. And are you familiar with the West-Lovington Strawn Unit?

A. Yes, sir.

Q. What is Yates Petroleum Corporation's interest in the West Lovington-Strawn Unit?

A. Yates Petroleum has no ownership interest in the present West Lovington-Strawn Unit. Yates Petroleum owns a part of one of the wells that Gillespie is proposing to bring into the unit. Yates Petroleum owns an interest in a well, the Culp Number 1, that's recently been proposed by Gillespie near the unit. And Yates Petroleum owns interest in some of the other tracts adjoining the unit.

Q. Have you reviewed the impact of this Application on the interests of Yates Petroleum Corporation in the West Lovington-Strawn Pool?

A. Yes, I have done that.

Q. Are you prepared to review Yates' concerns about the expansion of this unit as it is now proposed by Gillespie-Crow?

A. I'm prepared to do that, yes, sir.

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

EXAMINER CATANACH: Any objection?

MR. HALL: (Shakes head)

EXAMINER CATANACH: The witness is so qualified.

Q. (By Mr. Carr) Dr. Boneau, would you briefly state what Yates Petroleum Corporation seeks in this case?

A. Yeah, Yates and Hanley are seeking two things:

One, we're seeking a expansion of the statutory unit, the West Lovington-Strawn Unit, to include all acreage that's contributing to production in the West Lovington-Strawn Unit.

And second, we're seeking adoption of an allocation formula which will distribute the unit production from these tracts and the expanding unit on a fair, reasonable, equitable basis, and our point is that that's a different formula than the formula proposed by Gillespie.

Q. Have you prepared or had prepared under your direction and supervision certain exhibits for presentation

in this hearing?

A. I've prepared those, yes, sir.

Q. Could you identify and review for Mr. Catanach what has been marked for identification as Hanley/Yates Exhibit Number 1?

A. Yes, Hanley/Yates Exhibit Number 1 is a map, an orientation plat. It shows a number of things that are of interest. In brown is the current West Lovington-Strawn Unit. It also shows, as Tracts 12, 13 and Tract 14 the two 80-acre tracts that Gillespie proposes to add to the unit. And it shows additional acreage marked as Tracts 15 up to 30 that Yates and Hanley propose to be included in the unit because they're contributing to production from the unit.

And just as a -- I think, a last thing it shows is -- Well it doesn't show it very well, but the well that -- the Culp Number 1 well that Gillespie is proposing to drill near the unit would be located in Tracts 19 and the adjacent part of Tract 21.

Q. Can you review the status of the tracts in the expanded unit area?

A. Yes, the present unit previously has been called by Gillespie Tracts 1 to 11, and that's a convenient nomenclature, and that's shown in brown in Exhibit 1.

There are 19 additional tracts which contain some of the acreage in the reservoir, as Yates and Hanley see

the reservoir, and all the acreage that we're proposing to include in the unit will be affected and is being affected by unit operations, and the -- You'll hear the real lowdown on these additional tracts from our geological and engineering witness that will follow.

Q. Let's go to Exhibit Number 2. What is this?

A. Exhibit Number 2 identi- -- well, it identifies as well as we're able to the ownership of each of the 30 tracts that Yates and Hanley believe should be in this expanded unit.

The West Lovington-Strawn Unit at the lower right is the present unit, Tracts 1 to 11, and that's mostly owned by Enserch and by Gillespie; Phillips has about a 5-percent interest and there's some individuals have small interest.

The exhibit, then, just lists the companies that have the ownership of the tracts that Yates and Hanley are proposing to bring in. It's not an exhaustive list of everyone's interest in every tract. Frankly, we were unable to do that in a reasonable amount of time. But it does tell you who owns the tracts.

And as Gillespie pointed out yesterday, they own interest in a large number of these tracts. They own interest in 12, 13, I think 19, 20, 24, 25, 26, 28, 29. Enserch owns interest in several of them, and Yates and

Hanley own interest in some of them also.

Q. Can you identify what's been marked as Exhibit Number 3?

A. Exhibit Number 3 is a -- what we call a notice list. We provided notice to Gillespie for each tract that has been -- that we're proposing for expansion into the unit. We've provided notice to Gillespie of each of these 30 tracts. And this is an affidavit and certification of mailing and list of the people and things like that.

Q. What response did you receive to these notice letters?

A. We've received one letter in response, and that's our Exhibit 4. We've received no letters of opposition, but I -- there could be people in attendance today that stand up and oppose it or support it.

But we have received a letter from Vierson and Cochran, who's one of the other minority interests in the State "S" well that supports our position, and that's Exhibit 4.

Q. Now, Dr. Boneau, I'd like to have you go to what has been marked as Exhibit Number 5 and entitled "Yates Summary", and I would like you just to initially review for the Examiner basically the points that you hope to make with your presentation.

A. Yes, Exhibit Number 5 contains two pages. The

first one is a summary of what I think is important in this case, and I hope I can make those points.

First of all, Gillespie has done a wonderful geologic job in discovering this interesting, large pool, and Gillespie, I think, has instituted a successful secondary recovery project, and they are simply to be congratulated for that. I know we have been looking for these kind of pools out there, and we sure haven't found one of this size, and they have just done a great job doing that.

But they haven't been perfect in some other areas. From Yates' point of view, in item number 2 there, expanding this unit to include the State "S" 1 where Yates has an interest could have been easy, should have been easy.

In the first half of 1996, we found out that we were involved with Gillespie here, and they were going to expand the unit and do all these things. And it turned out that Yates was the only one that did anything about trying to expand the unit. And Yates made offers to compromise and settle the issue when it basically just involved the State "S" Number 1.

And I just got -- Well, I'm sure I got frustrated at times. But Gillespie was only interested in producing oil and not in expanding the unit and getting a fair

settlement here.

The minority interest owners in the State "S", which include Yates and Vierson and Cochran and some Wilson people and, I guess, Lario, I think undeniably were treated badly by Gillespie.

In the spring of 1996, when we should have been talking about unitization, Gillespie, who's the operator of that State "S" well, cut it back to like 90 barrels a day and upped the production on the offset unit wells, just blatantly trying to drain the State "S" 1.

I've been real happy to hear, you know, continuing, the Gillespie people tell us how valuable these edge wells are. The State "S" is a valuable well, and they've testified, essentially, and I believe that it's going to retain a low GOR until essentially the end of the unit, when blowdown starts. It's going to produce a lot of the oil from this secondary recovery project.

The State "S" 1 -- On a simplified basis, the State "S" 1 is as good a well as any in the unit. They have ten producers, the State "S" well is one producer. Just on simple smell test, the State "S" is one out of 11 wells, and it seems like it ought to have one out of 11, the one -- something like 9 percent of the unit.

Okay. Another point I really need to make is that when Hanley's well came into the picture -- and that

was in the late summer last year -- I finally realized that we weren't going to have a compromise and an easy solution to this. I was struggling with how badly Yates has been treated, and our other friends, and I saw that Hanley was treated just so much worse, and I kind of gave up the idea that we could compromise and that we needed to take a different tack to this.

I also, in Number 3, speak a minute from Hanley -- It's important that you understand this, I think, or that everybody here involved understand this. Hanley operates the Chandler Number 1, and it has other acreage, like most of Section 28, that it needs to develop.

The current situation is that if Hanley drills a good well on the undeveloped acreage, the unit will take it with almost no compensation. In the proposal that Gillespie has before you, Hanley has a well that's been making about 200 barrels a day. In the month I looked at it, it was making 194 barrels a day. The Gillespie proposal for bringing that well into the unit will give Hanley eight barrels a day.

And so the present situation just gives Hanley no way to develop its acreage. Hanley can tolerate, can live with it's acreage being in the unit or out of the unit. But it's got to know which one it is. Nobody can tolerate this -- You drill a well, we take it if it's good, you keep

it if it's bad. That situation just must be settled, from Hanley's point of view and from any point of fairness.

Q. In your opinion, is the current formula fair?

A. The formula proposed by Hanley [*sic*] for expanding this unit is very unfair and needs to be changed radically, and I have a -- The second page of this exhibit, I hope, can illustrate to the Examiner why it's unfair.

Q. Okay. Would you review the second page of this exhibit? What month did you use in -- what --

A. The latest -- And we all know the ONGARD story and et cetera. The latest month for which I could get production going into this hearing was February of 1997, and Gillespie as operator had data for March yesterday, but the latest month I could get was February and I used February.

You can do these calculations for any other month, and you'll get similar results.

Q. Okay, what does this show?

A. Page 2 of Exhibit 5 shows the effect on current production of the various proposals that you're hearing, of the current situation of the Gillespie proposal that you've heard, and of the Hanley-Yates proposal, which you're going to hear or you're starting to hear. So those are the three columns of numbers.

The owners of the original West Lovington-Strawn

Unit, Tracts 1 to 11, in February produced 2171 barrels of oil a day. The State "S" 1 produced 287 barrels a day in February, of which Yates got 34 and the rest of the owners got 253.

The Hanley Chandler Number 1 produced 194 barrels a day in February, and the outside tracts have no production -- Well, that's absolute- -- that's not quite true. I just left out the "EC" 1. The "EC" 1 did have some production that it would slide on through.

Q. So the first column shows --

A. So the first column shows in February the unit, the State "S" 1 and the Chandler well produced 2652 barrels of oil per day.

Under -- In the second column or the third column, the column labeled "Gillespie Proposal", if that proposal had been in effect in February, the unit owners would have gotten 2527 barrels a day. They would have gotten 350 more barrels of oil every single day.

The Yates interest in the State "S" 1 would have dropped from 34 to 14, the Hanley interest in the Chandler 1 would drop from 194 to 8, the rest of the State "S" 1 would have dropped from 253 to 103, and there would be no effect, essentially, on the outside tracts since Hanley is not proposing to bring that in.

My main point is, them gaining 350 barrels,

Hanley losing almost all of its production and Yates being cut in half is obviously unfair. It's lousy.

In the last column, then, the formula that's going to -- that's being proposed by Hanley and Yates would be better. I don't know if it's perfect, and I'd love to sit down with these people and negotiate something. But it would be a heck of a lot better.

The owners of the West Lovington-Strawn Unit, in February, would have gotten 2098 barrels a day, a decrease of 73 barrels a day; the Yates interest in the State "S" 1 would have gone from 34 to 27; the Hanley interest in the Chandler would have gone from 194 to 161; and the rest of the State "S" 1 would have gone down by about 50 barrels a day.

All of them would have gone down, and the reason all of them would have gone down is that Hanley and Yates are proposing that some of the interest in the unit be given to these outside tracts that are contributing to production. And under our proposal, those outside tracts would have gotten 160 barrels of oil a day.

Phillips owns none of that, but Gillespie owns a significant amount of that. Enserch owns some, Yates and Hanley own some.

When you add that oil that Gillespie would get from the outside tracts back to what it gets from the unit,

its position is not much changed.

Anyway, the point is that the Gillespie proposal is just clearly unfair. It's taken away the oil from the State "S" 1 and the Chandler 1 and just handing it to the current unit owners.

The Hanley-Yates proposal is a lot better. That's the whole point. It's on the road to being fair, it's close to being fair, it's in the ballpark of being fair. And the Gillespie proposal is outside left field, over the fence, down the railroad track someplace.

Q. All right, Dr. Boneau, let's take a look at what has been marked as Yates/Hanley Exhibit Number 6. Will you identify that and then review the significant points on that exhibit?

A. Yes, sir, I'll attempt to do that. And I don't want to go through every point, but Exhibit 6 is a chronology of events, essentially from the time that Yates became involved. So Yates has no interest in the current West Lovington-Strawn Unit. We own none of it.

And that unit became effective in October 1, 1995. Yates become involved when the State "S" 1 was drilled, and actually it was drilling -- it was at TD when the unit became effective.

Gillespie discovered that Yates and others owned about a third of that well. Actually, Yates owns 11.7

percent of the State "S" 1, the way we figure it. That was a real good well that IP'd in October of 1995 at 505 barrels of oil a day, and I think it's clear that Gillespie was the operator of that unit. So Yates had hardly any control over its operations.

When Gillespie discovered that other people own part of that well, it sent out a letter in January 8th, 1996, telling us all about it. But what I think was important about that letter, to me, was, Gillespie said they would do two things. They would let the well pay out and then do two things: They would choke it back to 175 barrels a day, and they would move to bring it in the unit.

And the truth is that they didn't do either of those. And I'm just in the habit of expecting people to do what they say they're going to do, and these guys didn't do it.

What they really did -- and I think that will be shown in the next exhibit, was cut back our well to like 93 barrels a day, and they jacked up the production from the offset unit wells to try to drain the State "S" 1, and they did zero about trying to bring us into the unit.

Finally, in June, 1996, Yates called an operators' meeting because Gillespie wasn't doing anything, and Gillespie sent out some ballots prior to this meeting and they wouldn't tell us what happened to the ballots.

They just made no move to do that.

After this -- Try to be truthful with the Examiner. Up to this meeting, I thought that the State "S" well was so far away from the injector that it would not be affected. And I had no data; I just said, There are five locations between there. How in the heck is that injected gas going to get over to support our State "S" 1? It just intuitively didn't seem likely.

And so, you know, I went to the meeting thinking that probably our well was not in communication. Gillespie showed me data that showed that it was, and from that time forward, scout's honor, it's in communication, it ought to be in the unit.

And after that June meeting, you know, Yates sent Gillespie a letter proposing a formula or proposing a -- what I would call a compromise that we'd vote for taking the State "S" in the unit where it got 4.89 percent of it. That's been testified and, you know, what everybody needs to understand, Yates owned 11.7 percent of this State "S" 1. That was going to translate into a half or one percent of the unit, a tiny amount.

And I simply judged early in this deal that the money that Yates had involved in it could not support fighting about it very much. I would have loved to have done a computer simulation and a big-time reservoir study

and found out what was really going on, but Yates had $50,000 or $100,000 or something involved, and I really didn't want to spend it all, like it turns out we have, on lawyers and consultants and trips, and a heck of a lot of my time, you know, on my regular job.

And so we wanted to get the thing settled in some halfway fair way and go away. And we tried -- We thought we tried to do that.

And the response we got was that we found out that Hanley was, you know, being treated this ridiculous way that I've just described to you, and that Gillespie filed an application to restrict the pool allowables, essentially, in an effort to legitimatize the treatment that we were getting.

Pretty much at that point, which was late summer, I gave up hope of an easy compromise, and it became a matter of -- what I would call a matter of principle; we just needed to get this thing solved right even though monetarily it was not going to benefit us very much.

So finally in January, Gillespie filed a motion to expand this so that we had a forum on which to actually hear what was going on in the unit, and that has led to today, to the hearing that we're having yesterday and today.

Q. In your experience, have normal procedures been

followed by Gillespie in terms of the formation of this unit?

A. No, I was very surprised by what has happened. I -- I mean, you know, it's been an education for me. I should have been around enough to know these things happen. But I was really surprised.

Normally, unitization is a voluntary process where the affected parties sit down, talk about things, hammer out their various interests and come to the Commission with a solution. There's been zilch negotiations in this, there's been no exchange of data. Subpoenas are the only way that you get even normal things that ought to be public and ought to be readily available. It's just been horrible, instead of a voluntary negotiation of a normal unit operation.

Q. Let's go to what has been marked Yates/Hanley Exhibit Number 7. Could you tell me what this is?

A. Yates/Hanley Exhibit Number 7 is our -- is a table, but it's my best illustration of how poorly the State "S" 1 was treated by Gillespie.

And I call your attention to the months February, March, April and May of 1996, you know, some other months. But out there in the fifth column, labeled "State 'S' 1 Production, Barrels of Oil per Day", in February, March, April and May, Gillespie as operator of the State "S" 1

restricted the production to 93, 99, 95 and 103 barrels a day.

And with the -- Well, anyway, they did that, and at the same time they raised the production on the West Lovington-Strawn Units Number 8 and Number 9, which are the offsetting unit wells to the numbers you see there, up to one month of 379 barrels a day, 362 barrels a day, 252 barrels a day, numbers away above the 175 that they're talking about being normal for a unit. So...

Q. And those are the immediately offsetting wells --

A. Those are the immediately offsetting unit wells to the west. They doubled their production and cut ours back to almost zilch.

Q. Did Yates request the State "S" Well Number 1 be produced at higher rates during this time?

A. Well, with the ONGARD situation it took us a while to learn what they had done, and we learned what they had done, we had our -- our lawyer, who at that point was Ernie Carroll in Artesia, you know, call Mr. Crow. John Yates is considering himself a personal friend of Mr. Gillespie. Anyway, we made calls asking them to fulfill what we thought was their duty.

What I thought -- You know, what we thought should have happened was that the State "S" Number 1, outside the unit has an allowable of 445 barrels a day, a

prudent operator would have produced it at 445 barrels a day, and that would have encouraged Gillespie to move ahead with expansion of the unit.

And it -- Just coincidence made it that Gillespie had control of everything, and in our sense they didn't really fulfill their duty to the -- as operator of the State "S" 1. And when we finally figured out what they were doing, yes, we complained, we...

Q. In your opinion, has the unit drained reserves from the acreage that's dedicated to the State "S" Number 1?

A. Well, before the State "S" Number 1 was drilled, it had to drain reserves because of the fact that the pressure of the State "S" 1 was lower.

But the State "S" 1 has oil in place under it and under the -- actually under the tract to the east that it is draining, and the way Gillespie restricted the State "S" 1 and upped the unit production, it made an attempt to drain us and -- you know, probably a successful attempt.

Q. Does Yates, in fact, desire for the unit to be expanded to include the acreage which is dedicated to the State "S" Number 1?

A. Yes, Yates wants the unit expanded to include the State "S" 1, the Chandler well, and other acreage that you'll see is clearly within this reservoir, is definitely

within this reservoir.

Q. Now, Dr. Boneau, on May 2nd Gillespie proposed to Yates the drilling of an additional well in the West Lovington-Strawn Pool. Where is this well located?

A. The well you refer to is called the Culp Number 1. It's proposed to be located 2310 feet from the north and east lines of Section 34 of 15 South, 35 East, in Lea County, and that turns out to be 330 feet from the acreage dedicated to the State "S" Number 1, and it's also 330 feet from the current unit boundary. It's close.

Q. In your opinion, should this acreage at this time be included in the unit?

A. The acreage dedicated to the Culp Number 1, I see no argument about that. It's in the reservoir; it will either drain the unit or the unit will drain it.

But we're back to kind of the same game. Gillespie is trying to pull another State "S" 1 on us. Yates would own part of that, and we'd in the same -- the same minority owner with no control, subject to Gillespie's whims.

It's another recipe for a lot of lawyer bills and consultant bills.

Q. As it now stands, if that well is drilled, would Yates be paying its proportionate share of the well based on the dedicated acreage?

A. Yes, and on a -- You know, on a geologic basis, I'm recommending to the Yates people that we participate in that well.

If it's going to be taken away from us like this, we -- you know, we may think. But geologically, Yates would participate in that well right now.

Q. Will Yates and Hanley call geological and engineering witnesses to review the justification for their new proposed unit boundary?

A. Yes, we'll call two other witnesses.

Q. Will these witnesses also explain the proposed changes to the formula which are being recommended by Yates and Hanley?

A. They'll talk about that in a lot of detail, yes, sir.

Q. Were Yates/Hanley Exhibits 1 through 7 either prepared by you or compiled under your direction?

A. Yes, they were.

MR. CARR: At this time, Mr. Catanach, I would move the admission into evidence of Exhibits 1 through 7 of Hanley and Yates Petroleum Corporation.

EXAMINER CATANACH: Exhibits 1 through 7 will be admitted as evidence.

MR. CARR: That concludes my direction examination of Dr. Boneau.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Dr. Boneau --

A. Yes, sir.

Q. -- would you look at your Exhibits 1 and 2, please?

A. I have those.

Q. Okay, looking at Tract 18, I'm a little confused. Your Tract 18 is in Section 27. You show it in Exhibit 1 to cover the southeast of the southwest and the southwest of the southeast. And then on Exhibit 2, you show two listings for it, but you show it covering also the southeast of the southeast. Which are you proposing?

A. The map is correct, and there's a typo on Exhibit 2. Tract 18 -- And I've got to really think about these southeast southwest things to get them down there right.

Q. And you're not a landman?

A. Just by necessity.

But the -- Anyway, Tract 18 actually does not have the same ownership in the one 40 that it has in the other 40. It's an 80-acre, as shown on the map.

Q. It's one lease with different ownership?

A. It's one lease, but the eastern part of it is dedic- -- to a -- an agreement that -- operating agreement is related to -- oh, some other lease. I'm not a landman,

and I'll get it all screwed up.

But anyway, the ownership is different on the western part of Tract 18 from the eastern part of Tract 18, and Exhibit 2 was intended to say that, and the acreage, southeast and southwest, et cetera, on Exhibit 2 are screwed up.

Q. Okay. Now, looking at your Exhibit 5, under point 2, you say that since you have one of 11 producers you should have one divided by 11, nine percent of the unit.

Now, you can look at your Exhibit 1 if you want, but if a well was drilled 80 -- This pool has 80-acre spacing; is that correct?

A. That's my understanding, yes, sir.

Q. So if you looked at the expanded unit, there would be room for about 20 wells in there?

A. Correct. There's quite a bit of acreage in the --

Q. That's undrilled?

A. -- expanded part.

Q. Okay.

A. Yes.

Q. Are you saying that every tract should be drilled and then just divided up, based on a well -- one well per 80 acres?

A. No, anything can be taken, I think, to ridiculous extremes.

Q. And that would substantially lower this nine percent if that's the case, wouldn't it?

A. Well -- Yeah. When I'm talking about item 2.e. there, in my mind I'm thinking about like a year ago when we had the Unit and the State "S" 1 and no other complications, really, had entered yet.

My point is, the State "S" 1 is a well comparable to the wells in the unit. It may be better, but it's at least as good as those wells. It's really valuable to the unit because it -- You know, it sounds crazy but in this case it's valuable because it's downdip.

Q. And it's --

A. And it's going to -- And it's been producing at this low GOR, and as the gas come down and down and down, that State "S" take point is going to physically take a heck of a lot of the secondary recovery oil out of the unit.

Q. The gas cap is pushing the oil out; is that correct?

A. The gas cap is pushing the oil out there.

But my point is simply that it's as good a well as any in the unit. And just as a first look in the wind at what it ought to be worth, it ought to be worth

something like one-eleventh of the unit when we're talking about the present unit and the State "S" 1. When you add in other acreage, you dilute everybody.

And the point is that my idea of the smell test says that it ought to be closer to nine than the four that we've been talking about.

Q. Have you done any oil-in-place calculations for any of these tracts?

A. Have I done oil-in-place for any of these tracts? I have surely done oil-in-place calculations for some of the tracts, for the --

Q. What about Tract 14? Have you done it for that tract?

A. Well -- I have done it -- Okay. I'll say what I -- Yeah, I can do the calculations, I can sit down and run a planimeter and calculate things, and I have done that for Tracts 12, 13 and a little bit for 14. I have worried about where the $S_o(\phi)h$ is located in the area of Tracts 13 and 14. I have not worried about where it is drawn in the area of Tract 14.

So in Tract 14 I have calculated oil in place based on your map, based on a map provided by Hanley/Yates' geologist, which you'll see -- the Hanley geologist.

But I have done what I would call no engineering or log work, et cetera, in the area of Tract 14, and I want

to make that --

Q. Well, you said you had calculated -- You had some rough calculations for Tract 14. What did you have for numbers, oil in -- original oil in place?

A. Your map shows the numbers that you showed in place. I mean, I can duplicate those numbers, real small numbers.

The map that our geologist will show has like five percent of the unit under there, five percent of the oil under there. Just a hugely different number. And you're wasting your time, probably, arguing with me; you need to argue with the geologist who drew those two maps. That's where the difference lies. I can competently get an oil-in-place number from a map, but you give me a map, I --

Q. It's dependent upon the geologist?

A. It's dependent upon the geologist, and I have not done anything independent of the geologist.

Q. In your -- You know, one of your points you make, you congratulate Charles Gillespie for discovering this pool. Did you think that Gillespie and Enserch benefitted this entire pool by restricting their own production to 100 barrels of oil per day for a year and a half, pending unitization?

A. No, I think that -- What I tried to say there includes congratulations for doing it right up to that

point. They found the thing. They worried about some science; that involved back their cash flow for a while until they could get a little science. They made reasonable decisions, they went ahead with the project, and it looks like the project's working. Kudos to you. Good job, guys.

Q. Well, my question is, do you think restricting the production to 100 barrels of oil per day -- And that's when the allowable was 445 a day, right?

A. Yes.

Q. So that's restricting production about 80 percent?

A. It's a big --

Q. Do you think that helped this pool until pressure maintenance was instituted?

A. From a cursory look, it clearly helped the pool. You'll hear from our engineer a slightly different slant on it. But yeah, that was the right thing to do at that time.

Q. And do you -- well -- Now, you've said that really Yates was the only one interested in unitizing during the first half of 1996?

A. That's the impression I got, yes, sir.

Q. I've handed you what's been marked Gillespie-Crow Exhibit 28. Have you seen that letter before?

A. Yes, I've seen it before.

Q. Could I direct your attention to paragraph number -- not paragraph number 1 but the item number 1? What does that say?

A. It says, "We oppose having the State S put into the Unit. We believe that it does not benefit substantially from your improved recovery project."

Q. Now, didn't you just testify that in June of 1996 you found out enough data to show that the State "S" was substantially benefitting from the pressure-maintenance project?

A. Yes, I told you that.

Q. Then a month later -- And you say during the first half of 1996 Yates is the only one who wants to unitize, and then in July we have this letter. Does that appear that Yates is pushing unitization?

A. Yeah, I think it appears that Yates is pushing -- You can tell I didn't sign this letter; I hope you can tell that I didn't sign this letter.

Q. I see that, Dave.

A. Okay.

Q. But Mecca Mauritsen is --

A. Mecca Mauritsen is a Yates --

Q. -- an employee of Yates?

A. -- employee who's worked on this project as a landperson.

Q. Now --

A. No, I do not agree with the words in item number 1. I think that Mecca put item number 1 in her letter because Yates is purporting to represent in some sense the other minority owners in the State "S" 1, and the Wilsons, for one, were smart enough to figure out that the State "S" 1 was going to get more money if it stayed out of the unit.

Q. We'll get to that in a minute.

A. And so she had -- She had input from other people than me when Mecca wrote this letter. And item number 1 does not represent the input from Dave Boneau; it represents the input from some other people.

Q. Including other Yates people?

A. I really wouldn't say that, but --

Q. Yates looks out --

A. -- it's mostly --

Q. -- for its own interest, doesn't it?

A. That's not entirely true. We do some really goofy things sometimes, just because we think it's right.

(Laughter)

Q. Well, let's move on to item 4. Now, looking at Exhibit 1, you want to include a tract with -- I think you listed as Tracts 24 and 25, and that's --

A. Which one are we talking about?

Q. Exhibit 1. Looking down in Section 6, 16 South,

36 East --

A. I've got hold of the things here. Please tell me which --

Q. Section 6, down in the southeast corner of your proposal.

A. Oh, okay, surely.

Q. Sections 24 and 25, and there's a well on there, the Snyder -- the Gillespie Snyder "EC" Com Number 1, and you're proposing that that be included in the unit?

A. We're tracts 25 and 26? Are we talking about the Snyder --

Q. 24 and 25.

A. 24 and 25, 80 acres, including the 1 "EC" in --

Q. Yes.

A. -- Tract 24? Okay.

Q. Now, if you look at the letter I just handed you, Item 4, doesn't Yates request that that well stay out of the unit? I believe it's incorrectly referring to the -- as the "CE", but...

A. Okay, item 4 says something about keeping the "EC" well --

Q. So --

A. -- out of the unit.

Q. -- Yates made that request, and --

A. I --

Q. -- Gillespie --

A. I think you're -- Okay. Well, I would not say it the way you're saying it.

What I think happened was that Gillespie said they didn't want it in the unit, and then in a spirit of compromise -- I'm talking about Yates agreed that, If that's what you guys want, we'll leave it out of the unit.

And that was -- That's my understanding of the situation at that time. And you can tell me you me you don't like how Mecca wrote it, but that's fine. We were trying to agree with you and leaving the "EC" 1 out of the unit at that time.

Q. Now, I think you made the comment that the only way anybody's ever gotten any data here was by subpoena; is that correct?

A. I might have said those words. I meant something close to that, you know, what -- literally "only way". Gillespie does send us C-115s on the State "S" 1 most of the time. But to get information about the unit is about impossible from public sources.

Q. Let me hand you Gillespie Exhibit 29. Are you aware of Gillespie-Crow sending a substantial amount of data --

A. Oh, yes --

Q. -- on the unit?

A. -- I'm aware of this, and I asked them to send this, and they sent this in July.

Q. And that was --

A. But my point would be, this is substantial data, but they have taken, you know, 18 pressure surveys and we've gotten a handful of them.

We do not have -- You know, I told you that I don't want to spend the money to do a detailed reservoir simulation of this reservoir by a half-a-percent owner. But we -- Even at this time we don't have the data to do that if we wanted to do it.

Yes, you have sent us some data. You have sent us an inch of data. As a result of the subpoena I got maybe three or four inches of data. We've gotten some pounds of data. It's been relatively tough to get, and there's some we haven't gotten.

So I'm backing off that t's impossible, but it's not been a friendly, free exchange of information.

Q. Have Yates and Hanley voluntarily offered to give Gillespie or Enserch the Williamson study?

A. You're going to hear about the Williamson study, and I think what you're going to hear is all that exists at this time. There is no study to hand you.

Q. One final -- Let's go to your Exhibit 7, the production.

A. Okay.

Q. Okay. Now, if you look, like you said, early in 1996, the State "S" was not being produced as highly as some of the unit wells; is that correct?

A. I haven't found any unit wells produced that low, but yes that's correct.

Q. Since August, 1996, it's been the reverse, hasn't it?

A. Yeah, I think so. That's when we went -- when our request for Hanley to produce the well at what we thought they should --

Q. Okay.

A. -- had some effect.

Q. Now, there's about -- There are ten unit wells producing; is that correct?

A. That's my understanding, yes, sir.

Q. So if you look over in your column 3, you know, it's hard to pick out an average, but say a hundred -- over that time period the unit has been producing about 175 barrels a day --

A. We're talking about --

Q. -- per well, on average?

A. We're talking about the last half of 1996, essentially, is that what you --

Q. Sure, let's just take the last half of 1996.

150, 170 barrels a day per well?

A. The numbers for the unit are in that range, yes, sir.

Q. Okay. So 1500-plus barrels a day. And during that period the State "S" Number 1 is producing 400 barrels a day, 375?

A. (Nods)

Q. So the total production, looking at the West Lovington-Strawn Unit and the State "S" Number 1, the State "S" Number 1 is producing about 25 percent of production, isn't it?

A. 20 to 25.

Q. 20 to 25 percent?

A. Yeah.

Q. And the State "S" 1 well has 80 acres in that unit?

A. (Nods)

Q. And the West Lovington-Strawn Unit has about 1450 acres in it.

A. Uh-huh, and Gillespie operates all of them.

Q. So it's about five percent of the area of the unit, and it's producing 20 to 25 percent of the production?

A. That's right, in that context.

Q. Do you think that's fair?

A. Well, now we're back to October. I think we addressed this in October. What I think should have happened, and what I said should happen, Gillespie operates all the wells you're talking about, and they have responsibility to the unit and they have responsibility to the State "S" 1. I think they should have produced the State "S" 1 at allowable from the start and moved ahead with unitization.

Yeah, I agree with you that if the State "S" 1 produced for long periods of time at the situation you're describing, that that would turn in to be unfair, and the State "S" 1 needs to be brought into the unit, it needs to be operated as a unit well, it needs to get this together under a fair formula and charge forward.

And I'm just repeating that, you know, I felt that I have tried to do that, and I ain't got it done.

MR. BRUCE: I don't have any further questions. I'll pass it to Mr. Hall.

CROSS-EXAMINATION

BY MR. HALL:

Q. All right, Dr. Boneau, if you would, please, would you take your Exhibit 3 in front of you, please? Again, Exhibit 3, as I understand it, is another -- was sent out by Mr. Carr, your attorney. Page 4 of Exhibit 3 is the Exhibit A with the acreage description; is that

correct?

A. You're talking about a page that says Exhibit A at the top, like the fifth sheet?

Q. That's correct. And if you would compare the acreage description on Exhibit A to Exhibit 3 with your Exhibit 1, it's quite different, is it not?

A. Exhibit A includes the same tracts, but it includes more acreage than is shown on my Exhibit 1.

Q. For instance, most of Section 27 is deleted from Exhibit 1. Why is that?

A. Well, it never was in Exhibit 1. Mr. Carr -- and I can see how you were -- where you were confused by his wording, but Mr. Carr sent out --

(Laughter)

A. I've been confused by his wording sometimes too.

Mr. Carr sent notice and listed the leases that we were proposing to bring all or part of into the unit. And like I said, I could read his letter and make the conclusion that you're trying to represent, that he said he was going to bring all of 27 into the unit, and that's -- You know, that's not what it was intended to say, that's not what it says --

Q. I understand.

A. -- end of story.

Q. The point is, it's -- you're proposing on a lease

basis in either event; is that correct?

A. He gave notice to the lessees of those leases, and the notice was intended to say that all or part of your lease was going to be proposed for inclusion into the unit. And he accomplished that, and Exhibit 1 shows exactly what we're proposing to bring into the unit. And it does not include all of the lease V-3917 that's in Section 28 under Yates Petroleum. And if you got that impression, then our side kind of misled you, if that's what you're saying.

Q. I see. Well, I did want to clarify that. But if I understand that, the heart of your proposal, the heart of the Yates/Hanley proposal, is to participate in unit production on a lease basis. That's really what you're proposing, isn't it?

A. I'm not understanding what you're saying, Mr. Hall, I -- We're proposing that the reservoir covers the area in Exhibit 1 and that all that area outlined in red in Exhibit 1 ought to be brought into the unit, because all that area is contributing to production from the unit. And I'm not able to comprehend what you mean by "on a lease basis" without further description.

Q. Well, let me ask you this: Yates was aware of the prospect, likelihood of a unit expansion for at least the last -- what? 16, 18 months anyway, correct?

A. We thought in January, 1996, that it was going to

happen imminently, yeah.

Q. Yeah, and with respect to Exhibit 3, do you know if an application to the Oil Conservation Division was sent out to those interest owners, along with the notice letter in Exhibit 3?

A. Let's see if I understand what you're saying. We discussed -- or Yates' people and Mr. Carr discussed what was the appropriate way to hear both sides of this issue, and we discussed filing a separate case that specifically asked to do what we are -- want to do.

And the word I got back through hearsay, kind of thing, through the lawyers and the chain of people, was that the Commission preferred to do it the way that we went and did it.

Q. Did the Commission tell you that?

A. I was told that the Commission told Mr. Carr that.

Q. The Commission would rather not deal with formal applications; was that your understanding?

MR. CARR: I object to the form of the question. Dr. Boneau can tell you what he said, but you can't put words in his mouth.

THE WITNESS: All I know is that we talked about filing an application. That seemed like a reasonable way to go to me. The word came back that that was not going to

happen. We were going to do this because the Commission advised Mr. Carr that that was the way to do it.

Q. (By Mr. Hall) What was the application --

A. That's all I know.

Q. I'm sorry, what was the application to say, if you know?

A. I think it would essentially have said the two things that I said I'm here today seeking approval of. It would have said we're seeking approval of an expanded unit that includes what's shown in Exhibit 1, and we're seeking an allocation formula laid out that's different from what Gillespie has proposed --

Q. All right.

A. -- a specific allocation formula. It may have ended up saying some other kind of thing about the unit agreement or whatev- -- You know, who knows, once they start scratching things on the paper? But essentially it would have said those two things.

Q. Right. I assume we'll see your participation formula today, but --

A. Yeah, it --

Q. -- it's not been seen before now, has it?

A. No, and I don't -- Not that it's a secret. Our participation formula is 50 percent $S_o(\phi)h$, as drawn by our geologist, and 50 percent what's going to be called current

production or recent production.

Q. All right. But a proposed participation formula has not been sent out to the interest owners or reflected on Exhibit 3; is that correct?

A. That's my understanding, yes, sir.

Q. And it hasn't been provided to Gillespie-Crow or Enserch before today, has it?

A. Not that I know of.

Q. So it's safe to say, summarize, we're really here arguing over two things: the participation formula and the acreage?

A. I think so, yes.

Q. But Yates has no formal application before the Division for additional acreage. So all we're talking about, all that's on the table --

MR. CARR: I object to this unless it's proposed in the form of questions instead of testimony. He can ask the question, but he's testifying.

Q. (By Mr. Hall) Let's look again at your Exhibit 1 so we're sure how we're proceeding today, if you have that in front of you.

A. I see that, yes, sir.

Q. That's the acreage Yates would like to bring into the unit. No question about that, correct?

A. Yes.

Q. And included within that are Tracts 14, 22 and 23?

A. They must exist somewhere, yes, I see those.

Q. All right, and it's Sections 28 and 34, the Chandler and State "S" tracts?

A. You're referring to 12, 13 and 14? We're proposing that --

Q. Yes, I'm sorry.

A. -- that exist of 30 tracts, so any number between 1 and 30 is in there somewhere.

Q. You're correct, Tracts 12, 13 and 14 --

A. Yes.

Q. -- are included within the acreage Yates proposes?

A. That's correct.

Q. There's no question Yates does not oppose the expansion into those tracts, anyway? That's not an issue, is it?

A. No, no.

Q. All we're fighting about is participation at this point?

A. Well, you've proposed something, and we're here to argue how your proposal should be modified --

Q. And Yates is --

A. -- but we're not arguing that Tracts 13, 12 and

14 should not be in the expanded unit.

Q. All right so that is a non-issue in this proceeding?

A. That is not an issue in this proceeding.

Q. And you acknowledge that Yates is free to come back with a properly filed application before the OCD to expand into acreage other than Tracts 12, 13 and 14, and subject it to scrutiny in a proper proceeding --

MR. CARR: I will object to the question.

THE WITNESS: I have no idea --

MR. CARR: I will object to the question unless Mr. Hall will agree that contrary to prior positions he's taken, a nonoperator may file that Application to expand the statutory unit.

THE WITNESS: I have no idea. I just want this problem solved, and I've been told that this is the forum in which we're going to try to solve it.

Q. (By Mr. Hall) I would agree that anybody can file an application. There's not even a filing fee required. And it's going to be subject to a motion to dismiss at the appropriate time, if appropriate at that time, so not an issue about that.

Let me ask you, Dr. Boneau, you rendered some testimony about what you understood to be negotiations between the parties, good-faith negotiations or lack of

good-faith negotiations, in your view.

There was some negotiations, in fact -- There were negotiations, in fact, correct?

A. I wouldn't represent them as that, but there were some -- there was some communication.

We had a meeting and -- Do you want a short answer or a long answer?

Q. Well, let me ask you another question. At one point from the expansion into the State "S" 1, really, what it came down to, Yates wanted a participation factor for that acreage of 4.89 percent, Gillespie-Crow proposed 4.34 percent. Is that accurate? You had that --

A. At one time, those two numbers were on the table, yes.

Q. And wasn't there, in fact, an offer of compromise communicated to Yates to simply split the baby, split the difference of 4.6 percent? Do you acknowledge that?

A. No, that I understand, no. I don't -- I'm not aware that that offer existed.

Q. So you can't deny that that was communicated; you simply don't know?

A. At one point Gillespie offered to take our position on the issue of whether the Tracts 12 and 13 were -- commutized, I think, is the word I would use, into a spacing unit. But I didn't think that -- that did not

bring their offer up to 4.6 percent, according to my memory.

Obviously, we thought that offering 4.87 was a gift to you, to get the problem solved and out of our hair.

Q. That's as far as you went, correct, as far as you know?

A. Gillespie-Crow never made a meaningful response to that.

Q. To your knowledge?

A. To my knowledge.

Q. You wouldn't consider a 4.6-percent counteroffer meaningful; is that your testimony?

A. No, I never heard a 4.6-percent counteroffer.

Q. Well, my question is, would you consider that meaningful?

A. I would consider that -- Yes, I would consider that as indication that they were serious and wanted to do something. And as far as I know, that didn't happen.

Q. Dr. Boneau, you also testified about considerable delays that have been experienced during the course of this single application, and isn't it correct that one of the reasons for delay was, you were preparing a reservoir-simulation study, needed additional time to do that?

A. I think the little answer to your question is no, but obviously you're getting at something and I'm, you

know, not sure what it is.

Q. Well, Yates has retained --

A. I don't recall anything that said we need additional time to do a reservoir-simulation study. Maybe there was. I don't remember that. But there were letters that said Yates/Hanley needs additional time to prepare its case for this hearing.

Q. I see. You did commission a simulation study; is that accurate?

A. Yates and Hanley hired Williamson consultants to do a study, and he's going to be here quite soon to show you what that study is. I just don't feel comfortable characterizing it at this moment.

Q. All right, I understand. I'm just interested in the timing of events.

From your earlier comments I got the impression that the study is still not complete today.

A. There's no paper on which the answers are written down.

Q. All right. Are there some preliminary conclusions?

A. I sure hope so. He needs to say something here for us.

(Laughter)

Q. Dr. Boneau, what is your estimate of the primary

oil recovery for the State "S" 1?

A. I made one of those, and I don't remember what the answer was. I testified to that earlier, but I simply don't remember what it was. I can see the curve in my head, but I can't see the end of it. I'm sorry, I just don't remember.

Q. But you agree, there is not dispute over the fact that the State "S" has benefitted substantially from pressure-maintenance in the unit? That's not an issue here today, is it?

A. I think the State "S" 1 has benefitted, yes.

Q. Do you have an estimate of what production performance on primary production, without pressure maintenance -- remember that?

A. No, that's the -- That's the number I said I don't remember. That's what I would call the primary recovery, my estimate of the primary recovery from the State "S" 1, and I think I submitted that at the October hearing.

But I did do that once; I simply don't remember the answer.

Q. All right. Without pressure maintenance, would, in your view, the production curve have climbed rapidly, would it have remained flat? Can you say?

A. It would not have remained flat.

Q. What would have happened?

A. It would have declined, and I don't know that I'd characterize it as rapidly, but it would have declined, and it would have produced something like whatever number I calculated back at the time that I did that, that I can't remember.

Q. All right. Getting back to the participation factor, which is based on hydrocarbon pore volume, Yates was at 4.9, Gillespie-Crow at 4.3. Does that tell you that both sides' estimates are pretty close?

A. No.

Q. Substantial agreement?

A. No. It only tells me that Yates really wanted to settle this, and we just -- At the time you're talking about, we acted as if we accepted. We accepted that our negotiation between Gillespie and Yates would involve $S_o(\phi)h$ as the only parameter, which I think is ludicrous, but that we accepted that.

And we simply drew -- Actually, we used Tom Davis -- Tom Davis got up in the meeting and drew some lines that that was a reasonable $S_o(\phi)h$ in that area. We used his, we calculated it up, we sent you an offer.

But the -- And my main point is that we were negotiating at that time on your terms, and we were happy to do that, but we -- I didn't believe it, but we were

doing it to try to get rid of the problem, try to compromise and go away.

And we took an $S_o(\phi)h$ number that gave us 4.89, based on just a plain vanilla $S_o(\phi)h$ curve, in that area, that, as far as I know, Tom Davis got up in the middle of the meeting and just said, Mmm, mmm, and drew a couple lines and said, That looks good to me, as good as all the science is going to get after -- And we just went with that.

And we were -- Anyway, my point is, we were negotiating on your terms, and we were going what we thought was way down low to try to get the problem solved.

Q. You went as far as you thought you could go, anyway?

A. Well, using your methodology of $S_o(\phi)h$, we went to what we thought was fair. I didn't like that methodology, but we accepted that methodology, we drew what we thought was fair $S_o(\phi)h$ curve in the area of the State "S" 1, and we sent you an offer based on that. That's as much -- That's what we did.

Q. The incremental difference between 4.9 and 4.3, that's a small increment if that's the basis for fairness, is it not?

A. It's only a 15-percent difference.

Q. As I understand from your earlier comments,

really, the only reason we are here is fighting over some matter of principle; isn't that what you said earlier?

A. Yeah, I said something similar to that. I said that Yates has such a small interest in this that monetarily to our benefit would be to make some deal a year ago and take whatever we got of the unit.

We were treated really poorly, Hanley was just treated horribly, and it just came to a point where the way Gillespie was doing it was clearly wrong. And yeah, it became kind of a matter of principle that we're still here.

We have -- you know, I think -- I'm convinced that we have spent more money on this than we are ever going to get from the unit. And -- I mean, you've either got to be dumb or you've got to have some other reason, and, you know, we probably have both of those.

(Laughter)

MR. HALL: No further questions.

EXAMINER CATANACH: Mr. Carr?

REDIRECT EXAMINATION

BY MR. CARR:

Q. Dr. Boneau, let's go to my ambiguous letter of April 22nd, 1977 [*sic*]. Attached to that letter as Exhibit A --

A. This is Exhibit 3?

Q. Yes, sir.

A. The fat one? Okay.

Q. Attached to that is a property description. My question to you is, on April 22nd, 1997, did we even know what the final recommended unit boundary would be?

A. No, the answer to that is no. We drew this unit boundary after that date.

Q. Let's go to Mecca Mauritsen's July 2, 1996, letter that Mr. Hall has -- or Mr. Bruce, I guess, gave you, marked Exhibit 28, and let's look at the whole letter.

If we go to the paragraph that they directed you to, paragraph 1, it does say, "We oppose having the State S put into the Unit", correct?

A. That's what it says.

Q. If we go to the last full paragraph in the letter, it also reads, "We understand that you plan a series of pressure measurement tests that may include the State S #1. In order to better evaluate our position, we ask that you to provide us with all PVT..." data "...and pressure information from the Unit", correct?

A. That's what it says, yes.

Q. Is it fair to say you were continuing to evaluate your position?

A. Yes and --

Q. And what is your position today? Should the State "S" Number 1 be in the unit?

A. The State "S" Number 1 should be in the unit.

Q. And that was Tracts 12 and 13, correct?

A. Yes.

Q. And you stated that that wasn't an issue, that they should be brought into the unit; is that a correct statement of your testimony?

A. They should be brought into the unit, yes, sir.

Q. Is that -- Would that statement apply under the existing allocation formula in this unit?

A. Are you asking, should it be brought into the unit under the --

Q. -- present formula?

A. -- the present formula? That's not fair, but it needs to be brought into the unit, rather than stay out.

Q. When you recommend that these tracts be brought in, are you also recommending that the formula be changed so that they're brought in on a fair, reasonable and equitable basis?

A. Yes, very strongly. And as I've stated before, that's -- that's a huge issue for Hanley; it's a major issue for Yates.

Q. If we go back to the July 2nd, 1996, letter and we look at the second paragraph, numbered paragraph, it says, "If, over our objection, the Unit is expanded to include the State S #1, we propose a modification of the

hydrocarbon pore volume map..." That's what you said, correct?

A. That's what the letter says.

Q. Isn't -- Weren't you there seeking the same kinds of negotiations that Gillespie and Crow engaged in with Phillips to increase the hydrocarbon pore volume so you would come in on a fair, reasonable and equitable basis?

A. The simple answer to that is yes, but I don't have a whole lot of knowledge of what went on with Phillips.

Q. Dr. Boneau, if we look at your numbered paragraph 4 it says, "The data indicates that the "CE" well in Section 6 should remain out of the Unit. We do believe, however, that you must decide whether to include the "CE" well in the Unit at the same time you're determining the fate of the State S #1."

Do you see that paragraph?

A. Yes, surely.

Q. Does the recommendation of Yates and Hanley, address including both the "CE" and the State "S" Number 1 in this hearing here today?

A. Our proposal today is that both of those wells should be in the unit, as well as all the other acreage that's contributing.

Q. You were asked if it was fair to have 5 percent

of the acreage producing -- or receiving 25 percent of the production. Do you remember that question?

A. Twenty or 25. I remember that question, yes.

Q. Of that 20 to 25 percent of the production, doesn't Mr. Gillespie own 50 percent of it?

A. My understanding is, Mr. Gillespie owns like 31 percent of the State "S" 1 and Enserch owns 33, is the numbers I remember.

MR. CARR: That's all I have.

MR. HALL: One brief follow-up, if I might.

RECROSS-EXAMINATION

BY MR. HALL:

Q. Dr. Boneau, since you testified you're the *de facto* landman by necessity here today, I direct your attention back to Exhibit 3, which is the notice that your attorney sent out, the thick one.

A. The fat one, yes.

Q. The fat one. Has Yates received any consents from the royalty interest, from the working interest, the acreage reflected on Exhibit 3, or the expansion acreage Yates is proposing in Exhibit 1?

A. If I understand your question, Exhibit -- what I think is Exhibit 4 is the only response that we received to Exhibit 3.

MR. HALL: That's all I have.

EXAMINATION

BY EXAMINER CATANACH:

Q. Dr. Boneau, did this notice include a notice to royalty interest owners?

A. My understanding is, it included -- No, is my understanding. It included notice to lessees.

Q. Is your proposed unit expansion -- that's based upon a geologic interpretation that you've done?

A. That Hanley/Yates have done, that you will see that from the geology witness.

Q. Okay. What is your opinion on whether or not -- Do you think that it's reasonable to have development on this acreage before you bring it into the unit, or do you think your geology is sufficient to just bring it in without any proven production?

A. My experience with secondary recovery units tells me that you should always err on the side of making the unit too big, you should always bring in, at the first time, all the acreage that has a chance of being in the unit. And I agree that that's difficult when a unit is unitized, when the unitization takes place so early in the life of the pool.

But no, you've got to take in -- you've got to take in acreage that has $S_o(\phi)h$, whether or not it has a well on it. And in fact, in forming the unit, Gillespie

did that. Two of the tracts that they put into the original unit have zero wells on them.

Q. Can you give me your opinion on why using hydrocarbon pore volume is the only factor in determining the unit participation is not fair?

A. Okay. Hydrocarbon pore volume is always going to be subjective, which I consider a negative. And in this case, that negative is compounded by the fact that the hydrocarbon pore volume maps were made by one party, by the other party. The normal procedure is that the parties sit down and draw the hydrocarbon pore volume map together, so that everyone's subjective view is kind of integrated into the hydrocarbon pore volume map.

So this one -- You know, in this case I see two faults. One is just plain that it's subjective, and the other is that you're not seeing a group hydrocarbon pore volume map. What you're seeing are a hydrocarbon pore volume map made by Gillespie or a hydrocarbon pore volume map made by Hanley. You're -- In some sense, you're seeing the extremes; you're not seeing a result of an effort at compromise.

So I would much -- Well, I've never heard of a unit that had this kind of a formula, but you like to include some hard data in the formula, and you'd like the formula to be the result of negotiations between all of the

parties. And, you know, none of those things have happened here.

EXAMINER CATANACH: I believe that's all I have of this witness, Mr. Carr. He may be excused.

MR. CARR: That concludes our presentation of this witness.

EXAMINER CATANACH: Okay, let's take a short break here, ten minutes.

(Thereupon, a recess was taken at 9:48 a.m.)

(The following proceedings had at 10:00 a.m.)

EXAMINER CATANACH: Mr. Carr?

BRETT BRACKEN,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. Brett Bracken.

Q. Mr. Bracken, where do you reside?

A. Midland, Texas.

Q. By whom are you employed?

A. Hanley Petroleum.

Q. What is your current position with Hanley Petroleum?

A. Vice president of exploration.

Q. And are you by training a geologist?

A. Yes, sir.

Q. Have you previously testified before this Division or one of its Examiners and had your credentials as an expert witness in petroleum geology accepted and made a matter of record?

A. Yes, sir, I have.

Q. Are you familiar with the Application filed in this case on behalf of Gillespie-Crow, Inc.?

A. Yes, sir.

Q. Have you made a geological study of the Strawn formation in the area of the West Lovington-Strawn Pool?

A. Yes, I have.

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

A. Yes, I am.

Q. Are the witness's qualifications acceptable?

EXAMINER CATANACH: Yes, they are.

Q. (By Mr. Carr) Mr. Bracken, could you summarize what Hanley seeks in this case?

A. What Hanley seeks is an expansion of the West Lovington-Strawn Unit to include acreage that we expect to be affected by unit operations and that would also contribute reserves to the unit.

Q. Will Hanley also be seeking the adoption of a formula for the unit that will allocate substances to unit owners on a fair, reasonable and equitable basis?

A. Yes, sir.

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

A. Yes, I have.

Q. Would you refer to what has been marked for identification as Hanley Petroleum, Inc., and Yates Petroleum Corporation Exhibit 8? First identify this and then review it for Mr. Catanach.

A. Mr. Catanach, this is a 3-D seismic display of the top of the Strawn structure. The area that it covers is all of Section 28 and more or less the west half of Section 27, which is in 15 South, 35 East.

It is a one-inch-to-500 scale, the contour interval is ten feet. The bar scale on the left-hand column is an elevation scale. The darker oranges, shading to browns, represent a higher elevation, and any blues and greens represent lower elevation.

Starting at the bottom of Section 28, it depicts the structural position of our Hanley Chandler Number 1 at a minus 7557, just inside the 7560 contour.

Due east of that is our proposed location, the Hanley Number 1 State 28.

Continuing up in a northwest direction, you will see in the -- basically the upper two-thirds of the west half of Section 28, there's another positive area or high elevation, which is relatively the same position as our Hanley Chandler, which is a producing well.

This ridge, associated with it is an area of low amplitude on the Strawn reflector, which is indicative of mounding or porosity in the mound. So we feel that we have reservoir, we have established reservoir at the Chandler, and we feel that it continues up to the northwest.

I also would like to bring your attention to the lower right-hand corner of the map, and that shows another positive area, the importance of which we'll get into other exhibits.

Q. Mr. Bracken, this, in fact, covers the area immediately north of the current boundary of the West Lovington-Strawn Unit?

A. Yes, it does.

Q. And you have shown the location for the Hanley State 28 well just to the west of the Hanley Chandler Number 1?

A. Yes, sir.

Q. Yesterday that was represented as an abandoned location. Is that location abandoned?

A. No, sir, it's not.

Q. Will Hanley drill that well?

A. We would like to drill it.

Q. And what is delaying or has delayed the drilling of that well to date?

A. Well, we've been concerned about the problem with the unit, you know, the -- whether it's a commercial well or a noncommercial well. If it's a commercial well, then we're -- we know what's going to happen at this point; Gillespie is going to try to unitize it.

So we need to resolve this problem before we can move ahead.

Q. Do those same concerns apply to the development of the anomaly as shown north and west of these two locations?

A. Yes, sir.

Q. Let's go now to what has been marked as Hanley Exhibit Number 9. Will you identify that, please?

A. This is a 2-D seismic display of the top of the Strawn structure. As you can see, it covers most of the West Lovington-Strawn area, as well as the Big Dog and South Big Dog areas to the west.

The scale is one inch to 2000 feet. Contour interval is 50 feet. It was prepared by our geophysical consultant, Bill Collins. And I might mention that the first display was prepared by him also.

At the bottom it shows a little purple legend where it says zones of lower amplitude on the Strawn reflector, and that's depicted on the lines that this map was constructed from. These -- The lines that were used is data that we purchased.

Starting at the north portion of Section 1, 16 South, 35 East, which is where the Hanley -- Gillespie Speight and the two Ernestine -- Gillespie two -- the two Gillespie Ernestine wells are located, going from that direction northward, up through the southeast corner -- quarter -- of Section 28, 15 South, 35 East, we see a structural nosing in that direction.

Also, there is a low depicted, a low area depicted in the -- basically the west portion of Section 33, and it has a northeast-southwest trend that basically stops at about the southeast quarter of Section 32.

And just below that is a relatively low well in the north -- extreme northeast quarter of Section 2, 16 South, 35 East, and that's the Amerind well.

Also, going back to the shaded sections, we see -- of course, we see shading over a large part of the map. The ones I'd like to bring your attention to are the ones on line -- which start at line 4B. It's a north-south line that runs along the east section line of Section 28. Where that intersects line H4 -- I mean H3, which is the

east-west-running line along the south section line of Section 28, where those two cross there is a shaded area. And we saw an anomaly in the Strawn reflector which we feel was indicative of Strawn porosity.

Also, if you'll continue eastward on line H3, the east-west line running along the south section line of 28 -- it's also the north section line of Section 34 -- we see some shading on it as well.

Another portion of shading in the northwest quarter of Section 34, there's a northwest-to-southeast-running line that basically ends up in the northwest quarter of Section 4. There's some shading also there. This is important now that we feel that there is reason to believe that there's reservoir-quality rock in these areas.

Also, you'll note that there is some nosing in the northeast quarter of Section 34.

I'd like to also bring your attention to the -- back over to Section 32, 15 South, 35 East. There's two lines there that cross essentially in the middle of section lines 20, which is a southwest-to-northeast-running line, and line 5-1, which is a northwest-to-southeast-running line, and also crosses over a well that would be in unit letter F, I believe, of Section 32. That is the -- And there's a minus 7424 subsea depth there. That's the Mitchell Number 1 Baer, which is now the Gillespie Number 1

Baer.

There is shading on those two lines at that point, and it is my opinion that that -- if that is reservoir quality, which we -- or reservoir rock, which we believe is there, that that is associated with the Mitchell Number 1 Baer well. And it is a -- It's part of the Big Dog-Strawn field, I believe.

Q. Mr. Bracken, when we look at this exhibit, doesn't this basically show us that this reservoir consists of a number of interconnected mounds?

A. Yes.

Q. From a geologic point of view, do you believe that these would be -- this entire area, affected by unit operations?

A. Most of the area would be, yes.

Q. When we look at this seismic information, does it suggest a separation on the west side of what is now the unit from the Big Dog Strawn area to the west?

A. Yes, it would suggest that.

Q. And would it suggest that the reservoir does not go to the west boundary of the unit as previously mapped?

A. Yes, sir.

Q. Anything else you'd like to present with this?

A. I think that's it.

Q. All right. Let's go to Exhibit Number 10. Would

you identify that, please? What is this exhibit?

A. Exhibit Number 10 is a top-of-Strawn structure constructed by me. It incorporates well control, 2-D and 3-D seismic data. It is one inch to 1000 feet scale, and the contour interval is 20 feet.

The green-shaded area, or green outline, is the outline that Hanley proposes as the unit boundary. And the pink-shaded line is the current boundary operated by Gillespie. And the two 80-acre tracts that have the hachured infill are the two tracts proposed by Gillespie to bring into the unit.

Again, it shows the structural trend basically in a north-south direction, or south to north, however you want to look at it, running from the Tracts Number 2 and Number 5 of the unit, which is the north two-thirds of Section 1, 16 South, 35 East, running north up through our Hanley Chandler and then skewing off to the north northwest.

Again, I'd like to bring your attention to the trough or low area running from -- in a northeast-to-southeast direction from the northwest quarter of Section 33, trending down through in a line toward the Gallagher -- excuse me, the Amerind Number 2 Gallagher State, which is in Section 2 of 16 South, 35 East.

It's based on the seismic and testimony about the

Big Dog Strawn and the fact that these two -- that this field is separate from the West Lovington-Strawn, is my interpretation. There has to be some kind of a barrier that separates these two areas, and I would like to suggest that this low area is probably an area that was possibly a title search area channel or a lagoonal area that separated these two mounding complex.

Again, up in the northwest quarter -- excuse me, the northeast quarter of Section 34, I have shown a -- and basically the south central part of Section 27 of 15 South, 35 East, I've indicated a nosing in that area also.

Q. Anything else with Exhibit Number 10?

A. I believe that's all.

Q. Let's go, then, to Exhibit Number 11, your top Strawn mound porosity map.

A. Mr. Examiner, this is the top of the mound porosity. The scales are the same, the shading is the same.

The reason I've chosen to do a map on the top of porosity was, the top of the porosity is actually the top of the reservoir. And so by seismic, what we pick on the seismic is really not the top of the reservoir. So all I've tried to do is depict what is a better expression of what the reservoir looks like as far as the topography.

And again, we see the same structural trend that

I mentioned earlier, the north-south trend running through the center part of the unit up through our Hanley Chandler area and then skewing off to the northwest.

I might mention that the dashed line around the perimeter of the contours is what I have interpreted to be the zero line or zero-porosity point.

I have also interpreted four productive what I call mounds, and they're depicted by the contours that are closed. One of them would be -- Starting at the north would be the Hanley Chandler and then the West Lovington-Strawn Unit Number 11 well, and then the big closure to the south, which is pretty obvious, and then moving over to the east, in the west half, the south half of the west half of Section 34, I have a closure depicted around the West Lovington-Strawn Unit Number 9 well, and then another closure depicted around the Gillespie Number 1 State "S".

The reason I did this is, if you look at the way the pattern in which the wells were drilled, you can make some -- draw some conclusions from what possibly could be going on.

If you look at the State "S" well in the west half of the southeast quarter of Section 34, they pushed their well as close to the eastern line of that proration unit, which tells me that they felt like they had a separate mound or closure there, and I believe they've

already testified to that, they believe that.

And then up in the northern portion of Section 33 -- Let's go down to Tract 8 of Section 33, which would be unit letter -- which is where the West Lovington-Strawn Unit Number 10 well is located, if you'll notice, they drilled that well as far south along that line as they possibly could.

And then they stepped up to the north and drilled their West Lovington-Strawn Unit Number 11 well. And the conclusion I draw from that is that they again thought they had a separate amplitude anomaly, closure, hence another mound.

And as also you can see, we've got the high area in the west half of Section 28, the -- basically the top two-thirds of the west half of Section 28.

I think that's all I'd like to say about that.

Q. Mr. Bracken, on the unit itself you don't have 3-D seismic, do you?

A. On the unit itself, no, sir, we do not.

Q. You have some 2-D on that?

A. All we have is 2-D.

Q. And what you've done in mapping within the unit area is, you have, one assumed that they drilled the wells at the best location they could --

A. Exactly.

Q. -- and then you have integrated into that your 2-D seismics?

A. Yes, sir.

Q. All right, let's go to Exhibit Number 12, the Strawn mound net pay isopach.

A. Mr. Examiner, this is the Strawn mound net pay map, also constructed by me. The scales are the same. Contour interval, all that, is the same. Shading is the same.

The data points or the numbers that I've used for net pay are based on a 3-percent or better density porosity cutoff and a less than 40-percent water saturation. Except on Tracts 10 in the north part of Section 33 where we have the West Lovington-Strawn Unit Number 11 and to the south of that the West Lovington-Strawn Unit Number 10, we picked a -- water contacts in those two wells, so we assumed everything below that water contact is nonpay.

Again, what it shows is reservoir to the -- in the western portion of Section 28, northwest of our Hanley Chandler well and the Hanley 28 location, as well as porosity or reservoir to the east of the Chandler well.

I've also interpreted porosity in the northern -- or the northeast quarter of Section 34, primarily Section -- or Tract 19 and the west half of Tract 20, and I've also indicated some porosity in the very southern part of Tract

28. And if you'll remember on the 2-D seismic, at about that point we had an amplitude anomaly through that area, so that's the basis for bringing that line up through there.

And again, moving down in -- clockwise along the map where the Gillespie Number 1 State "S", I've interpreted porosity beyond the eastern boundary of that 80-acre tract due to the fact that Gillespie drilled their well so close to that line.

And also the Bridge Oil Number 2 Julia Culp, as Ralph Nelson testified earlier today, did drill stem test that well, they did get some gas on it, and it is in my opinion that this well could possibly have produced, albeit it would be a marginal well. But that is the reason that I brought the zero line so close to that. It appears to have mound-quality rock.

Q. If we look in Section 28, you've got as much as 40 feet of porosity; is that right? In that northern mound?

A. Yes, sir.

Q. How many feet of pay did Gillespie assign to the Chandler Number 1?

A. I believe it was 17 feet.

Q. And how many are you assigning to that well?

A. Twenty-five feet.

Q. Is it your understanding that part of the pay was discounted by Hanley because of it deemed wet -- I mean by Gillespie because it was deemed wet?

A. I would assume so.

Q. Are you experiencing S_ws anywhere near the 40-percent range in that acreage?

A. No, we are not.

Q. When you look at this reservoir, are you seeing a common oil-water contact throughout the reservoir?

A. No.

Q. Let's go to your Exhibit Number 13, your cross-sections A-A' and B-B', and I'd ask you to review those and especially note the water contacts you see on there, on those cross-sections.

A. Mr. Examiner, this is a combination of two cross-sections I've constructed. The scale is -- The vertical scale is 2.5 inches to 100 feet, and the horizontal scale is one inch to 500 feet. Both wells are hung on a subsea datum of minus 7600 feet, and the -- on the lower right-hand corner of the display is a -- just a map showing the unit as it is now, and Hanley's proposed unit boundary, as well as the section lines, cross-section lines.

If I can bring your attention to the top cross-section, which is a west-to-east cross-section running from the Amerind Number 1 West State, eastward to the Gillespie

Number 1 State "S" well.

And if you would go to the third log from the right-hand side [*sic*], which is the Gillespie Number 1 Hamilton Federal, at a depth of 11,490 or so, there on the right-hand track -- excuse me, the left-hand track of the log, there is a shift in the gamma -- That is the gamma-ray track, and there's a shift from the left to the right.

Continue over to the next log to the right, which would be the fourth well from the right, the Gillespie Number 2 Hamilton Federal, at a depth of 11,558, I believe. Notice again, on the left-hand track, the gamma-ray track, there is a character change again. The gamma ray this time goes from the right and shifts back to the left.

Continue moving to the right. The next well over, which would be the Gillespie 2 Snyder "S" Com, we see another character change at 11,528, I believe, on the left-hand side, the gamma-ray scale. And associated with that, on the right-hand track, which is the porosity curves, there's a tight streak. It's my opinion that these character changes are indicative of the -- basically the top of one mound and the base of another mound. So in other words, we have not just one mound but multiple mounds.

Move on down to the second cross-section, the lower cross-section, which is cross-section B-B' -- Let me

back up to this first section.

What I've -- All I have correlated is the top and then the bottom, and the bottom is pretty well marked by it. There's a hot streak there that is pretty well correlated throughout the area. I have not made any detailed correlations between logs concerning these -- that moundal -- the proposed moundal boundaries. It's impossible to do, and I will show on another exhibit why it's impossible to do.

Going to the lower cross-section, B-B', again if you'll start -- which is a north-to- -- excuse me, south-to-north cross-section and it starts at the Speight, Gillespie Speight well, and runs up to the north to our Chandler well.

If you'll bring your attention to the fourth well from the right [*sic*], which is the Gillespie Number 1 Wiley Fee, again at a depth of 11,570, there is a gamma-ray change again on the left-hand track, the gamma-ray track, and associated with that on the right-hand track, the porosity scale, you'll see a tight streak.

If you'll move down in -- continue down into that same well, it appears from the gamma ray that we're still in one mound. But moving on down to 11,613, I have a dashed line going through that log, and I have interpreted that to be the oil-water contact in that well, which I

believe is the same oil-water contact depicted -- or testified to by Gillespie, and it's at a minus 7616.

If you'll move to the next well to the right, which is the Gillespie Number 1 Klein Fee, again we see -- if you'll notice, on the left-hand track there's several gamma-ray shifts. But I'd like to bring your attention to the depth at about 11,622, -20 or -22. Again, we see a shift in the gamma ray. And it's the -- Again, it's the left-hand scale, gamma ray. We see a shift from the right to the left.

And associated with that, on the left-hand track of the -- excuse me, the right-hand track, which is the porosity scale, we see a tight streak. And at about that same point I have a dashed line going through there, and that is the oil-water contact in that well at a minus 7625. That is nine feet low to the contact in the Wiley Fee.

Also note that I have not drawn a water contact in the Chandler well.

Q. You see no oil-water contact in the Chandler?

A. I do not see an oil-water contact in the Chandler well.

Q. You see a nine-foot variation between the Wiley and the Klein well in the oil-water contact?

A. Yes, sir.

Q. Let's go to Exhibit Number 14. Would you

identify that, please?

A. Exhibit Number 14 is a log analysis of the Wiley Number 1 Fee and the Klein -- the Number 1 Klein Fee. They're the two wells in the cross-section that had the indicated water contacts. This is an analysis, it's in a tabular form, it was done by TerraSciences in Houston.

And if you'll start at the Wiley Fee analysis and go to page 2, at a -- The depth track or depth column is the far left column. Go to a depth of 11,613. And then you go all the way to the right, which is the water-saturation column. And it's in a decimal form, but at 11,613 the water saturation is a .1957 or 19.5 percent. And immediately below that at a depth of 11,614 the water saturation jumps up to a .3754, which is 37.54 percent. It's at that depth that we've interpreted an oil-water contact.

Now, if you go to the next display in that exhibit, which is the Klein -- analysis done on the Klein Fee, and also go to page 2, again, the depth column is the far left column. Go to a depth of 11,622. Find that depth and go immediately over to the far right-hand column, which is the water-saturation column, and at 11,622 the water saturation is .1691 or 16.91 percent. And if you go the next depth below that at 11,623, it jumps up to .4999, which is 49.99 percent.

Q. In your mapping, have you used a common oil-water contact throughout the reservoir?

A. No, I have not.

Q. Have you honored these variations in your mapping of the hydrocarbon pore volume in this reservoir?

A. I'm not sure I understand your question.

Q. Have you honored the variations in the water contact, as opposed to using a common water contact --

A. Yes, I have.

Q. Let's go to Exhibit Number 15, a two-well cross-section. What does this show?

A. Exhibit 15 is a two-well cross-section using dual lateral logs from the Gillespie Number 1 Wiley Fee and the Gillespie Number 1 Klein Fee.

The left -- the well on the left-hand side -- Excuse me, the scale on this is again 2.5 inches -- vertical scale is 2.5 inches to 100 feet. There is no horizontal scale. And it is hung, again, on a subsea datum of minus 7600.

Go to the left-hand log. If you'll, again, go down to a depth of 11,613, I have a dashed line across there. And if you'll go across to the right-hand track of that log, which is the resistivity curve log, the lateral log curve, you'll notice that there's a shift in the curves from the right to the left. And it's at that point that we

see, visibly see, the oil-water contact.

If you will move to the next log to the right, the right-hand log, which is the Klein well -- and again, I'd like to note that -- bring your attention to the fact that this well is farther north, or downdip, you might say, than the Wiley well.

In that log, if you'll go to the depth of 11,622, again I have a dashed line which is right about at the character change on the gamma ray. If you'll go to the right-hand track, again, we see a shift in the curves from the right to the left, and again I think it's an obvious contact at that depth.

I believe that's all I have to say about that.

Q. What is Exhibit 16?

A. Okay...

Q. Would you explain --

A. I'm sorry, I couldn't find the number on that one.

Exhibit 16 is a schematic of an actual outcrop in the Beeman Canyon area on the west flank of the Sacramento Mountains. This canyon area is a -- or this outcrop is roughly 2.5 miles north-northeast of Alamogordo.

If you go to the last page on the exhibit, there's a map that shows the area, and it's kind of hard to see, but in a dark line you can see the line of section,

and there's triangles around numbers. Those numbers represent measured sections that the author who constructed this schematic, he -- those are some measured sections that he actually did.

This line of -- This schematic or this outcrop trends from the right-hand side of the display, from the southeast, to the northwest. And each -- there's a scale -- Forgive me but when I xeroxed this thing I accidentally cut off the bottom part of it. There's a horizontal scale there.

Q. On page 1 of your exhibit --

A. On page 1 of the exhibit. But the actual distance -- and you can see on the index map on the back that the actual length of this section is about 2.5 miles, which is essentially the same lateral distance on the West Lovington-Strawn Unit from a north-to-south direction.

The vertical columns on this schematic represent measured sections. And I don't know if you know what a measured section is, but what it is is that a geologist goes out on the outcrop with a tape measure and a notebook and actually examines the rock outcrop with a micros- -- magnifying glass, describes it, measures it. And then whatever parts of the outcrop that he can't climb on, whether it's too steep or whatever, he backs away a hundred yards or a quarter of a mile or half a mile and sketches in

the rest of the outcrop.

What it shows is, he has identified three mounds in this schematic. You see the tail end of one on about the middle part of -- halfway down on Section 21, and then -- and it's separated from the rest of the other mounds that you see, Core Number I, Core II and Core III.

What it shows is, is that there's -- he's identified three mounds with distinctive boundaries between those mounds, and that they offlap into the Basin, which would be the -- going to the left on the schematic.

And what I'd like to do is just kind of as a demonstration, to make a point, is that if we were -- if you were to assume that these sections were just wellbores and that was the only thing you could see of this mound complex, you'd be forced to change your correlations. The only thing you'd be able to do is correlate the top of the mound and the base of the mound, but you wouldn't be able to make any detailed correlations in between.

So that is depicted on the next page. And forgive me, it's simplistic, but this is what we've done on our cross-sections. It's basically what Gillespie has done and I have done. It's really the only way to do it. But the point is that you cannot see the complex nature of the reservoir with a cross-section like this.

Go to the next display. What I've done is, it's

another -- try to make another point -- is I've taken Core Number II and I've colored in a portion of it. And let's just play a game. Let's just say Measured Section Number 17 represents the Gillespie Number 1 Wiley well with an oil-water contact at -- where I've shown it.

And then let's play again, let's say that Measured Section Number 30 represents the Klein well, downdip, but a different oil-water contact, probably due to the fact that there's two mounds.

And then somewhere in between the Sections 30 and 31, moving to the left, or downdip, basinward, somewhere in there would be a position roughly equivalent to our Chandler well. And then continuing further to Section 31, that would represent an undrilled location with mound-quality rock, oil-bearing, downdip from water.

I know this is a -- I realize this is an oversimplification, but it's a possible explanation for different oil-water contacts. I think that's all.

Q. And this just is an example of how you can have the varying oil-water contacts in a reservoir with multiple mounds, like what we're dealing with here?

A. That is correct. And I'd like to bring up one other thing. I've done a literature search on these mounds, and again I think that Ralph testified that this is an unusual, complex -- or an unusually large reservoir.

And if you go over to the east of this -- the West Lovington-Strawn area, in the Shipp-Strawn, the Humble City, the Northeast -- East Lovington area, the mounds over there, I agree with Ralph that typically you see one-, two-well fields. You just -- One, two wells, sometimes -- sometimes four. And it's -- this is unusual.

And so in my search of literature, there's another area on the Eddy-Lea County lines in Township 19 South, there's the Lusk-Strawn field, and it's quite an extensive area. It -- I don't know, I'd estimate there's probably 30 sections that have -- inside the field. And in fact, at one time it was unitized, the Lusk-Strawn unit.

The literature in that, the person that wrote the article, Dewey Thornton, he's an independent geologist -- well, he works for Moncrief in Midland. He wrote an article in that, and it's on that field, and it's in the *AAPG Journal*. And they identified three oil-water contacts in that field.

Q. And that's the Lusk- --

A. The Lusk-Strawn.

Q. -- -Strawn field.

In mapping a reservoir of this nature, if you just use a simple one oil-water contact reservoirwide, aren't you really taking too simple an approach?

A. Yes, you are.

Q. Let's go to what has been marked as Yates/Hanley Exhibit Number 17, your Strawn Mound hydrocarbon pore volume map.

A. Okay. Mr. Catanach, this is a map of the hydrocarbon pore volume feet. Contour interval is one hydrocarbon pore volume foot. Everything else is pretty much the same, it's -- the scale and outline have not changed.

And it's simply -- It's based on my interpretation of all the previous data, the best I could, with no goals intended, and it's what I believe is the actual representation of the hydrocarbon pore volume feet in this reservoir.

The outline that goes around -- The green outline is based on what we call at Hanley a 40-acre rule. Wherever the zero line shaved a tract, nicked it or whatever, then we brought that 40-acre tract in. And really, we felt like that was the only -- trying to find a uniform way to do it and a fair way to do it, and that's what we felt like that was, so that's what that's based on.

The only exception to that would be down in the lower or the right -- lower left corner of the unit, down where the Gillespie 8 State "D" well is. We had to make an exception there because they have stated that this well is in a different reservoir, possibly, than the South Big Dog-

Strawn. And we don't have a log on it and we have no way to dispute that, so I'm assuming that they're right. And so we had to leave it out.

Q. Now, Mr. Bracken, just in summary, what did you use to define the northern boundary of the reservoir?

A. It's seismic.

Q. And on the eastern side, what actually were you utilizing?

A. Seismic.

Q. And did you -- And data from the State "S" Number 1?

A. Yes, sir, well control and seismic.

Q. Did you have well control along the southern boundary of the unit?

A. The southern boundary. Yeah, there's some well control.

Q. And basically how did you construct this line? Was it the seismic --

A. Well, the lower part of the unit, we really don't have any data down there, so we depended on Gillespie's map in that area. We had no other choice. So we pretty much left that as it was.

Q. Okay. And on the western boundary of the reservoir, how did you pick that line?

A. That's based on our interpretation of the

seismic.

Q. And the low that you saw running across that area that would separate the West Lovington-Strawn from the Big Dog off to the west.

A. (No response)

Q. What conclusions have you drawn from your geological study of the area?

A. Well, there's a substantial amount of acreage that is not -- or that is -- will be affected by unit operations that is not in the current boundary, as it's depicted by the pink line.

And that also we're dealing with a complex reservoir with multiple mounds, and we feel that our depiction of the hydrocarbon pore volume map is the most correct way to draw it, based on the data as we see it.

Q. Were Yates/Hanley Exhibits 8 through 17 prepared by you or compiled under your direction?

A. Yes, sir.

MR. CARR: At this time, Mr. Catanach, we move the admission into evidence of Yates/Hanley Exhibits 8 through 17.

EXAMINER CATANACH: Exhibits 8 through 17 will be admitted as evidence.

MR. CARR: And I pass the witness.

MR. HALL: May we take a break?

EXAMINER CATANACH: How long?

MR. HALL: Ten minutes.

MR. BRUCE: It might shorten up the cross-exam.

EXAMINER CATANACH: All right, let's take ten here.

(Thereupon, a recess was taken at 10:53 a.m.)

(The following proceedings had at 11:07 a.m.)

EXAMINER CATANACH: Gentlemen, are we ready?

MR. HALL: Ready, sir.

EXAMINER CATANACH: Mr. Hall?

MR. ROSE: Mr. Examiner, if I might I think I may be revisiting the admission of a couple of exhibits here. I think they went in without objection. I don't -- Frankly, I didn't hear their admission; it's my problem.

But I do want to ask the witness -- voir dire the witness a little bit on a couple of the exhibits, if I might. You might reconsider the admission of a couple.

MR. CARR: I submit they've been admitted. If you want to question when they go in, you need to do it then.

He can ask his questions.

EXAMINER CATANACH: I think they have been admitted, Mr. Hall.

MR. BRUCE: I would second his motion. I didn't hear that right at the end. I was talking with the

witness.

MR. HALL: Let me state the problem for the record. There was no foundation given to their admission, primarily Exhibits 8 and 9, which I understand off the record were prepared by someone else -- Phil Collins; is that correct?

THE WITNESS: Bill Collins.

MR. HALL: Bill Collins. They were the 3-D and the 2-D?

EXAMINER CATANACH: Are you objecting to these being admitted, Mr. Hall?

MR. HALL: Well, there was no foundation given for their admission. At this point I'm simply stating an objection for the record. I believe the witness testified he did not prepare these, and I don't think he was even asked whether he reviewed them or the methodology he used to correlate them and substantiate them at all. So it's a foundational objection.

I understand the Examiner has ruled, and I'll accept that. I do want to state an objection for the record.

But if I might ask him a little bit more about those two exhibits --

EXAMINER CATANACH: Okay.

MR. HALL: -- he testified about.

CROSS-EXAMINATION

BY MR. HALL:

Q. Dr. Bracken, with respect to Exhibits 8 and 9, your seismic maps you brought, did you bring any of the underlying seismic data with you today that we could see?

A. No, I have not.

Q. Now, I understand from your testimony Exhibits 8 and 9, the seismic maps, they are done -- the seismic methodology itself, if you can testify to this, it's done in time, but yet Exhibits 8 and 9 show depth; is that correct?

A. Correct.

Q. Do you know how the time is converted to depth, if you now?

A. I'm not a geophysicist.

Q. So you can't testify about how that is done?

A. No.

Q. It's safe to say that you need wells to calibrate what's shown on Exhibits 8 and 9?

A. Sure.

Q. Otherwise Exhibit 8 and 9 is simply interpretive? It's exploration geology; is that accurate?

A. It's interpretive, but we had a sonic on quite a few wells in there that -- used for calibration, at least o the 2-D.

Q. The primary purpose for use of information like this, a 2-D and 3-D seismic circumstance like this, is for exploratory purposes; is that correct?

A. Sometimes.

Q. In this case?

A. I'm not sure what you mean by the question. I mean, what we do is, we bought the seismic and had it interpreted, and we came back through with our 3-D to give more credibility to the 2-D, and we -- it's -- I think every well in here is somewhat of an exploration well.

When you're drilling mound wells, you're never quite sure what you're going to do. In fact, they've already testified that they thought they had one separate mound, and it ended up being connected. That was from seismic.

Q. All right, so we agree on that.

Did you happen to bring a time map, have any time --

A. No.

Q. -- maps for us to look at?

How about a velocity map?

A. No, sir.

Q. So there's no well control, as I understand it, to calibrate the time to depth, or can you say?

A. Yes, there is.

Q. What is that?

A. The wells in the West Lovington-Strawn Unit were used --

Q. To calibrate time to depth? Can you show me where that might be on Exhibit 8?

A. It's not on Exhibit 8.

Q. So there's no well control to calibrate anything on 8 so -- Correct?

A. That's correct.

Q. Now, you did prepare Exhibit 10?

A. Yes, sir.

Q. In your view, don't the information shown on Exhibits 10, and then compare it to 8 and 9, they don't compare favorably, do they? They're quite different. Would you agree?

A. I would say they're quite different, not at all --

Q. In fact --

A. I would say -- I would say the northern portion up in our Section 28 -- basically, I took an overlay, overlaid this map and drew the contours.

Q. I see.

A. I didn't -- it's -- The only reason it looks a little different is the fact that it's on a different contour interval. This is a 10-foot contour interval, this

is a 20-foot contour interval.

Q. On 10 --

A. I prefer 20-foot contour interval.

Q. All right. On 10, your pick on the Yates well, the Bridge Oil Culp Number 2, do you have that log from that well available to us here today?

A. Lets see, I believe it's on the cross-section.

Q. Oh, I'm sorry, the Chambers.

A. The Chambers?

Q. It's in the east half of 27, the Yates 1 Chambers.

MR. BRUCE: Northeast quarter, southeast quarter, Section 27.

THE WITNESS: I don't have it here today, but I do have a log on that well.

Q. (By Mr. Hall) Will you make that available to us?

A. I can -- well, I -- Yes, I can.

DR. BONEAU: If he can't, I can.

(Laughter)

THE WITNESS: I say I have a log. All I have is a xerox portion of the -- basically the few feet above the Strawn and a few feet below the Strawn. That's all I have.

Q. (By Mr. Hall) Dr. Bracken --

A. I'm not a doctor.

Q. Oh, I apologize, I beg your pardon.

A. My dad was, but...

Q. Hanley proposal for the 28-1 in the southwest of Section 28 --

A. Yes, sir.

Q. -- why is that location not dead center on the top of the mound you identified?

A. Why it's not dead center on top of the mound? I'd have to shift the mound over to get it dead center.

Q. Why aren't you proposing one in the center of the mound?

A. Where would you like to pick that location? I don't know what you're asking me. I can't move the mound. I have to drill that lo- -- We have to drill that location there because it's the only place you can.

Q. Why can't you move further up into Section 28 and drill a high spot?

A. We plan to, if we could ever get this situation resolved. We would love to drill up there.

Q. Well, isn't that the better acreage? Wouldn't you rather drill that first?

A. Which, the --

Q. The northern location in the center of the mound?

A. There are some in our company that do feel that is a better location. Common sense would tell you don't,

just to not step out. You drill your least risky wells first --

Q. Right, you want to --

A. -- then move out.

Q. You want to corner-shoot the unit as much as you can?

MR. CARR: I object to that characterization. I mean, he wants -- the locations are obviously where they are, they're standard locations and it's -- to call it a corner shoot is a cheap shot.

Q. (By Mr. Hall) Let me rephrase. You want to crowd the unit as much as you can?

A. I don't want to crowd it.

Q. You want to get as close as you can to --

A. We have reserves under our location. We would like to recover those reserves.

Q. Yeah. Do you think you have more reserves further to the north where it's the high spot?

A. Well, I'm not an engineer. We have a man that's going to answer those questions.

Q. Let's look at Exhibit 13 if you would, please, sir.

A. Can you tell me which one that is, because --

Q. Thirteen, it's the first cross-section.

A. Okay.

Q. With respect to this exhibit, why don't we start with your geologic description of the reservoir? What's its lithology?

A. Limestone. More detail? It's a phylloid algal mound complex.

Q. All right. In your picks on Exhibit 13 you were trying to pick the top of the lime; is that fair to say?

A. Yes, sir.

Q. Let's look at the log for the A-A' line, the Bridge 2 Julia Culp well on the right. If you would refer to your pick for the top of the lime there and then refer over to the PE curve. Do you have that spot?

A. Say again?

Q. If you would refer to the PE curve on that log, over on the right side. Are you with me there?

A. Yeah. Without a heading I'm not sure which -- I believe it would be the second curve on the --

Q. On the depth column?

A. Right.

Q. Second curve to the right of the depth column. I think we're in the right -- in the same place.

Now, your pick as I'm seeing it -- Am I correct that you've, in fact, picked the shale there where you've drawn your line?

A. Yeah, if you'll look at the -- just explain what

I did. If you'll look at the porosity track, which is the right-hand side, there's a distinct shift in porosity. You know, you see the curves at that shelf peak, and above that, they're kicked way out toward the center of the log, toward the depth column. And at that point where I've drawn the line, the curves take an immediate shift to the right.

Well, the -- Associated with that on the sonic logs there's also a velocity change. And so I picked that point because I felt like that point is the point at which the seismic is going to see a velocity change.

So in order to get a more accurate depth to seismic or whatever that -- That's the reason I've done that. I wasn't necessarily picking a top line; I was picking a correlation point. And I just -- I have chosen to call it the top of the Strawn. I don't think there's any question that that shale correlates all the way across there.

Q. All right. But you're not saying, as I understand, that that is necessarily the top of the Strawn. You're saying that's the correlation point only?

A. I would choose to call it the top of the Strawn. Somebody else might not. That's common.

Q. All right.

A. No two geologists agree on things like that,

that's common.

Q. Wouldn't you agree that the kick to the right for the PE curve at about 11,510, 11,520, would be a limestone kick?

A. I can't -- Honestly, I cannot remember the PE cutoffs. So, you know, to say a definite yes or no, I'd have to look at my chart book. But that is probably a reasonable assumption to make.

Q. All right. Let's look at the same thing for the Hanley 1 Chandler on your B-B' line. It's the well log to the right side.

Now, the correlation you reflect there for the 7600-foot interval, what is that? Is that the shale again? What is that?

A. The 7600 line is the subsea datum that the logs were hung on.

Q. Right. So it's the heavier line on top of that, that's your shale pick; is that right?

A. Yeah, there's a correlation -- It's the first heavy line --

Q. Right.

A. -- is my correlation.

Q. And likewise, you're not saying that that particular line is necessarily the top of the limestone?

A. Yes, yes.

Q. And it's also reasonable to say, if you come down the PE curve again at about the 11,700 depth area, that it shows a limestone kick there?

A. 11,700? It's pretty consistent all the way down from --

Q. I'm sorry, I'm way off. I can't read these very well.

How about the 11,057? Are you with me? 11,574? Have you got a point on there?

A. Yeah, there's a shift there.

Q. Would that indicate a limestone kick to you?

A. Again, you know, I have to quality if because I can't remember what the cutoffs are on the PE curve, what distinguishes limes, dolomites. It's probably a reasonable assumption. I'm not trying to be evasive; I just couldn't tell you. That's probably a reasonable assumption to make.

Q. All right. Generally, though, is it safe to assume that your Exhibit 13 seems to show that you've picked the top of the Strawn limestone to be a little bit high?

A. I have picked a depth that I believe correlates to what the seismic probably is going to see. There's going to be a velocity change. As best -- You know, I'm a geologist, but as best I can understand it that's where you're going to see a change, right there.

And that is important to us because, after all, that's what we use to pick our locations, is the seismic, not something ten feet below the reflector.

Q. Now, I want to ask you about the way you've gone about identifying the oil-water contact --

A. Uh-huh.

Q. -- throughout. The way I understand you've done it, you've simply gone to where you see the first west porosity; is that accurate?

A. Yes.

Q. Say for instance --

A. Not -- well --

Q. Okay, that's not a complete answer. Go ahead and answer it.

A. That's not entirely true, because you're going to see -- in your tabulation you may see streaks where they calculate out a wet streak, that there's other prob- -- There may be other factors there, tight porosity or whatever.

It's the -- What we've picked is where it's a consistently -- you go from a consistently lower water saturation, on an average basis, to a consistently higher interval, on an average basis, of water saturation. I think it's obvious on the tabular -- tabulation that I have.

Q. All right. To now, I think all the interpretations have been that the oil-water contact is about 7600, 7616?

A. Yes.

Q. If there weren't porosity at that depth, how would you determine whether or not that was wet or not at that depth?

A. If there were not porosity at that depth, which means there would not be any reservoir at that depth, which would not contain any fluid. I don't --

Q. Right, if you don't have the porosity there, you don't know where the oil-water contact is, correct?

A. That's right.

Q. But on your picks there's porosity both above and below?

A. Above and below what?

A. Your picks.

A. My picks of what?

Q. Of the water contact.

A. Yes.

Q. Do you have Exhibit 14? Pull it out please.

A. It's this thing, I believe it's this --

Q. I want to discuss with you the reservoir characteristics of the area below the oil-water contact you've identified, you show on Exhibit 14 and also on 13,

the cross-section.

Let me ask you, what R_w did you use to generate these?

A. I believe we used a .047, and that is based on our produced water. And we did that twice. We have two water analyses, and both of them came out at .047.

Q. All right. Are these computer-generated calculations?

A. These?

Q. Yes.

A. Yes.

Q. What program did you use?

A. I did not do this. This is done by TerraSciences.

Q. Okay, do you know what they use, the particular program?

A. Our engineer can address that.

Q. Okay. He'll be able to say how porosity is determined?

A. Sure.

Q. Your data in Exhibit 14 for the Wiley well, page 2, your perforations are shown down to about 11,600?

A. Perforations, on the -- Are we back on the cross-section now?

Q. No, 14. I'm sorry. Back on 13, the large cross-

section.

A. Okay.

Q. The log for the 1 Wiley Fee from your perfs at 11,600?

A. Yeah.

Q. Do you have that there?

A. 11,600 --

Q. All right.

A. -- yes.

Q. And your oil-water contact is 11,612?

A. Yes.

Q. What are the porosity values below that point, 11,612?

A. Oh, 11,612?

Q. Yeah, look back on Exhibit 14 for the Wiley. It's page 2 for the Wiley, page 3 of the entire exhibit.

A. The porosity values would be the second column from the left-hand side, so if you were to move down, say, to 11,6- -- Well, starting at 11,614 it's 3.9 percent. I'm just going to read them down and -- down. 3.9 percent. 4.4 percent, 4.5 percent, 4.7 percent, 4.5, and then on up to 6, 6.43 -- How far do you want me to go?

Q. That's fine. What are the water-saturation values for the same depth?

A. Starting at 11,614 it's 37.5, 39.27, 41.03,

40.17, 39.35, on down.

Q. Let's refer to the data for the Klein well now, page 2 of that. Do you have that open in front of you there?

A. Yes.

Q. Let's look at the -- Where's your oil-water contact there? That's at 11,622; is that about right?

A. That's where we have interpreted it to be.

Q. At that point is it fair to characterize porosity values below the oil-water contact at about 6.9 percent?

A. Maybe a little higher. It's close.

Q. Runs through about 6.9 to 8.2, 8.92?

A. Yeah, yes.

Q. And what are the corresponding water saturation values at 11,623 depth, below the oil-water contact?

A. 49.9, 38.52, 36.34, 30.36, 38.51, 37.55, 31.04, 32 -- Do you want me to keep going?

Q. That's fine. does that show you that producible water could exist on the Klein production in saturations as low as 20 to 36 percent? Can you draw that conclusion?

A. Say again?

Q. Would producible water exist on production from the Klein with saturation values as low as 20 percent?

A. This is a discussion that we've had in house. I can't say yes or no, because we don't know. All we have

done is, there is a marked change at that level. And there is some subjectivity in this, and this is our interpretation.

And the thing that's obvious is that where the marked changed takes place is nine feet lower than the other well. Now, you would think, if things were consistent, you would start to see the change in the same interval.

So as far as, you know, where you're going to pick the cutoff, I don't know. You know, I don't have core data, you know, to -- I don't have anything.

Q. All right. From what you say, you cannot preclude that you would have produced water for the Klein with saturation values as low as 20 percent? Fair to say?

A. That is a possibility.

Q. All right. You can't preclude it anyway? Your answer is yes, for the record?

A. Possibility.

Q. Same thing, you can't preclude water production from the Klein with saturation values down to 36 percent? And you're indicating "yes" for the record? The court reporter needs to take a verbal reaction.

A. It's a possibility.

Q. Earlier, what did you testify as the water saturation on the Chandler well? Do you recall?

A. I have not testified to a water -- I don't think I've testified to the water saturation on the Chandler well.

Q. Didn't you say --

A. I testified --

Q. I'm sorry, go ahead.

A. I said that we did not see a marked or obvious oil-water contact in the Chandler well.

Q. Didn't you testify you saw a saturation for the Chandler at about the 40-percent range? Do you recall that?

A. I don't. If I -- all I talked about was -- Somebody asked me about an oil-water contact. I said I don't see an oil-water contact in the Chandler.

Q. Isn't it true you said you saw no water saturations above 40 percent? Do you remember saying that?

A. I did not say that. I said that I did not see an oil-water contact.

Q. Has the Chandler produced water from the perfs at 11,582 to 11,5- --

A. It does produce water.

Q. Since the first day of production?

A. I believe so, yes.

Q. So from that you can conclude that the area north of the Chandler on the downdip is wet?

A. Say again?

Q. From all of that, from our discussion about water saturation values, the fact that the Chandler has produced water through those perfs, isn't it reasonable to conclude that the area north of the Chandler, downdip, is wet?

A. No, I guess you didn't get my point on the exhibit prior to this, that there's a possibility that you could be -- go downdip and get into water-free production, and we would not hesitate to drill a well to the north, would love to do it.

Q. Do you have plans to do that?

A. If we can resolve this situation, we'll be out there in a heartbeat.

Q. Do you have a log analysis on the Klein, or similar to the Klein, for the Chandler?

A. Not here.

Q. Could you provide that to us?

A. I can.

Q. With respect to your Exhibit 10 -- is it 12, where you've identified your four separate mounds? Do I have the right exhibit? I'm sorry, it's Exhibit 11. Let's refer to that.

A. What did you say? Exhibit 11?

Q. Exhibit 11. As I understand it, the purpose of this exhibit was to show your interpretation that you

believe four separate mounds to exist in the reservoir, correct?

A. That's correct.

Q. Is there any dispute that these mounds are in connection -- or in communication?

A. No, I don't dispute that.

Q. Let me ask your opinion on something. Do you believe it's appropriate to incorporate exploration acreage into an enhanced oil recovery unit?

A. I don't know if I'd qualify it as exploration acreage, but if you do it by -- tract by tract, you're going to prohibit development of the reservoir. Because, like in our situation, we can't do anything until we know what's going to happen to us. You know, if we're going to spend the money to drill a well and then have it taken away from us, we won't drill it.

So if we can resolve the -- what we think is the boundary of the total reservoir, by whatever data that it takes and discussions that it takes, then it's right.

Q. By whatever data. Earlier you testified that Exhibits in 9, your seismic exhibits, were for exploratory development -- exploratory geological purposes.

A. I don't think that I said that exactly. I -- They can be but -- This area here is a combination of development and exploration.

Q. It certainly --

A. Each well is an exploratory well, but each well is also a development well. And you can look at it any way you want to look at it.

Q. Well, given that state of affairs --

A. Every time you pick a location out there, you -- it's a gut check.

Q. You're exploring, aren't you?

A. Developing.

Q. Well, which is it? You said Exhibits 8 and 9 were used for exploration.

A. I'm going to say development, that's my opinion.

Q. Now you're saying development, all right.

A. Technically -- Technically, that Chandler is a development well. By industry standards, that is a development well.

Now, if I were to step out up there beyond 6 and 27, then you might get me to say that it's an exploration well.

MR. HALL: Well, I think I did get you to say that earlier.

MR. CARR: Well, we'll let the transcript verify that, not Mr. Hall's comment.

Q. (By Mr. Hall) So we're in agreement, then -- It's your position that the Hanley Chandler 1 is a

development well that ought to be included within the EOR unit; no dispute about that?

A. It's connected and -- Yes.

Q. How about the Hanley 1 State 28? What's that going to be?

A. If it proves out to be connected to the reservoir, then it will have to be included, I guess.

Q. But it's a gut check; it's an exploratory well now?

A. I don't think so. I don't think so, because the seismic that you saw, that seismic was 100-percent correct. It was right on. And so we have a great -- a high degree of confidence in the State 28.

Q. Isn't the best way to bring any acreage associated with the State 28 into the unit is after production is established, after the well is drilled, after you have the well data?

A. Well, I'm not prepared to speak to those issues. I'm going to let my engineer field that.

Q. So you don't have an opinion on that particular issue?

A. I have an opinion, but it's not an expert opinion. But I -- No, I don't think it's fair, and I've already explained that to you.

Q. You don't --

A. Each time you go -- It's going to prohibit development of this reservoir --

Q. Nothing preventing --

A. -- which is -- which prevents the State from getting income.

Q. There's nothing preventing you from drilling the Hanley 1 State 28 today, is there?

A. Yes, there is.

Q. What is that?

A. Gillespie, proposal to -- You know, if we drill a well and it's a good well, I'm going to be sitting in this chair again.

Q. It's not proposed to be included within the unit today, under this Application, is it?

A. Well, but they've already testified that they were going to do it on a step by step -- That's clear.

Q. No, my question is, there is no impediment to the drilling of the Hanley 1 State 28 today?

A. There is an impediment. I'll say it again. We cannot drill that well till we resolve this situation. That's the impediment.

Q. All right. You're saying Gillespie has a say-so by virtue of what, in drilling the State 28-1?

A. I'll answer in the same way. We can go on forever.

Q. All right. And what's the impediment to the drilling further up in Section 28, in the high spot of the mound that you've identified? There is none, is there?

A. Yes, there is. It's the same scenario.

Q. You're going to --

A. If we drill up there and it proves to be connected, which we think it is, our seismic, here we go again.

Q. Okay --

A. We don't want to do that.

Q. And that's interpretation based upon your exploratory seismic data, correct?

A. That's my interpretation based on the seismic.

Q. All right. So you're asking for the inclusion of that acreage, as well as the acreage for the Hanley 1 State 28, on the basis of interpretive seismic; is that accurate?

A. That's correct.

Q. Isn't the best way to include acreage within an enhanced oil recovery unit, not an exploratory unit, EOR unit, is to first have the well data? Isn't that the best information you could have?

A. I am not an expert on units or -- I couldn't address that.

Q. Do you have an opinion?

A. I have an opinion, and I've already stated it.

Q. Well, answer my question. Isn't the best data you could have to consider inclusion of acreage well data? Yes or no.

A. If you have a well and it's producing, that's great. But --

Q. Can you answer my question yes or no?

A. I just answered.

Q. The answer, then, is "yes"?

MR. CARR: I think the question was answered, and I think that to try and restrict a person to accepting the characterization of the facts as Mr. Hall is, is inappropriate. The question has been asked and answered 14 times, and we're going to beat the thing to death. But we're not going to sit here, and I'm not going to agree to let Mr. Hall require yes or no answers. The question has been fully answered 15 times.

EXAMINER CATANACH: I agree, Mr. Hall.

MR. HALL: That's all I have, Mr. Bracken. Thank you.

EXAMINER CATANACH: Mr. Bruce?

CROSS-EXAMINATION

BY MR. BRUCE:

Q. In only have a few issues I want to cover, but one of them might be the same.

But you said that -- how far away -- You

mentioned the Shipp-Strawn, which has small porosity pods, small reservoirs. How far away is that, from this pool?

A. Ten miles.

Q. Ten miles. There's a series of those small Strawn pools up there, aren't there?

A. Yes.

Q. Casey-Strawn, Shipp-Strawn?

A. Yes, sir.

Q. How far away is the Lusk-Strawn?

A. Oh, I want to say -- I'm guessing. I'd say 40 miles.

Q. Okay.

A. But it's part of the trend. If you were to map a Strawn-producing trend, which was done in this article that I quoted, it's all part of the producing phylloid algal trend.

Q. What is the current daily water producing rate of the Chandler Number 1?

A. I believe it's around 300 barrels a day.

Q. Do you have any idea of what the total unit water production is per day?

A. The last I heard, it's zero.

Q. But that doesn't indicate to you that there might be an oil-water contact by the Hanley well?

A. It indicates that this reservoir is more

complicated than we give it credit. And if I knew the answer to that, I would -- I probably wouldn't be sitting here.

But it's a difficult problem and it has -- we've tried to figure it out, and if somebody could give me the answer I'd sure like to have that answer. I might -- But we don't see a contact in the well; it's that simple. The data demonstrates that.

Q. That water just appeared out of nowhere?

A. No, obviously not.

Q. Okay. Let's move up to Hanley's acreage, the Hanley State 28 Number 1. When was that staked?

A. I believe we staked it -- I'm not sure, but we staked it -- Staked or -- ?

Q. Staked.

A. Pretty much the same time we staked the Chandler.

Q. About 15 months ago, 14 months ago?

A. Yes, I guess. I don't --

Q. And so you just have not seen fit to drill that location in the 14 months since you've completed the Chandler well?

A. We chose to drill the Chandler first, and then we chose to sit on it for a year, and it had no- -- not have anything to do with the unit, but we just -- we wanted to see what the well would do. It would give us a degree of

confidence --

Q. Okay, so --

A. -- in the other well.

Q. -- you just said that had nothing to do with the unit, not drilling the State 28 Number 1 had nothing to do with the unit. Now, in response to Mr. Hall's questions you said you couldn't drill that because of the unit?

A. At this point, at this point.

Q. Today?

A. Today. He asked me today.

Q. What about yesterday, or a month ago?

A. Same answer yesterday, just that we --

Q. No, I'm --

A. The chronology of how things developed, they mesh together. There was a point where we were producing the well and we didn't know -- we really didn't know what Gillespie was going to do, if they were going to take us in. We kind of -- and I'm speaking for myself. I thought we weren't going to be bothered by it. And then later on the issue came up, and so then that took over.

But at this point in time, we have a high degree of confidence geologically to drill the well, we feel like we have a commercial location. But because of the situation today we can't do anything.

Q. Okay, let's get to that. You say you can't do

anything, and you say it's because of the unit, but why? I still don't understand. You just said because of the unit. Why can't you drill a well in the west half of Section 28? What's preventing you?

Let me take a step back. The Chandler Number 1 has been producing about 200 barrels a day for 14 months, between -- from 140 it inclined up to about 200 barrels a day, flat rate of production. It's been producing at that rate for a year; is that correct?

A. Somewhat, yeah.

Q. Is it a commercial well?

A. Yes, sir.

Q. It's paid out?

A. Yes, sir.

Q. If you could drill a well in the west half of Section 28 and have it produce at top allowable, which is, at this point, 250 barrels of oil per day for a year, would it be worth it to you? Would it be a commercial well?

A. Yes.

Q. Then why can't you drill it?

A. Why do something that --

Q. Won't that prove up your acreage?

MR. CARR: Could the witness answer the question?

MR. BRUCE: Sure.

MR. CARR: I mean, we just have question after

question and --

THE WITNESS: It's just -- Common sense tells you that if somebody's out there, lurking, to take your well, why do it?

Q. (By Mr. Bruce) What do you mean, "take the well"? The unit operating agreement provides --

A. Well, under current --

Q. -- any well is taken in on a paid-out basis --

A. -- under the current conditions, we're -- from what David has testified to, if our well is basically a 160-barrel-per-day well, and you all's proposal we're going to get eight barrels.

So if that's the same -- If the same thing is going to happen at the State 28, then that would be a poor expenditure on Hanley's part; it would be a bad management decision.

Q. Won't drilling a well in the west half of 28 prove up this theoretical mound in the center of the west half of Section 28, and you could come in at that point and say, We have X amount of hydrocarbon pore feet in the west half of Section 28?

A. We have to resolve before that how production is allocated to all the unit owners. And until that time, we can't do anything.

Q. So what you're saying -- you've heard Mr. Carr --

You were here yesterday, weren't you?

A. Yes, sir.

Q. And you heard Mr. Carr questioning Mr. Nelson. He was questioning him about, how can you give any value to the northwest quarter of Section 33, because there's no data point there? You heard that, didn't you?

A. Right, and he also testified that he did not use seismic.

Q. But it's okay not to have a data point, say, in Tract 15, to give it any value? It's okay not to have a data point to the southeast in section Tract 17, to give it any value?

A. I have a data point at --

Q. A well data point?

A. I have a well data point at the Hanley Chandler, and I use that well as a calibration. We had so much of an amplitude anomaly at the Chandler. Out to the east of that, it's at least twice as wide. We have the same type anomaly to the north.

So it's just -- It's simple-minded, but it's the only way to do it. And that is how we --

Q. Well data points are not necessary?

A. Pardon me?

Q. Well data points are not necessary in the west half of Section 15?

A. We don't -- Well data points are necessary if you have them. We don't have a well data point in the west half of Section -- in our Tract 15.

Q. Tract 15, I mean. Tract 15 or Tract 17 or Tract 19 or Tract 22, you don't have any well data points?

A. No, but I have seismic that I believe has a high degree of accuracy to it. I feel very confident in it.

Q. But you had nothing to do with preparing the seismic?

A. No.

Q. No, and so you -- But you still have a high degree of confidence in it?

A. My job -- part of my job is -- I'm not an expert geophysicist, but I am an expert at picking geophysicists, and that's we have done --

Q. Okay.

A. -- and I have a high degree of confidence in him. He has done a lot of work for us. And that is how anybody else would do it; it's no different.

Q. Now, looking at this Exhibit 9, doesn't this show that the acreage up in the northeast quarter of Section 28 is better than the acreage you're including in Section 27?

A. Where are you talking about? Oh, that is a structure map, mind you. Okay. There is an amplitude anomaly --

Q. It's structurally -- The northeast quarter of 28 is structurally, apparently, a lot better than this acreage in Section 27 that you seek to include?

A. That is correct.

Q. But you're --

A. We don't associate mound in that area, but we do in the southeast --

Q. And that's --

A. -- quarter of 27.

Q. -- interpretive?

A. Huh?

Q. It's interpretive?

A. It's interpretive.

Q. And there's no well data points out there to tell you otherwise?

A. No, sir.

Q. Now, looking at, you know, whatever one of your maps, Exhibit 17 --

A. 17, okay.

Q. All I'm really looking for is, get a map with the unit outline, your proposed unit outline, on it.

A. Okay, sure.

Q. That Tract 15 -- that's the west half and the southwest-southeast of Section 28 -- that is entirely Hanley Petroleum's tract; is that correct?

A. That is correct.

Q. Let me hand you -- This is Dr. Boneau's Exhibit 1, and it shows on there, I believe, that that's Hanley Petroleum.

Now, there are no wells at this point, no producing wells on Tract 15, are there?

A. No.

Q. Also, looking at your -- at the Exhibit 1, I'm assuming this is a commercial map, probably Midland Map Company. All of these leases, independent, separate leases out here, have lease expiration dates on them, don't they --

A. I --

Q. -- just looking at them?

A. Yes, some of them.

Q. You know, over in -- like the next-door tract, it says Gulf, that's HBP?

A. Yeah.

Q. Okay. Moving over to Section 20 it says, Yates Petroleum, et al., it gives the State lease number and the expiration date, which is December 1, 1996.

A. I don't know where you are now.

Q. Okay, look at Section 27.

A. Tract 20 or --

Q. Section 27 --

A. Oh --

Q. -- non-unit tract.

A. Yeah, yes.

Q. Okay, Yates Petroleum, et al., in Section 27, 12-1-96 lease expiration date, gives a state lease number. Down in -- over -- You know, all around, if you look, it has lease expiration dates. It doesn't have a lease expiration date on the Hanley lease. Why?

A. I don't know. I have to defer that to a landman. I don't know.

Q. Do you have any idea when that lease expires?

A. Yes, I think we have another year on it, I believe.

Q. Would it be May 1, 1998?

A. That sounds close, I think that's right.

Q. Why is this -- You know, is this simply a grab to get a nonproducing lease into the unit?

MR. CARR: I object to the form of the question.

MR. BRUCE: That's a fair question. Mr. Examiner, I would refer you -- you can -- I'll ask you to take administrative notice of Yates' Exhibit Number 1 in Case 11,599. It has the expiration date. It's the exact same map, has the expiration date.

They've excised that from this map so you wouldn't think there was any lease-expiration problems.

EXAMINER CATANACH: Can you kind of rephrase the question, Mr. Bruce? Is that --

MR. BRUCE: I'm trying to preserve the lease past the lease deadline by unitizing it.

THE WITNESS: All I did was -- is do the geology, with no goals. I just simply drew what I thought is my best interpretation, based on all the data that was available to me, drew that reservoir like I see it, and then the other staff take care of it from there.

They're -- I -- As far as I know, we're not trying to protect a lease; we just want it done right.

Q. (By Mr. Bruce) And you don't want to maximize Hanley's interest?

A. We just want it done correctly. We feel at this time it's not --

Q. Do you want to maximize Hanley's interest?

A. Huh?

Q. Do you want to maximize Hanley's interest?

A. We feel like the interest that we have been given is not fair.

Q. Do you want to maximize Hanley's interest?

A. The interest that we have now is not fair. So --

MR. BRUCE: Mr. Examiner, it's a simple yes or no question.

MR. CARR: No, it isn't, and we've got to a point

where the question has become argumentative. The question was, Are you trying to maximize Hanley's interest? The response is, We're trying to do it fair.

You can't answer that yes or no and give an honest answer.

EXAMINER CATANACH: I think that's a sufficient answer, Mr. Bruce.

MR. BRUCE: That's all I have.

I would ask that Yates Exhibit Number 1 from Case 11,599 be taken administrative notice of.

MR. CARR: We have no objection to that.

I have about two questions, maybe four.

REDIRECT EXAMINATION

BY MR. CARR:

Q. Mr. Bracken --

A. Yes, sir.

Q. -- you testified you have confidence in your seismic information north of the current unit boundary; is that correct?

A. Yes, we do.

Q. Did you use seismic information to locate and drill the Chandler Number 1?

A. Yes, we did.

Q. And is it a good well?

A. Yes.

Q. There are no wells in Tract 15; is that correct?
A. That's correct.
Q. That's outside the unit?
A. At this time.
Q. Are there any wells on Tract 3 within the unit?
A. There are no wells in Tract 3 in the unit.
Q. Are there any wells on Tract 4 within the unit?
A. There are no wells in Tract 4.
Q. Are there any wells on Tract 6 within the unit?
A. Yes -- No, no wells in Tract 6.
Q. Are you asking to be treated like tracts in the unit?
A. Just want fair treatment.
MR. CARR: That's all I have.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Bracken, according to your Exhibit Number 8, you've identified by seismic what you believe is a separate -- or a structure within the west half of the northwest quarter of Section 28; is that correct?
A. Yes, sir.
Q. What information do you have, or do you have any information that suggests that that structure is, in fact, connected and in communication with the rest of them?
A. The -- of course, the -- If you look at the

individual traces of the 3-D -- and I don't mean -- "traces" is probably the wrong term, but the lines that make up the 3-D, I believe they're like 110 feet apart, spacing in this, the way they -- so the way -- they come out looking like 2-D sections. We see a character in the Strawn peak that would suggest that these are connected.

And then when you display this in a map form as an amplitude map where you see low amplitudes and high amplitudes, the low amplitudes being indicative of porosity, you see associated with that ridge a low-amplitude anomaly, and there appears to be a connection.

Q. Would this structure be -- in the northwest quarter of Section 28, would it -- it's your opinion that it's not structurally low enough to be below the oil-water contact?

A. Well, again, we think -- there's a possibility -- We know, in our opinion, there's at least two oil-water contacts, a possibility it could be more. It does not deter us at all from drilling a well up there, because we don't think that a uniform contact is applicable to this field.

And I think that's -- You can see examples of that in other areas, like the Lusk-Strawn that I mentioned earlier in the testimony.

Q. So even though the structure may be in

communication, you still believe it may have its own oil-water contact?

A. It could.

Q. But you don't have any idea where that is?

A. No, there's no way to know that.

Q. Without drilling a well?

A. That's correct.

Q. In the southeast extreme area of Section 27, is that -- that's part of an existing structure that you've mapped there in that bottom corner of that?

A. Yes -- Well, we think it is. Our 2-D seismic indicated a positive area in that area, and this -- the 3-D tends to back that up.

Q. Based on this --

A. And -- I'm sorry.

Q. Based on this seismic data, would you drill a well at that location?

A. Over to the --

Q. Yeah, in the southeast area of Section 27?

A. Yeah, I would love to have that acreage.

Q. Would you drill a well there?

A. Probably.

Q. Okay. Your seismic data doesn't really show you -- or does it show you where you might put a zero-porosity line?

A. This display does not.

Q. What data did you use in the northern portion of the unit to map your zero-porosity line?

A. Well, again, I go back to the -- when you look at the individual lines that make up the 3-D, we look at those on a -- when it's all done, it comes out in the presentation where you have -- you have east-west line and you have north-south lines.

And our consultant, of course, he goes through that and makes his picks and interpretations, and then I look at it, and we get together and agree on an interpretation.

But based on those individual lines, line by line by line -- There's hundreds of lines, and we look at those, and just going from line to line we estimate what would be a zero point on the line.

You cannot absolutely pick out a zero point from the seismic; it is an estimate.

Q. But does seismic aid you in that interpretation?

A. It aids me, right.

Q. The western boundary of the -- or the -- You feel comfortable with the western boundary of the unit, except that you want to include the tract that the Amerind West State well sits on; is that correct?

A. That is correct.

Q. And that's due to the Hanley policy of -- that you stated before of -- the zero porosity line just encroaches a bit on that tract?

A. That is correct, and I must -- would like to qualify that area down there. And that line -- that basis for that line, since our data -- we're on the extreme of our data, we relied on Gillespie's mapping of that area.

So if their map is correct in that area, then just being uniformly consistent, we would have to include that acreage.

Q. Is this -- Okay, for the southern portion of the unit, what -- Is that the same? Did you rely on Gillespie's map?

A. Yes sir.

Q. Does that hold true on the southeast portion of the unit, proposed unit?

A. The contour holds true, yeah. I think I followed their map pretty closely. Down in Tracts 26 and 25, that area.

Q. Yeah, 26, 24, 25. So that's basically the Gillespie interpretation?

A. Yes.

Q. On the eastern portion of this unit, you've extended the zero line further east than Gillespie had it?

A. That's correct.

Q. And I believe you testified -- Or let me ask you, what is that based on?

A. Okay, that -- If you look at the way that Gillespie developed, a recurrent development -- a development has taken place throughout the development of this unit. I think you can draw some conclusions.

And the Gillespie Number 1 State "S" is, I believe, 330 feet off the east line of that proration unit, which I believe is as close as you can get without a special hearing.

So the fact they pushed it so far to the east would tell me that they suspected another mound in that area and that the better part of it actually laid on the outside of that line.

So I have taken the liberty of just -- or it's an interpretation that there's possibly more mound out there to the east than what has originally been depicted.

And then the Bridge Number 2 Julia Culp, as I testified earlier, I suspect that that well could have been -- they could have set pipe on it and made a well. So I've brought the zero line -- I haven't drawn the zero line right through that well, but close to it. I believe that there's, from the log, mound-quality rock.

So just maintaining an even -- a contour spacing, it just brings it out, extends it out into Tracts 22 and

23.

Q. Who drilled that well?

A. Pardon me?

Q. Who drilled that -- Oh, was that Bridge Oil that drilled that well?

A. Bridge.

Q. Do you believe that they could have made a producing well out of the Strawn?

A. It's a possibility. It is tight. Ralph testified to that, and I would agree. It is a tight well but extremely close to a mound, I believe.

Q. You've got the zero line that sort of wildly fluctuates in that north-northeast portion of the proposed unit. What data did you use on that?

A. Okay, that's -- We relied on our 2-D seismic in that area.

And then, I might add, in Tract 18 where it kicks up through there, we have 3-D there. It's on the edge of our seismic, but our -- the 3-D also indicated an amplitude by anomaly in that area also.

And due to the log on the Yates Number 1 Chambers AQI State, it was my interpretation that that well was farther away from mound-quality rock than, say, the Bridge Number 2 Culp. So I just didn't feel justified in stretching the line any farther. I was conservative there.

It probably...

EXAMINER CATANACH: I believe that's all I have of this witness.

MR. CARR: I have nothing further.

EXAMINER CATANACH: This witness may be excused.

What have we got?

MR. CARR: I have one witness. The direct this morning took about 28 minutes.

(Off the record)

EXAMINER CATANACH: Let's just keep going.

MR. CARR: May we have a five-minute break?

EXAMINER CATANACH: Yeah, let's do that.

(Thereupon, a recess was taken at 12:14 p.m.)

(The following proceedings had at 12:29 p.m.)

EXAMINER CATANACH: Let's proceed.

Mr. Carr?

MR. CARR: Mr. Catanach, at this time we call John Savage.

JOHN SAVAGE,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. John Savage.

Q. Where do you reside?
A. Houston, Texas.
Q. By whom are you employed?
A. Williamson Petroleum Consultants.
Q. And what is the relationship between Williamson Petroleum Consultants and Yates and Hanley?
A. We're their engineering consultant.
Q. When were you employed by Yates and Hanley in this matter?
A. Late 1996, early 1997.
Q. And what were you asked to do?
A. To prepare an oil-in-place study for the West Lovington-Strawn Pool.
Q. Mr. Savage, have you previously testified before the New Mexico Oil Conservation Division?
A. No, I have not.
Q. Could you summarize your educational background for the Examiner?
A. I have a BS in petroleum engineering from Texas A&M and graduated in 1982.
Q. And following your graduation in 1982, for whom have you worked?
A. I have 15 years experience as a reservoir evaluation engineer, and I have two years -- I had two years' experience with Midland National Bank and the

remaining 13 with Williamson.

Q. Are you a registered petroleum engineer?

A. Yes, I am, in the State of Texas.

Q. Have you now completed your oil-in-place study?

A. Yes, I have.

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

A. Yes, sir, I am.

MR. CARR: Mr. Catanach, at this time we tender Mr. Savage as an expert witness in petroleum engineering.

EXAMINER CATANACH: Any objection?

MR. HALL: No objection.

EXAMINER CATANACH: Mr. Savage is so qualified.

Q. (By Mr. Carr) Could you generally summarize how you approached this project?

A. Yeah, we used two methods to estimate oil in place, volumetric and material balance. Our volumetric oil in place resulted -- was 12.9 million barrels, and our material-balance oil in place calculated to be 14.2 million barrels.

Q. And we've heard a lot about the reservoir, but could you just give me a general history of the pool and unit, emphasizing those points that will relate to your testimony?

A. Well, the pool was discovered in May of 1992 when

Gillespie drilled the Hammond Federal Number 1 in the southwest quarter of the southeast quarter of Section 33, Township 15 South, Range 35 East. Gillespie drilled an additional ten wells by April, 1995.

The pool was unitized in October, 1995, and consists of approximately 1457 surface acres, one injection well, 10 producing wells, and natural gas injection commenced in October, 1995.

Q. And you are aware that the allowable for the pool was reduced from 445 barrels of oil a day to 250 barrels of oil a day in March of this year?

A. Yes, sir.

Q. Can you describe the reservoir at the time of discovery?

A. The original reservoir pressure was 4392 p.s.i. on a datum of 7549 subsea and had a reservoir temperature of 171 degrees fahrenheit. The fluid was determined to be undersaturated with a bubble pressure of 4115 p.s.i.

Q. How was that determined?

A. That was determined from a sample taken from the Speight Number 1 well, the second well drilled in the unit. The sample was taken on December 2nd, 1992. It was analyzed by Phase Behavior, Inc., and published in a report dated December 18, 1992.

The December 2nd reservoir conditions were a

temperature of 171 degrees fahrenheit and a pressure of 4342 p.s.i.

Q. Now, these are the fluid properties that were used in the Williamson study. They were based on this fluid analysis; is that correct?

A. Yes, sir.

Q. Can you explain how the volumetric calculation was prepared?

A. Brett Bracken, Hanley's geologist, had done hand calculations of the logs and wanted a computer calculation of the logs. So I obtained a paper copy of the logs from Brett, sent them to a firm called A-to-D Technologies in Midland to digitize the logs, and they digitized them into a CWLAS format.

I took the digitized logs to Mr. Jim Engstrom, a geologist with TerraSciences, Inc., who analyzed the logs for us using their proprietary petrophysical software, and that software is Terra Station 2, Version 61 R1 Mod 1.

Q. And what porosity cutoff was used?

A. We asked Jim to use a cutoff of 3 percent and a water saturation cutoff of 40 percent.

Q. How was this analysis actually done?

A. He analyzed each log on a half-foot basis through the Strawn pay.

Q. And to the best of your knowledge, were the same

cutoffs used as were used in the Gillespie work?

A. From prior -- from testimony, yes.

Q. What porosity was used?

A. The porosity that we used was density porosity as the formation porosity. We had requested core data, but it was not made available, so we couldn't compare it to core data.

And also, in this case, when we looked at the logs, the gas effect appeared to be affecting the neutron density -- I mean the neutron porosity curve, but it did not appear to be affecting the density curve. So we chose not to use a crossplot porosity and used the density porosity as the true porosity.

Q. What were the results of this particular analysis?

A. Well, values were calculated for R_t, the formation resistivity porosity and water saturation of each half foot in each well. And then we -- Of course, it resulted in average porosity water saturations and total feet of pay for each well.

Q. Let's go to what's been marked Yates/Hanley Exhibit Number 17. Could you identify that, please? This has been previously admitted into evidence.

All right, Mr. Savage, what is this?

A. This is Hanley's hydrocarbon pore volume map that

was based on their interpretation of 2-D and 3-D seismic and on the values obtained from our log analysis.

Q. And it's shown in hydrocarbon pore feet?

A. It's -- The number next to each well is hydrocarbon pore feet, and that's defined as the product of porosity times one minus the water saturation times the feet of pay.

Q. How was this map integrated into your work?

A. Well, this is the map we used to planimeter to get our hydrocarbon pore feet by tract and for the total reservoir, resulting in a total reservoir hydrocarbon pore volume of 3715 acre-feet.

Q. Okay, could you identify what has been marked Yates/Hanley Exhibit Number 18?

A. This exhibit is the result of our oil-in-place calculation. It's a tabulation. On the left column you'll see that it's -- That's the tract. The first tract is the West Lovington-Strawn Unit. I used it as a single tract because the relationship of the 11 tracts that make up that unit has been fixed by the prior unitization.

The next column -- And then preceding that are the 19 other tracts that -- additional tracts that are in the expanded unit as we see it.

The next column is the hydrocarbon pore volume that we've planimetered for each tract in acre-feet, and

then the percent of pool that represents, and then a calculation of the oil in place, based on hydrocarbon pore volume, using the formula at the bottom of the spreadsheet, oil in place equals 7758 times hydrocarbon pore volume divided by original formation oil --

Q. What's the -- Excuse me.

A. -- formation oil factor --

Q. And what is the result of that calculation?

A. -- 2.23.

The result of that calculation is in the right-hand column, and the total is 12,924,000.

Q. Let's go to Exhibit Number 19. Would you identify and review that, please?

A. Exhibit 19 shows the formulas that were used in our material balance study. The first formula just is the basic formula for material balance. It includes all the factors that could impact oil in place.

We had assumed that there was no water influx, no water injection or gas injection, and those terms, W_e, W_i and G_i, were dropped out, and the second formula shows that reduction.

The two formulas that we used in the study are the formulas 3 and 4. Formula 3 is the formula used above the bubble point, and Formula 4 is the formula used below the bubble point. They're different formulas, different

terms have dropped out.

But the last formula below the bubble point is missing a term, and the term it's missing is the -- if you go to -- It's missing the term that's on the bottom of the equation in Equation 1, the portion of that equation that starts B_{oi} over 1 minus S_w times the quantity 1 plus m, et cetera. That term represents the rock and water expansion, and that's normally considered negligible below the bubble point, so it was excluded.

The equation we used above the bubble point, Equation 3, is minus a few terms too. The term that has R_{si} minus R_s in it, in the bottom part of the equation, goes to zero because the solution gas-oil ratio is zero above the bubble point, so that would be zero.

The other term that would drop out is the term in the bottom part of the equation that starts with mB_{oi} times the quantity B_g minus B_{gi} over B_{gi}. That drops out because the term m is the ratio of gas cap pore volume to reservoir -- oil pore volume. And that's zero above the bubble point also.

The final term that's missing in this equation is the term representing free gas production, which is G_p minus N_p times R_s, which appears in the top part of the equation. And because there's no free gas above the bubble point, that drops out to be zero also.

Q. Mr. Savage, hat pressure information was used in your material balance calculations?

A. We used 14 pressures that were provided by Gillespie-Crow when we subpoenaed data.

Q. Were these all the pressures available on the reservoir?

A. They had supplied a total of 17 or 18 pressures. Three or four of those -- The 14 we used were the 14 that were prior to gas injection and the drilling of the three offset wells, the Snyder "EC", the State "S" and the Chandler. The reservoir production, cum production, as of that last data point that we used, pressure point that we used, was approximately 1,493,000 barrels, which is approximately 10 percent of the oil in place. And it's a point considered to where material balance should yield an effective value.

Q. Could you identify Yates/Hanley Exhibit Number 20?

A. This is a spreadsheet showing the results of the oil-in-place calculations at the various pressure points.

Going from left to right, the first column is the day at which the pressure was said to be taken.

The next column is the percent of oil in place that the cum oil represents as a portion of the total oil in place.

The third column is the cum oil, the fourth column is cum gas, the fifth column is the cum water, of which there was a minor amount.

The next column is the pressure that was given to us, and then the oil in place calculated as a result of the study at each one of those pressure points.

The average oil in place at the bottom, the 14.2, is an average of the last three points that we feel represents a good estimate of the oil in place.

The final column is just a percent-difference column to show you how much different that value that was calculated at that point is from the average pressure that we assumed to be the proper oil in place.

Q. The material balance work resulted in an original oil in place of 14.2 million barrels of oil?

A. Yes, sir.

Q. Using your volumetric approach, you came out with 12.9 million barrels of oil?

A. Yes, sir.

Q. How do these results compare to reservoir data presented by Gillespie-Crow and others on this West Lovington-Strawn reservoir?

A. There have been a number of numbers that have been presented, either in testimony or in some of the documents that were presented to us. But most of the

numbers regarding material balance oil in place fell between 14 million and 15 million, and ours was 14.2. So we're within range. We're actually low to the stated oil in place that was stated today by about 6 percent.

Our volumetric oil in place of 12.9 is high to the Gillespie oil in place that I've seen, which have been around the range of 11.9 to 12.3 million barrels. So we're 5 to 8 percent high to their number.

But that's really not the important part. Normally, you like to see volumetric -- When you do this by two methods, you'd like to see them to agree by two to three percent. And we don't see that, so there is a problem here.

However, our variance is a 9-percent variance, and the Gillespie variance is about 18 percent, the difference between 12.3 and 15, and I think that that proves that the oil in place that we want to use is probably a better oil in place.

Q. And when you say the oil in place you want to use is a better alternative, what are you talking about? The volumetric?

A. The volumetric oil in place.

Q. And would you recommend that that figure be used for future decisions made concerning the West Lovington-Strawn Unit?

A. Yes, sir, I do.

Q. Do you believe the current unit allocation formula that considers, really, only original oil in place adjusted cumulative production allocates unit production on a fair, reasonable and equitable basis?

A. No, sir, I don't.

Q. Would you explain that, please?

A. Well, the formula is based on subjective data only, and its application to only producing tracts does not allow it to be fair and reasonable and equitable to nonproducing tracts. And also, the formula was really negotiated by the current interest owners, which did not include Hanley or Yates.

Q. How does Williamson recommend that this problem with the formula be corrected?

A. Well, we need -- We want to add another factor, and -- a factor that's based on hard data.

Q. And what is that?

A. We would like to recommend the inclusion in the unit allocation formula of current producing rate, and the current producing rate to be defined as the average oil production in the last six -- for the six months that preceded the reduced allowable.

Q. So we're talking September, 1996, through February, 1997; is that right?

A. Yes, sir.

Q. And what -- Do you recommend that this formula apply to -- What tracts? You tell me.

A. Well, we recommend that all tracts contain a portion of the unit in the pool as now defined, out of participation in the interest of the unit to protect their correlative rights.

Q. All right. Would you refer to what has been marked as the Hanley/Yates Exhibit 21 and identify that for the Examiner and review it, please?

A. This is the results of using that formula.

On the left is the tracts that -- the West Lovington-Strawn Unit being considered as a single tract, and then all the other additional tracts as separate tracts.

The first column is the volumetric oil in place that's been calculated for that tract based on hydrocarbon pore volume.

The next column is the percent of oil in place that that oil in place represents of the total.

Then the next column is current oil rate for the producing -- the tracts that have production. And there's only four of those.

And following that is the percent of the current rate that that production is of the total production.

And then the last is the unit participation (decimal) that would result from using this formula as a participation formula. And the formula is at the bottom of the exhibit.

Q. In your opinion, will adoption of this formula allocate unit production of the interest owners in the unit on a fair, reasonable and equitable basis?

A. Yes, sir, it does.

Q. And why is that?

A. Well, it uses hard data, for one thing, where up to now we're totally subjective with oil in place, even though we only apply it to producing tracts.

The other thing is, it does give weight that has production. So if you have production, it does give you more participation.

And the other thing is that it includes nonproducing tracts that we think that there's oil there. It does include those.

The other thing it does is -- And to be fair, including some period of time so we didn't pick a month or a day or something where a well could be down or there is a story about the well being down or a lease where you have multiple wells that some of them may be down.

A six-month period I felt was reasonable, so that all those things, these stories that operators and -- will

say about their well, particularly when they're trying to tell you how great they are, that it gives you a period of time that all that averages out, that if they can't get it squared away in six months, you know, I mean, what you say is what you get. And so that's why I think that's fair.

Q. Mr. Savage, you've been present when there has been testimony about the problems being created for the unit by the production from the State "S" Number 1 and the Chandler well. In your opinion, is it necessary to shut in or curtail those wells to protect the existing pressure-maintenance project in this unit?

A. No, I don't think so. This reservoir has become really a combination drive reservoir. It was originally solution gas, but it's now a gas cap, solution gas and gravity drainage reservoir.

And I believe that if anything happens from the production of these offsetting wells, that all it's really going to do is maybe accelerate the expansion of the gas cap by whatever percent of fluids additional that it's taking out of the reservoir.

Q. In your opinion, will approval of the unit boundary for the West Lovington-Strawn Unit, which includes all tracts in the reservoir as now defined and shown on the Yates/Hanley Strawn Mound pore volume map, coupled with the adoption of a revised participation formula as you have set

out -- will those two things, if adopted, protect the correlative rights of all interest owners in this reservoir?

A. Yes, I believe it does.

Q. In your opinion, will expansion of the unit in accordance with this recommendation and the adoption of the new formula otherwise be in the best interest of conservation and the prevention of waste?

A. Yes.

Q. Mr. Savage, you were present for the testimony concerning the exclusion of the Snyder "EC" Com Number 1 well from the unit because of its low producing rate, were you not?

A. Yes, sir, I was.

Q. Do you agree with the exclusion of that well?

A. No, sir, I don't.

Q. And why not?

A. Well, you know, if we leave that well alone -- I went home last night -- I didn't go home, but I went back to the hotel last night and thought about that. If we leave that well alone, I project the reserves on that well to be over 127,000 barrels ultimately from that well if we don't do anything to that well and just let it produce the way it wants to produce.

Q. Did you project that with a decline curve?

A. Yeah, I did. I put a 10-percent decline on it to come up with those reserves.

Q. In your opinion, will that be a commercial well in this reservoir?

A. It will pay out. It's got 14,000 -- It will pay out, yes, sir.

Q. What about the pressure information on that well?

A. Well, I think, really, the pressure information is really what tells the story about this well, that we didn't -- I don't have access to the pressure, but testimony said that when this well was drilled, it had reservoir pressure when it was drilled, therefore they know it was connected.

And if that is, in fact, the case, then this well, this location where this well is, means that it sees the reservoir just like any other well does. It may not produce as well, it may not have as many feet of pay, but it sees the reservoir and it sees the pressure that the other wells see.

Q. And when you say it sees it, it's affected by and affects --

A. Oh, absolutely.

Q. -- the other portions of the reservoir?

A. Absolutely.

Q. In fact, by using producing rate as a factor to

keep wells out of the unit, in essence hasn't Gillespie injected another factor into the --

A. Yeah, well, they've already -- They didn't give me the idea, but you're right, they've already used it when they tried to keep -- or when they want to keep this well out of the unit, they're using the producing rate as the reason.

Q. And that would be a -- could be a formula in a factor could it not --

A. Yeah, it could be.

Q. -- a factor in a formula?

A. Could be.

Q. Gillespie testified that the Hanley Chandler Number 1 well would have had only an ultimate recovery of 4500 to 6000 barrels of oil, except for pressure maintenance; do you agree with that?

A. No, sir, I don't.

Q. And why not?

A. Well, Hanley's well was drilled in March of 1996, and the first month it produced over 3100 barrels of oil, and approximately 6000 barrels of water. So it was producing, flowing, over 9000 barrels of fluid that month. And according to the testimony, this well would have to die next month, sooner than that, because we're talking 4500 barrels --

Q. When you say "next month", you mean the second month?

A. The second month. It would have had to die then, and all that pressure would have had to have gone away, and that well wouldn't have been able to produce anything.

So what that tells me there -- I didn't try to project reserves, although I do have a feeling for what that well will produce. But what that told me was that the oil in place that was assigned to the Chandler well is extremely low and obviously unfair, because the Chandler well, if left alone, and even without pressure maintenance, would produce for a long time. In fact, it's in an advantageous position, because it's low on structure.

Q. Do you agree that without pressure maintenance in the reservoir, the pressures would have declined very rapidly?

A. Well, I don't think so. They'll decline, but it's not going to do -- I don't think it's going to be like the characterization that we've heard and that was assumed earlier, because I believe when I was doing my oil-in-place study with material balance, I saw -- started seeing an effect of some other factor, other than the expansion of those terms.

And what it was, I believe, was the formations -- the beginning of a gas cap. And when I took that into

account, my numbers started flattening out at 14.2.

Q. So what this creates is really a reservoir management question, does it not?

A. Yeah. They would have had the same problem, I believe, in this formation, that they would have had the same problem whether they were injecting gas or not. In fact, it probably wouldn't have occurred as early, because injecting gas, now, you know, they're going to be shutting in wells at the top of the structure. But they're going to have to do that anyway, to manage the reservoir.

This field probably would have had to be unitized to efficiently produce it, even if they didn't have a pressure management -- maintenance program going on.

Q. Were Yates/Hanley Exhibits 18 through 20 prepared by you or compiled at your direction?

A. Yes, sir, they were.

MR. CARR: May it please the Examiner, I would move the admission into evidence of Yates/Hanley Exhibits 18 through 20.

EXAMINER CATANACH: Any objection?

MR. HALL: Object to Exhibit 21. It refers to a participation formula to tracts that are not within the scope of this hearing and not relevant.

MR. CARR: May it please the Examiner, if we go with Mr. Hall, this is the unit. This is all we can

consider.

But the fact of the matter is, when you're looking at the impact of this unit on a larger reservoir, you have to consider the impact on other owners, or you step outside and ignore your directive under the Statutory Unitization Act. Section 21 shows you the impact on those other tracts. It's relevant, it's admissible, and it must be admitted.

EXAMINER CATANACH: We'll go ahead and admit it as evidence.

MR. CARR: And that concludes my examination of Mr. Savage at 28 minutes and 26 seconds under the presentation.

EXAMINER CATANACH: Mr. Bruce?

CROSS-EXAMINATION

BY MR. BRUCE:

Q. You've got Exhibit 17 --

A. Yeah.

Q. -- in front of you there?

Now, if you compared the State "S" Number 1 well with, over in Section 1, the WLSU Number 7, which used to be the Speight well, which well is more valuable?

A. Probably ultimately the State "S" is going to be, according to your testimony -- I mean Gillespie's testimony.

Q. And why would that be?

A. Because they're low on structure. And as these wells -- as gas -- as the gas cap expands, they're going to have to be shut in, and the lower wells on structure will be the wells you need to have in your unit to produce, if, in fact, you know, we're getting -- if it's as presented where we're getting pushed from the gas cap.

Q. Does -- Your formula doesn't give any value to the Unit Number 7 well, does it?

A. Why doesn't it?

Q. Well, your formula gives 50 percent to current oil rate, and the Number 7 well is an injector. So that gives absolutely no credit for forming the gas cap for that unit; is that correct?

A. No. It's providing pressure support for those other wells, so it becomes an integral part of that unit, whether you put it back on production and start producing that gas of there, which reduces the pressure, which causes these other wells' production rates to go down, or you put gas in it and let those wells produce at higher rates.

Q. But it's not given any credit for oil production, or any production?

A. The unit -- All these unit wells are treated as a well.

Q. But your participation formula depends on current

oil producing rate?

A. Current oil producing rate.

Q. So the Speight Number 1 gets no credit for being an injector?

A. No, that's not correct.

Q. What value does it get, then?

A. It gets value as it -- I'm not touching the individual values of these wells; that has already been -- you all have already established a relationship between these wells and these tracts when you unitized it.

So I can't touch that. All I can do is look at this as a lease. I mean, however you operate that lease, if you're going to inject in one well to make other wells produce better, then it becomes part of the total production for that lease.

If you don't want to inject in that well and you want to shut it in, then that's still part of that lease.

If you want to produce the gas out of that and reduce the pressure in the reservoir and cause the other wells' production to decrease, then it's taken into account. I mean, it's taken into account.

Q. Do you think that would be smart to stop injection in this reservoir?

A. Well, no, I think that what you're doing is pretty good.

Q. Now, what you're telling me is, if you knew what the unit boundaries were, exactly, the very best way to produce it would be to have the injector at the highest possible spot and have a few wells out at the fringes, downdip?

A. I don't suggest that. I mean, you already have -- I mean, when you do that, when you do that, what's going to happen in this reservoir, you're going to produce as much oil as you need -- or, I mean, that you can produce as you go along, just for economics.

I don't -- I'm not saying that you shut in these other wells. You're going to shut them in as you have to. Whether they get GOR-limited or whether you want to conserve energy, you're going to shut those wells in, and you're going to start just producing the wells downstructure.

I mean, that's how you manage this reservoir. That's how Gillespie is going to manage this reservoir. You can ask him how he's going to manage this reservoir. That's how he's going to do it.

Q. But it cuts into the credit for these wells that have the very hydrocarbon pore value, doesn't it?

A. See, the hydrocarbon pore volume -- You know, that's the rub here. When you look at Gillespie's interpretation, Gillespie/Enserch interpretation, that's

their interpretation of the field.

I mean, they used whatever data they could. And Brett has done that. And they're different, because they've taken different things into account. And so -- And the oil in place is very subjective. That's the problem with it, it's very subjective.

And we don't know -- and I can tell you right now, the thing that bothers me -- and it bothers me, and I'm only 9 percent different. You know, I've got 1.2 million barrels different between our representation about where the oil is and what material balance says. But you all have another million barrels.

So what we're doing is, we're fighting over 12.9 or 12.3 million barrels, and at the same time we have an expert that says there are really 15 million barrels. Now, what's fair here?

That's a real problem for me. I didn't know how to really present this, because my numbers didn't come together.

Q. Have you ever done a history match for this well?

A. No.

Q. Wasn't Williamson hired three or four years ago to do a history match --

A. Yes.

Q. -- by Charles Gillespie?

A. Yes.
Q. Couldn't do it, could you?
A. That's exactly right.
Q. Does material balance tell you where the oil is?
A. No, that's exactly --
Q. Also, in your --
A. See, that's the problem.
Q. Also, in your participation formula you talk about current oil rate. That doesn't take into account wells that may be artificially restricted in their production --
A. Well --
Q. -- does it?
A. No, it doesn't.
Q. Some of these wells might have to be restricted because of increased gas-oil ratio; isn't that correct?
A. Well, that's not an artificial restriction?
Q. That's not artificial?
A. No, that's good reservoir management.
Q. Okay.
A. And see, if you don't do that in that well -- See, you're not -- an operator won't look at these wells as one well against another. He looks at total production, and he's going to -- if a well is harming him by producing energy out of that reservoir of gas that you guys are

buying right now to put it into the reservoir, you're not going to produce gas; you're going to shut that in so you maximize the production out of the other wells. I mean, that's just good reservoir management.

Q. You said that you had done some figures. You talked about the Snyder "EC" Com, did --

A. Yes.

Q. -- some figures there on what that would produce. What about the State "S" Number 1? Have you ever done anything on that, what that well would ultimately produce?

A. I did not go into individual decline curves on these because this -- you know, this unit has been -- It came on close to the time where we had pressure maintenance and other things going on, which makes it a little difficult.

And it wasn't really in the same situation as what was being presented about the Snyder "EC". I mean, the Snyder "EC", nobody was going to bring it into the unit, and I just wanted to let people know that this was not just a piddly little well out there. I understand it's on pump. But you know, pumping wells pump for a long time.

And that's what this thing is doing, and it's going to -- If you leave it alone, look how far away it is from all these other wells here. There's a lot of oil out there. And these wells aren't going to produce it because

this well is lower on structure, this well is going to sit there and suck all that oil out of your unit, and you don't care. It's going to do it slowly.

MR. BRUCE: Mr. Examiner, I would object to the characterization that we don't care. We were asked to leave that unit --

THE WITNESS: I'm sorry.

MR. BRUCE: -- out of the unit -- that well out of the unit.

THE WITNESS: I'm sorry, I got carried away. I apologize.

Q. (By Mr. Bruce) Now, looking at your Exhibit 21, what you're saying, you're giving original oil in place to Tracts 12 and 13, which is the State "S" Number 1 tract, about 254,000 barrels? Tracts 12 and 13?

A. Yes, sir, excuse me.

Q. Do you know what the current total production is from the State "S" Number 1?

A. No, I couldn't tell you. I mean, I could find out, but I really don't know.

Q. I think there's previous testimony there's about 140,000 barrels?

A. 140,000.

Q. So it's recovered already 70 percent of the oil under its tract, roughly?

A. You can probably go -- Yeah. I mean, if that's the way it calculates, you're right. There's going to be -- I mean, if you want to look at it that way, you know, you can go up into your section up here without any wells, and you're giving these guys barrels and here they're getting barrels in any other well.

So, no, this is going to happen. You're going to have wells that are very good wells, that are going to cum more. You know, that's why you need to unitize this thing fairly, so that everybody gets in there and you don't have these kinds of discussions.

But you get up at Hanley, see, where you've done -- where I think it's been done wrong. And whether this is right I'm not sure because, you know, it's so interpretive. But it's certainly better than getting 30,000 barrels of oil in place out there.

Q. Well, what would the Chandler well have produced without the pressure-maintenance project? Do you have an idea?

A. Well, I think it will probably -- it would probably, if you didn't have pressure maintenance but you did unitize, say -- say you unitized, because you realized that you have problems, and you still operated this well so that you're in control of the wells at the top. I think that they would -- I think my expectation is somewhere

between 150,000 and 250,000 barrels.

Q. But without unitization?

A. Yeah, without -- I'm talking about without unitization.

Q. Where would that --

A. Well --

Q. Where would that come from?

A. Well, it will come from the lease line. You see? I mean --

Q. The unit --

A. -- that --

Q. The unit? The unit, in other words?

A. Sure, yeah. I mean, when Hanley was drilled, it was drained already by the unit wells. I mean, that unit line, it goes both ways, you know. I mean, if you can drain both ways. So that's what's going to happen, and that's why you need to take care of these things.

Q. So currently it's draining the unit?

A. I don't know about that. It may be draining itself out here.

Q. Do you have an explanation for inclining production in that well?

A. According to Hanley, the incline -- Oh, yeah, I meant to mention that. According to Hanley, the incline is that, you know, the well came on and produced a lot of

water. And it took them, I think, five or six months, to line that well up, changing the choke around, getting it set up, because they were afraid of the water and how all that worked. And they got it lined up by then.

But there was prior testimony that blamed that on their injection. You know, I mean, the injection caused it.

But when I looked at -- I would need that exhibit, your Exhibit 8A which shows -- well, I think it's your Exhibit 11 also, shows that the reservoir pressure at the time Hanley drilled their well was 3310, in March of 1996, and every pressure point after that was lower, so that it was not getting the pressure push from the unit. Actually, the unit -- the pressure in the reservoir was going down.

So that was really -- should have caused Hanley's well to go down, you know, I mean if the performance of that well is based on your pressure maintenance. I mean, it's pretty good physics of you can do it the other way around.

Q. Looking at Exhibit 17, the -- as an engineer, how would you characterize the west half of Section 28? Are those reserves -- Are they proven undeveloped reserves, are they probable reserves, are they possible reserves?

A. Well, let me just make some statements about my

feelings about this, is that it -- too few wells drilled to define this pool by well control.

You only have -- I can't -- one, two -- you really -- and maybe the State "D". There's only a few wells that can be used to define the outer boundaries of this pool.

Every -- The wells that are inside the pool, you can say that they're thin or the reservoir isn't as good, but you can't say where the zero is because they're inside.

So when you put a zero line outside that well, you're just -- you're extrapolating data. And so the only good data for drawing zero lines are the data points outside the zero lines.

Q. Now, getting to volumetrics, what was density porosity -- Now, you used density porosity, excuse me.

A. Yes, sir.

Q. And Gillespie used crossflow; is that --

A. Not -- Well, Gillespie in their early testimony used some -- used core data and used some percent of density.

But I heard today or yesterday someone say that they used crossplot, but I don't know if that was a misstatement or...

Q. What would be the effect if you used a lower porosity on your...

A. Well, if you use a lower porosity then your oil in place goes down, you know, if that's the only thing that changed.

If you just said, make the porosity lower, then it probably wouldn't affect relatively the relationship of the tracts, but it would affect, maybe, the total oil in place that you calculated.

Q. And it would bring it down closer to Gillespie's total?

A. It's possible.

MR. BRUCE: I'll pass it over to Mr. Hall.

CROSS-EXAMINATION

BY MR. HALL:

Q. Mr. Savage, let me talk to you about Yates Exhibit 14 just a little bit. Turn that exhibit upside down; would you do that? At the top there, there's a fax legend indicating that this exhibit came from Williamson Petroleum, sent to Hanley?

A. Yeah.

Q. Did you have any involvement in the preparation of Exhibit 14?

A. In the discussions and the corrections of Mr. Engstrom doing the analysis.

Q. Okay. Can you tell us what formula was used for the water-saturation factor?

A. He used Archie's equation.

Q. I'm sorry?

A. He used Archie's equation, that is typical for use out here. I think someone else called it the Permian Basin equation, but I don't think they'll find that in the literature.

But it's water saturation equals the square root of R_w over R_t times porosity squared -- R_t times porosity squared --

Q. Let me ask you about your Exhibit 21 very briefly. That's your proposed participation formula. Do you have that in front of you there?

A. Uh-huh.

Q. Down at the bottom right-hand corner there's a date indicated May 13th, 1997, which was --

A. Yes.

Q. -- Tuesday, I believe.

A. That's when we could do it.

Q. All right. Do you know when it was delivered to Hanley and Yates?

A. I would assume -- I want to say that we probably faxed it that day, but we may not. I may have brought it with me.

Q. All right. Is it safe to assume that none of the other working interests or royalty interests in the

proposed expansion acreage have even seen this?

A. That's so. They didn't see this; they have seen a rough at some point.

Q. Do you have any consents from any royalty interest or working interest?

A. I'm not a part of the consent business or, you know, that business.

Q. All right, you simply don't know?

A. No, sir, I don't know.

MR. HALL: That's all I have, Mr. Catanach.

MR. BRUCE: One thing, Mr. Examiner. I asked a question, and I don't -- I got sidetracked.

CROSS-EXAMINATION (Continued)

BY MR. BRUCE:

Q. Once again, looking at Exhibit 17, the west half of Section 28, would you characterize that tract as having proved undeveloped reserves?

A. The feature out here?

Q. Just the entire west half and southwest --

A. By -- it's -- what -- what --

Q. -- and northeast of Section 28.

A. What kind of definition are you using?

Q. Are they proved undeveloped reserves?

A. You've got to tell me what definition you're using. Are you using SEC definition, or are you using SPG

definition? Either/or.

Q. Answer it over both.

A. Okay. SEC, it would not be. Okay? If you're talking SEC.

If you're talking SPE, it would, because you can take into account your interpretation of the structure as to what's proved or not, if you have enough data points to tell you that you can do that. But if it was SEC, they limit it to a location away, and you can't use interpretive data like that for SEC. But --

Q. What would they be classified as, under SEC?

A. Williams would probably classify them as probable, which is the next classification down.

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Savage, according to your participation formula, 79 percent of the participation would be attributed to the current unit as it stands right now?

That would -- If we used your table, we'd have to adjust -- within the unit, we'd have to adjust the individual tracts to account for this 79 percent instead of the 100 percent that's used before, right?

A. Well, you would have to take 79 times their interest right now. They would -- Their interest right now

would be a tract-participation interest, and then this would be the interest that would be multiplied to get their -- in the -- yeah.

Q. Yeah, according to your formula, their participation isn't going to change --

A. Right.

Q. -- the percentage; just the total is going to change?

A. Yes, sir.

Q. According to your participation formula, the Tract 14, which would be the Chandler tract, would be -- they would get approximately 6-percent participation?

A. Yes, sir.

Q. Do you recall what, under the Gillespie-Crow unit, do you recall what that number was?

A. I want to say it's two or three percent or less.

See, I didn't -- I'm not good with comparative because I went into this thing really -- I'd seen the exhibits, but I didn't study them, and I didn't do a comparative as I went along, because my -- honestly, my feeling was, I thought they had described the reservoir wrong.

So I didn't even -- I really wasn't into comparing. But I think this is quite a bit higher.

But they had drawn their zero line, that you

remember, just right above the well, so they didn't give it very much oil in place.

It may have been less than one percent. It may have been about like a half a percent.

Q. By far the biggest new contributor would be Tract 15 at 654,000 barrels of oil; is that right?

A. Yes, sir, and then it would be deemed because it didn't have any producing on it. Even though it had that, it only ends up with a 2.5-percent interest.

EXAMINER CATANACH: I've got no further questions of this witness.

MR. CARR: No further questions.

EXAMINER CATANACH: No further questions?

MR. HALL: (Shakes head)

EXAMINER CATANACH: Gentlemen?

This witness may be excused.

MR. CARR: May it please the Examiner, that concludes our presentation in this case.

MR. HALL: Call one rebuttal witness.

EXAMINER CATANACH: Okay.

MR. HALL: We can take a break now if -- or you would like to proceed?

EXAMINER CATANACH: Who is your witness?

MR. HALL: Ralph Nelson.

EXAMINER CATANACH: Yeah, let's go forward.

Go ahead, Mr. Hall.

RALPH NELSON,

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

DIRECT EXAMINATION

BY MR. HALL:

Q. Mr. Nelson, if you would, please, I'd like for you to explain to the Hearing Examiner the method you used to calculate hydrocarbon pore volume and what industry standard you used in conjunction with that.

If you want to refer to Exhibit 30 and identify that for the Examiner --

A. Exhibit 30 is a tabular display of our QLA2 log analysis that we did on the Chandler Number 1 well.

As I previously said, I think we used the square root of one over porosity squared times R_w, divided by R_t. I believe that was -- a different wording of that was said just a moment ago.

The difference that we did, I guess, between their program and our program is, Platt Sparks came to the OCD and the OCD accepted their crossplotted porosity as the correct method to do log analysis in this pool.

And before we -- Gillespie-Crow and Enserch had come to the OCD and I had compared core porosity with -- to log porosity and could see that there was -- the core

porosity was about 85 percent of density porosity.

But the OCD accepted the crossplotted porosity as the more commonly used way to handle a density neutron log where the neutron read lower porosity than the density, and we used that same method when we performed the log analysis for the Chandler and the State "S" well.

So I believe Hanley testified that they had a measured R_w of .047. We had a measured R_w from the Klein well, from a drill stem test, of .052. I believe that was testified earlier in the original hearing as to where we came up with that R_w.

And quickly comparing the two R_w's used and some of their porosity values and resistivities as they had stated, that's going to make a very small difference, around three percent, in the numbers.

When we -- When I started looking through this Exhibit 14 --

Q. What is 14?

A. Yates Exhibit 14.

Q. That's the log analysis?

A. On the Wiley Fee Number 1.

-- I took the density porosity at a depth of 11,575. They showed a 6-percent. I used the formula that we had used, I used the formula that they said they had used -- I think some other people had checked it -- I used

their R_t. I can't come up with their water-saturation numbers. And that was true for some other numbers in here also.

Water-saturation number for that one foot, as I recall, was about 16 percent. Again, a difference.

I think also previously it had been testified about the water saturation and in the Chandler well that we couldn't really see an oil-water contact.

And yes, in a carbonate reservoir with porosity lenses you can get a smearing, so to speak, of the oil-water contact so that our simplified number of 7617, which was challenged, is not completely correct. However, I think the statement was made that there as no water contact in the Chandler Number 1.

I think you can see from the QLA2 analysis, you have an increasing water saturation. And at 11,603 you've got 62.9-percent water saturation. If you use the .047 R_w at that point, then you have a 59.1-percent water saturation.

I think that suggests that perhaps the water contact in this well is perhaps substantially higher than we had it picked.

If you use 11,594, the water saturation on this tabulation is 55 percent.

Q. You heard Mr. Bracken testify that he used a

water saturation factor of around 40 percent for the Chandler well. Do you remember that?

A. That's correct.

Q. Is that correct? Do you agree with that?

A. Well, our numbers had been higher for a cutoff than that. But if you use that percentage, then in our QLA2 printout, then this water contact would be up 11,590.5, or 11,590, since that's essentially 40 percent.

What this does is, number one, I'm -- I did compare -- Go back to Exhibit 14, the tabulation that says in the front page, it says the pay hydrocarbon thickness is 4.1987. I assume that that's a hydrocarbon pore foot thickness for this well. I compared it to the Hanley hydrocarbon pore volume map.

Q. That's Exhibit 17?

A. Yes.

Q. Will you look at that?

A. Those two numbers are different. The map shows 3.7; this shows essentially 4.2.

Q. So Hanley's own exhibits contradict each other?

A. Yes, they do.

Also, on that same Exhibit 14 for the Klein Fee Number 1, that same pay hydrocarbon thickness shows to be 3.2 feet, and that shows 2.2 feet. I'm not sure of the discrepancy, why they would be different.

I'm surprised that they came in with the Wiley Fee and the Klein, which are unit wells 10 and 11, and didn't have a similar tabulation for the Chandler well. But our tabulation shows that the water contact is 11,603, perhaps as high as 11,590. The KB elevation is 3999. So essentially, then, you're reading 7590 as their oil-water contact at the highest point in this QLA2 analysis, and then 7604 at the lower point.

If you look at -- I want to look at this net porosity structure map.

Q. If you have an exhibit number it would be helpful to us all. Is that 11?

A. Yes, yes. It's looking at --

Q. Just a minute, let's make sure the Examiner has his copy.

EXAMINER CATANACH: Are you looking at 11?

THE WITNESS: Exhibit 11.

Q. (By Mr. Hall) Go ahead.

A. If we look at what has been labeled Tract 15 and you use a water contact of a subsea of 7604, then clearly the mound in the west half of the tract is separated from the unit. And if you use a number of 7590, then it's -- that mound is below the oil-water contact.

Q. Let's talk about the Hanley seismic exhibits, if you'd like --

A. Okay.

Q. -- Exhibits 8 and 9, the 2-D and the 3-D.

A. I believe there was a lot of discussion earlier concerning the seismic and the reliability of the seismic and the accuracy of the seismic, as I understood.

When you look at Exhibit Number 9, the Yates Chambers well, which is the northeast of the southeast in 27, I would interpret from this map to that structure point to have been about 7675. I believe Hanley testified on their Exhibit 10 that their pick of the Strawn there was 7580, which is just about a hundred feet.

I had picked the Strawn lower -- or, excuse me, I had the Strawn reported lower than that, but 7580 still -- 76- -- 7580 still proves that point.

Again, this is the 2-D structure map. I do understand that. Maybe I misunderstood some of the testimony, what the purple highlighting meant. I thought that meant that that was good on this map, on the seismic, and yet there are unit wells that are just 330 feet, and I'm not sure the distance of the Hamilton Number 3, which is Unit Well Number 4. Quite good producers, have no seismic anomaly apparently noted from the 2-D data, right across the center part of the field.

I think the seismic has been useful out here in pointing us in the right direction, but to assign accuracy

to it, I don't believe, is proper use of the data.

Q. All right, let's look at Exhibit 8 real quick.

If you look to the west, the left side of the exhibit, you get into Section 29, there starts to appear another mound there. Do you see that --

A. Yes.

Q. -- right about at the fold?

That mound seems to be the same interval as the mound shown within 28; do you agree with that?

A. That's correct.

Q. The mound to the west, whether it's in communication or not, that's not reflected, that's not honored on any of the other Hanley/Yates isopachs or structure maps?

A. No. It's not on their hydrocarbon pore volume map, which is Exhibit 17. There is no evidence of that additional mound, and that is a mound that -- well, I'm not sure of the ownership, but I don't believe it's Hanley ownership over there in 29.

Q. Anything further you wish to add?

A. No.

Q. Was Exhibit 30 prepared by you or at your direction?

A. Yes, it was.

MR. HALL: I move the introduction of 30. That

concludes our rebuttal exam.

EXAMINER CATANACH: Exhibit 30 will be admitted as evidence.

Mr. Carr?

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Nelson, if I understood your testimony, when you look at the seismic information presented by Hanley, you would interpret it somewhat differently; is that what you said?

A. Repeat that -- I don't have a seismic to interpret. Is that -- Is that your question?

Q. When you look at the data presented by Hanley, these seismic exhibits --

A. The map.

Q. -- was it your testimony that you might interpret this information somewhat differently?

A. Well, in terms of what?

Q. I mean, do you agree with the interpretation of Hanley?

A. Exhibit 9?

Q. Yes, or 8?

A. Either/or, or specifically one or the other?

Q. Either one. Do you agree with either?

A. Well, as I pointed out in Exhibit 9, the

structural point is not the same as the well drilled out. It's about a hundred feet of. I mean, it's 95 -- or where it's over 100 if I'm picking it.

And yes, that is a contour option. I understand that's a contour option. But that would suggest to me, then, perhaps their velocity data was not correct, but I'm not a geophysicist.

Q. Well, what were you trying to say? You might read it differently?

MR. HALL: I'm going to object. That question has been asked and answered, same question.

Q. (By Mr. Carr) Is seismic a tool you think is valuable for you to use if you were trying to interpret the reservoir north of the unit?

A. I believe seismic -- It has been testified that seismic within the unit has not been accurate in depicting, one, the State "S" well, was not separate mound. So why should it be any different to the north? I don't know.

Q. My question is, when you're trying to map a reservoir, is seismic a tool you would consider valuable in trying to determine a boundary when you don't have actually wells on every tract?

A. I would use seismic, yes.

Q. And you do have seismic within the unit, do you not?

A. Yes, we do.

Q. And you elected not to present any of it here today; isn't that right?

A. That's correct.

MR. CARR: Thank you.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Nelson, you have -- What type of seismic do you have within the unit? 2-D or --

A. We have both 2-D and 3-D.

EXAMINER CATANACH: That's all I have of this witness.

Anything further?

MR. CARR: Nothing further.

MR. HALL: No.

MR. CARR: I have a fabulous closing.

EXAMINER CATANACH: Okay.

MR. CARR: I do have a closing statement.

EXAMINER CATANACH: Okay, Mr. Carr, we'll let you give your wonderful closing statement.

MR. CARR: May it please the Examiner, this case is obviously about correlative rights, but it's about more than that. It's about how this reservoir has been unitized, it's about how interest owners other than the operator and those in the present unit have actually been

treated.

And we're here today to tell you that our rights are being violated, and they're being violated because we believe the boundary as presented to you is improper. We believe the formula utilized is unfair.

I stand before you, I submit, in a position somewhat different than my opponents here today, because we came in and we presented the geology that we had. We've shown you what we think the seismic shows, we've shown you how we analyze the reservoir.

But there's an interesting presentation on the other side, because I will submit to you that Gillespie-Crow/Enserch did not present their geology, did not show you what they know about the reservoir. What they did was basically hide behind the Platt Sparks map and a prior order of the Division.

And when you say, What do you believe?, they said, Well, the Commission has told us, the Division has told us, on another day and another case with other issues.

It's interesting to listen to a presentation where Gillespie-Crow paid for 2-D and 3-D seismic across the unit, they've integrated it into prior mapping, but they won't use it now.

And yet at the same time, when you look at their geological interpretations, they can find a high in the

northwest of the unit without well control to support it. They can take their mapping and their zero contour to the extreme northwest corner of the unit, no well control to support it. They can include substantial acreage in the northeast of the unit, no well control to support it. All without data points. Kind of saying, Well, the Commission made me do it because they accepted Platt Sparks' map.

But I will tell you what is curious about this, is, I don't know how a person can map a reservoir in 1994 using seismic and walk in here with a straight face and say, Well, I mapped it without it today; it just happens to match; I guess I forgot the seismic, but without data my contours are the same. And I submit to you something is radically wrong there.

They're going to talk to you, when they close, about the relevance of the geology in the original well, and they're going to say it has no relevance whatsoever, but it does. And the reason it is relevant is because if we are pushed into this unit we share with them in that unit, based on that geology.

And what we see is a tract being put in on the State "S", in the case of the State "S" or the Chandler, with a well on it. But with hard data we've proven what that acreage can do. And we're being put in with acreage that is speculative, it's geological.

Mr. Bruce would say, We don't have any well control in the northern extension you're proposing to the unit.

But look at the unit. Go right around the edge. Look at tract after tract after tract. No geological control, no well data. Only interpretive information, something which they thought was right when they unitized initially, something which for some reason is wrong today.

It's a valid tool. We've come in shown you the data we used to map the reservoir, and we believe today when they expand it the data should be evaluated and treated as it was back in 1995, and the unit as it is now shown with the integration of all available information, the boundaries ought to be expanded, the unit ought to be expanded to include all acreage thereby that's going to be affected by the production from this reservoir.

The time to do this right, the time to do it, is now. In 1995 they drew their map to include what they believe to be the entire reservoir, and yet today they don't want to do that, and we think they must.

I think the best example of how Mr. Gillespie has been treating others in this case, and I suspect a pretty good example of what's wrong with this formula plays out when you take a look at the new well they're proposing in the west half of the northeast quarter of Section 34.

Mr. Mladenka says, Mr. Gillespie wants to drill now, while he can share the risk, share with us.

But you see, the problem with that is that if we drill a great well, what's going to happen to it? Look at their -- I think it's 5A, the map -- their porosity-feet map. They bring it in, and you will see that there is only a small portion of the spacing unit that they're going to attribute any hydrocarbon pore volume to, and it's a thin sliver at that.

I mean, we're going to have another situation where we bear the risk, and if we are successful we get almost nothing, we have one of these 200-barrels-to-4-barrels-a-day sort of penalty imposed on us.

Now, they say, Oh, you could go out and drill a well. Sure, we could drill a well north of the State "S", and we all know we could drill other wells in the Hanley -- the acreage. I mean, physically you could go out, take a rig and drill a well.

But the issue is, would a prudent operator drill a well when, if he's successful, it won't be his tomorrow? And that's why we've got this mess before you.

Now, let's look at the formula. In the testimony you incorporated by reference yesterday, Bill Crow was testifying about how they brought Phillips into the original unit, the 3-D seismic. Met with Phillips several

times -- he described them as lengthy meetings -- where they took the data and they worked it out.

And what did they do? Crow says they increased the interval on the Phillips tract, made it thicker. The result is, Phillips got more.

So when you go into this unit, what happens when you -- like with normal unitization, we all get together, we develop a unit, we look at the formula, we look at the boundaries. And then when it meets the criteria so that people are satisfied it's fair, you can disapprove.

But that didn't happen here. The boundaries were constructed in such a way that, whether by chance or happenstance, Yates and Hanley were not involved.

And we hear a lot of things about, Well, Mr. Gillespie owned a heck of a lot of acreage. Of course he does, out here. I mean, that's obvious, and it's just a red herring.

The issue is, Yates and Hanley did not own anything in the original unit. Their acreage was immediately offsetting.

And now, because of the way this has played out, we're not in a position where we can negotiate changes in the formula; we have to come here. And because what we have done at an operator level has failed, we have to dump that on you. I think that's unfair. I think it's unfair

to us, and I think it's unfair to you.

But Dr. Boneau has shown you what the Gillespie proposal will, in fact, do to Yates and Hanley, Exhibit 5A. We submit that's not fair, it's not reasonable, it's not equitable.

John Savage has shown you how you could add another factor to the formula that would improve it, make it more fair, make it more reasonable, make it more equitable.

And he also pointed out that the way they went about excluding the Snyder "EC" Com, in fact, what they're doing is using producing rate as a factor because they won't exclude the unit if you have too low a -- I mean expand the unit into tracts if a you have a well with too low a producing rate.

So we have a formula, and then we have sort of a formula, and then we have a proposed formula. And get ready, it's all coming to you. And there a lot of false issues that have been raised.

I've mentioned the Gillespie ownership issue, the cost to the unit. Well, there are costs to the unit, obviously; we're not pretending that things aren't happening that are.

But you're only getting part of the story because nobody's suggesting to you what kind of value they're going

to get when they sweep drycast through the reservoir, pick up the liquids and sell them there.

There's a real valuable offset to the costs they're lopping at you and saying how rough it is for them that this is happening. And I submit to you if it is a rough deal it's because they didn't get with it after their letter in January last year and get this thing unitized.

Mr. Savage pointed out -- we were talking about damage to their pressure-maintenance project -- it would have happened anyway. And what they are now characterizing as his horrible problem is really an issue related to management of the reservoir.

I have the unpleasant task of going first in closing, and you're going to hear about *de facto* applications. You're going to hear that, you know, we didn't bring a case before you, notifying everyone.

But I want to tell you, I believe that is nothing more than an attempt to divert you from what you are told to do by statute, and that's protect the correlative rights of all interest owners in this reservoir. And I don't like to be accused of cutting up, but when I did cut out the unit a few minutes ago, that's what they'd like you to look at, and that alone.

But, you see, you can't do that, because you can't be put in that kind of place. Because if you are,

your only choice is to just bless what they have decided to do. And that's what's gotten us into this mess to begin with.

And so I guess the questions for you, other than the obvious ones about the formula and the boundary, are these: Is it not time to unitize the reservoir correctly? Shouldn't Mr. Gillespie be told it's time to do it right? Because if you don't, you're in essence authorizing more of this same sort of stuff.

I guess the question is, do you want us to come back with a new case involving an additional well next to the Chandler Well North, and in a few months later we'll see you again about the well they're proposing now north of the State "S". Isn't it time to do this right?

You can do it two ways. You can either expand the unit and amend the formula -- and you have the authority to do that by statute -- or you can tell Mr. Gillespie, No, go back and do it right.

Either of those -- By doing either of those, you will have acted to protect correlative rights. But if you don't do one of those, you'll have ignored what the statutes -- the Oil and Gas Act tells you to do.

EXAMINER CATANACH: Mr. Carr.

Mr. Bruce? Mr. Hall?

MR. BRUCE: Mr. Examiner, first off, I knew Bill

would bring up the correlative rights and about how these other people are being harmed, despite the fact that Dr. Boneau got up there and admitted that the injected gas is producing, is pushing oil off the unit. Now, you tell me who's being harmed by that. It's not the unit tracts; it's the people in the unit.

Now, the Division has already found that the unit agreement and the unit operating agreement are fair and reasonable. They shouldn't be changed now. There's been no material change in the circumstances.

I'll get into the participation formula. I have a little quote here from a case. The opinion stated that in any unitization case the oil should be divided on the basis of 100-percent saturated hydrocarbon pore space. That was the judge's ultimate decision on fairness. That's exactly what we're asking.

As you know, you've been through a bunch of unitization cases. There are any number of formulas that can be considered fair. Perhaps the formula proposed by Yates and Hanley might be fair in some circumstances. Certainly in our circumstance, the formula in the existing unit agreement is fair.

They've requested -- Yates and Hanley have requested a major change in the participation formula. If you go to Section 70-7-9B, it says participation factors in

an existing unit can't be changed without 100-percent approval by interest owners in the existing unit.

I'm here representing Gillespie-Crow, Inc., today. I also represent Charles Gillespie, one of the largest working interest owners in that unit. I'm here to tell you right now, he won't approve that participation formula. Therefore, there's not 100-percent approval on that participation formula; that formula is dead. And all we're here today to look at is the horizontal boundaries of that unit.

Yates and Hanley state that the Application isn't proper because it may include less than the entire reservoir. The Statutory Unitization Act expressly allows unitization of less than the entire reservoir, so long as other portions of the pool are not adversely affected.

Every witness who got up here said other portions of the pool are not being adversely affected. Therefore, this Application is proper.

Every unit agreement that comes in front of this Division has a provision on expansion. Every unit agreement allows for expansion. Why? There might be additional development, you might find new data and then you can expand the unit at that time. There's nothing wrong with that.

In addition, the Statutory Unitization Act, the

main thing is not whether you have the entire unit. What you look at is whether the acreage that you seek to add to a unit has been reasonably defined by development.

The only acreage that has been reasonably defined by development is State "S" Number 1 acreage, Chandler Number 1 acreage.

Gillespie-Crow has done the proper thing and limited expansion in this case.

What Yates and Hanley seek to do is include exploratory acreage. They're asking for all this downdip acreage to be included that has no wells on it. That's what's done in exploratory units, not secondary recovery units.

And there's one reason for that: If you have an exploratory unit, there's a time limit on forming participating areas. And you can contract acreage out of the unit if it's not productive. That's what's required by the state and federal governments.

Not in the West Lovington-Strawn Unit. Once that acreage is in there, it's in there. So if you add goat pasture to the north, which is exactly what it is, and somebody goes out there and drills a well and there's nothing there, you can't take away the five or ten percent Hanley is asking to be added in. You can't do that. And that's why Hanley's Application is improper.

I've got a few other points to address in Mr. Carr's closing.

You know, it's true, Yates and Hanley weren't at the original Application. I'll leave you my copy of the map I had on the wall. They seem to show some big conspiracy theory; we'll get into that in a minute. But Yates/Hanley Exhibit 22, which was the Enserch/Gillespie map used at the original unitization hearing, that was based on seismic, no question about that. And that showed what they thought was the reservoirs of the boundary -- the boundaries of the reservoir.

But in that hearing seismic was not accepted. The Division accepted Hanley's -- excuse me, accepted Snyder Ranches' interpretation, which was not based on seismic. So you said, Don't use seismic.

If you accept Hanley's interpretations today, you're switching on us, saying, Let's base the new unit boundary on highly speculative seismic interpretations. We don't think that's proper.

The fact of the matter is, in the original hearing the opponents to Gillespie-Crow and Enserch basically agreed with the unit outline.

Second fact of the matter is, these new wells only added about plus or minus five percent to the reservoir's volume and only really resulted in minor

changes to the original geology.

Now, like I said, the map I had on the wall, they seem to discount this. I showed you all of this acreage, a hundred percent owned, two-thirds owned, by Gillespie and Enserch.

Yes, you do not form a development unit on surface acreage, on surface ownership. But the fact is, if you look at this, if Charles Gillespie had wanted to add in extra acreage, he owned the interests, he could have increased his interest in the unit by adding in his acreage. Is that unfair? No, he excluded a lot of his acreage because he didn't think it was fair to the interest owners to include his acreage.

This proves that Gillespie-Crow did not form this unit two years ago, based on land ownership.

Today, just this afternoon, Gillespie-Crow is being criticized for excluding the Snyder "EC" Com Number 1 well from the unit. You've got the letter. Yates didn't want it in, apparently other interest owners didn't want it in. So Charles Gillespie said, Okay, fine. Now he's being criticized for it.

And I'll tell you this: You show acreage to the south that's a hundred percent Charles Gillespie. He didn't ask to have it in, he doesn't want to have it in. Frankly, I don't think he thinks it's productive. He's

been pretty aggressive in drilling wells out there.

Again, despite all the facts, Gillespie and Enserch are being stated to be the cause of the delay in unitization. If that's the case, why did Hanley keep its well information tight for six months? Why did, in July, 1996, Yates write a letter to Gillespie-Crow saying, We don't want the State "S" unitized? Does that sound cooperative? Baloney.

There was opposition from the two main opponents today, there were title problems, there were other delays requested by Yates and Hanley. They could have started a unitization study back in July when they got the data we provided to them. They waited until March of this year to do it.

The working interest owners within the unit took the risk in developing this pool starting five years ago. It's benefitted everyone out there. You wouldn't see the Strawn activity in this area if it hadn't been for Charles Gillespie and Enserch drilling that first well almost five years ago. I think you need to give credit to the people who did that, not insult them by telling them they don't know what they're doing, even though they've drilled 11 commercial wells out there with zero failures.

If you approve the Yates/Hanley request, you will be violating the correlative rights of the current working

interest owners, you will be adding highly speculative acreage, acreage that can never be contracted out of the unit, it will be unfair to everyone involved, and we ask you to approve the Hanley App- -- excuse me, the Gillespie-Crow Application, as presented, no modifications.

Thank you.

MR. HALL: Mr. Catanach, when we present these cases to you, I like to see it done in a manner that helps you craft an order. And in doing that I've always had a vision about how a Hearing Examiner sits down, takes the case presented to him, starts to craft this order. My view may not comport with reality, but this is my vision.

I see a Hearing Examiner start with the advertisement, see what the Application is all about, in this case look at the ad, look at the notice, look at the Gillespie-Crow pleadings, and he would see that it's a quite simple expansion of an enhanced oil recovery unit under the Statutory Unitization Act.

Then I think the next thing I would do is, I would pull out a copy of the Statutory Unitization Act itself and make sure the Application is in conformance with all the requirements of that Act.

Delve further into the pleadings and see who's entered an appearance, who's supporting and who's in opposition. If they're in opposition, what's the basis of

that?

In this case, I think you would look to see the Hanley/Yates pleadings provided to you. And all of a sudden you would wonder, why on earth are we considering a Bravo Dome-class exploratory unit in the context of a simple unit expansion to 160 acres?, and scratch my head at that.

So that's your starting point. The case is presented to you, and you consider all the evidence from the witnesses. And let me go through that briefly for you.

In the context, the case is framed by the pleadings, the notice and the advertisement. It's a statutory unitization expansion case, simple as that.

Mr. Nelson gets up and establishes that the allocation of hydrocarbon pore volume according to his methodology is proper, and he's done it properly with respect to the expansion tracts. This allocation has been done on the basis of hard data.

And I think everybody's in agreement that it's the best data available; it's well data; it's not by extrapolation from seismic or anything else. It's not by extrapolation from seismic or other interpretation. It's hard well data, and that's the data that I think all of us are the most comfortable with. The salient exhibit for that is Exhibit 5B, which is the HPV pore volume map.

Mr. Nelson also established that the State "S" and Chandler are in the reservoir and should be included. That, right there, is the heart of the case in front of you.

Mr. Mladenka, petroleum engineer for Gillespie-Crow, testified that -- gave you a chronology of what Gillespie-Crow has done in its operations of the unit.

And I think they quite clearly established they've been prudent operations, and they've been operations that have benefitted those outside the unit, non-unit wells, at a cost to the unit operators and participants of a million dollars, but cost-free to the non-unit participant. So in essence, what I guess Yates and Hanley are trying to enjoy here is a free million-dollar ride.

Mr. Mladenka testified about the drop in the reservoir pressure attributable to production from the State "S" 1, primary reason for the drop. He said they brought that back up, stabilized it, and that's attributable to Gillespie-Crow's pressure-maintenance program. There again, a million-dollar free ride. I think the testimony was, the overall cost of injection was $3.3 million, but the value of that pressure maintenance to the non-unit participants today is a million dollars.

Mladenka also gave you evidence, irrefutable

evidence, that the State "S" 1 is in communication with the unit and the reservoir, and I don't think anybody has disputed that. It's established that without the pressure maintenance, both the State "S" and the Chandler would have experienced a rapid decline. So therefore, their inclusion is necessary for unit operations and the continuation of the pressure-maintenance project.

And by so doing you'll substantially increase recoverable reserves from the unit, and that will benefit all the working interest owners, all the royalty interest owners. And he testified that HPV allocation method is the fairest way to allocate participation among all the tracts that are proposed for the unit.

Mr. Mladenka also, under the Statutory Unitization Act, rendered direct testimony the reservoir is reasonably defined by development, and I think all the subsequent evidence bore that out.

He also has established that further delay is harmful to both the working interest and royalty interest. We need to proceed forthwith.

He also testified at length about the good-faith efforts, 16, 19 months' worth of negotiations with Yates and Hanley to secure their voluntary joinder. And it turns out, it appears we've been haggling over a simple -- a very small participation factor, and that's it.

Paul Connor testified. He's the consultant from Unit Source, did the unit work. His testimony further established compliance with the Statutory Unitization Act. He got the joinder and the notification out, there's no debate about that.

John McDermett testified. At your request, we gave you the information on the recoverable reserves, both primary and secondary.

Dr. Boneau was offered on behalf of Yates, and through him we established the following, that Yates and Hanley have not followed the procedures in the Statutory Unitization Act, but he did concede that both the State "S" 1 and the Chandler should be brought into the unit, and those tracts are included within their own proposal. That's not an issue.

So it appears that the only part of this dispute between the parties is over the participation factor, and from what we heard the difference is between 4.34 percent. and 4.89 percent. And that's it, that's all that's keeping us apart, as I understand it.

I asked him if there was anything else. Why can't we proceed to work this out? And he said, Well, it's gotten down to a point of principle. We're here to put on two days' worth of testimony, to fight over principle.

So really, what Hanley and Yates are trying to do

is get the same barrel revenues production currently received from the stand-alone "S" 1 by including outside acreage to improve their position in the unit. That's what their proposition -- That's what their proposal is all about. Their Exhibit 7 demonstrates that. The problem is, they want to do that cost-free, without expense to them, and that is patently unfair.

Fred [*sic*] Bracken testified, Hanley geologist, and through him we established that his methodology, his interpretations for picking the top of the Strawn lime were probably not correct.

Also, his assumptions about the water-oil contact were not correct. He said that there was no impediment to drilling their acreage in Section 28, gave no reason anyway that I heard. And he also said there was no correlating data for the seismic that he presented. So his testimony was characterized by inconsistent statements throughout, I thought. I don't think it should be given a whole lot of weight in this proceeding.

Mr. Savage testified, from Williamson and Associates. Didn't establish much through him, only that no one has consented to the participation formula that was generated only last Tuesday.

Did try to establish that their formula is based upon current oil producing rates. That's the basis for

attributing participation among the tracts. And I think countervailing evidence, more reliable evidence put on in the direct case was that you need comfortable data, you need hard data, you need well data to do that.

Mr. Savage also testified that he had been asked earlier -- or Williamson and Associates had been asked earlier to do the reservoir simulation, and they just couldn't make it work and do it. He testified, and this is his quote, My numbers just didn't come together. He said there are too few wells drilled to define this field. So you're extrapolating, that's what we're reduced to.

Their expansion case is based upon nothing more than extrapolations, and I submit to you that that's the methodology used for exploratory units. Again, this is Statutory Unitization Act expansion of an enhanced oil recovery unit.

The differences are significant. I think you need to go with the pleadings, need to go with the evidence, by all means you need to go with the Act.

Thank you, Mr. Examiner.

EXAMINER CATANACH: Thank you, Mr. Hall.

Mr. -- ?

MR. CARR: I don't think I moved the admission of Yates Exhibit 22 yesterday. I'd like to do that. It's the exhibit that Jim --

MR. BRUCE: Yeah, that's fine, and I don't think I moved the admission of my Exhibits 28 and 29.

MR. CARR: Well, I will object to that.

(Laughter)

MR. BRUCE: One final thing, Mr. Examiner. Phillips Petroleum representatives are here, and if one of them could make a very brief statement.

EXAMINER CATANACH: Okay.

MR. KENT: Alfred Kent, employed and representing Phillips Petroleum Company.

Phillips Petroleum agrees to the unit expansion exactly as applied for by Gillespie-Crow.

EXAMINER CATANACH: All right, anything further?

Gentlemen, I would like rough orders on this case. You can submit a joint rough draft -- you're on your own -- within a reasonable period of time, three weeks?

MR. CARR: I'll coordinate with Mr. Hall and Mr. Bruce. We'll try and file it about the same time so we're not responding to one another.

EXAMINER CATANACH: Okay. All right, if there isn't anything further in Case 11,724 it will be taken under advisement, and we'll adjourn this hearing.

(Thereupon, these proceedings were concluded at 2:14.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11724, heard by me on May 15 1997.

David R. Catanach, Examiner
Oil Conservation Division

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 (Volume II) 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 June 1st, 1997.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998