STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ORIGINAL

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 14301
(Readvertised)

FIRST AMENDED APPLICATION OF CHESAPEAKE OPERATING, INC. FOR SPECIAL RULES AND REGULATIONS FOR THE LOST TANK DELAWARE POOL, OR IN THE ALTERNATIVE, FOR THE CANCELLATION OF ACCUMULATED OVERPRODUCTION, AN EXCEPTION TO THE DEPTH BRACKET ALLOWABLE AND PROCEDURES FOR THE "BALANCING" OF FUTURE OVERPRODUCTION, LEA COUNTY, NEW MEXICO

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

June 2, 2009
Santa Fe, New Mexico

BEFORE: WILLIAM JONES: Hearing Examiner
TERRY WARNELL: Technical Advisor
DAVID BROOKS: Technical Advisor

This matter came for hearing before the New Mexico Oil Conservation Division, David Brooks Hearing Examiner, on June 2, 2009 at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive, Room 102, Santa Fe, New Mexico.

REPORTED BY: Peggy A. Sedillo, NM CCR NO. 88
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I N D E X

A P P E A R A N C E S

FOR THE APPLICANT:	W. THOMAS KELLAHIN, ESQ. Kellahin and Kellahin 706 Gonzales Road Santa Fe, NM 87501
FOR YATES PETROLEUM CORPORATION, YATES DRILLING COMPANY, ABO PETROLEUM CORP., CHARBRO OIL LIMITED COMPANY:	JAMES BRUCE, ESQ. Attorney at Law P. O. BOX 1056 Santa Fe, NM 87501
FOR OXY USA, INC.:	SCOTT HALL, ESQ. Montgomery and Andrews, PA P. O. Box 2307 Santa Fe, NM 87504-2307

HEARING EXAMINER: Call Case 14301. This was readvertise and continued from May 14. It is the First Amended Application of Chesapeake Operating, Inc. for Special Rules and Regulations for the Lost Tank Delaware Pool, or in the Alternative, for the Cancellation of Accumulated Overproduction and Exception to the Depth Bracket Allowable and Procedures for the Balancing of Future Overproduction, Lea County, New Mexico. Call for appearances.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin appearing on behalf of the Applicant, and I have two witnesses to be sworn.

MR. BRUCE: Mr. Examiner, Jim Bruce of Santa Fe. I'm representing Yates Petroleum Corporation, Yates Drilling Company, Abo Petroleum Corporation, and Charbourogh Oil Limited Company. I have three witnesses.

MR. HALL: Mr. Examiner, Scott Hall of Montgomery and Andrews Law Firm, Santa Fe, appearing on behalf of OXY USA, Inc. No witnesses.

HEARING EXAMINER: Does anybody want to give a statement?

MR. KELLAHIN: Mr. Examiner, I have circulated to the attorneys and to the Examiners and the court reporter an exhibit booklet.

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And if you'll turn to the first page of that exhibit booklet, I'll give you the short version of why we're here before you this afternoon.

What you're looking at here is the outer boundaries of the current Lost Tank Delaware oil field outlined in red. Within the interior boundary, you can see the various Delaware wells.

There is a Livingston Ridge Delaware to the south. Those two boundaries adjoin each other. We've attempted to locate all the wells for you.

The target area that we're going to spend our time talking about this afternoon is up in the northeast quarter of the area.

If you look in Sections 16 and 17, that is the interest that we're going to focus on. And 16, that's a state section in which Chesapeake has drilled some wells.

The one that's in question this afternoon is the Lost Tank 16 4. Section 17 is federal leases, and Yates operates and has drilled Delaware wells in the south half of Section 17.

I have two witnesses to present to you this afternoon. I'm going to present Mr. Lee Wescott who you heard earlier this morning, and Mr. Ray Taylor, the petroleum engineer who testified in the prior case. He's going to give his engineering opinions about the case

before you now.

Chesapeake's application is predicated on the completion of the 16 State 4 well in Section 16. That completion occurred January 16th of this year.

This well is drilled in the old potash area, and Chesapeake was able to obtain the necessary waiver from Intrepid, being the potash leasee of that particular tract.

And pursuant to that notice and approval, they obtained their APD and have drilled several wells, one of which is the 16 4. Yates is the operator of the Delaware oil well in 17. Those are on federal grants. There are five of those that we'll look at and compare to the 16 4.

The pool itself is a 40 acre oil pool. It's on statewide allowables using the depth bracket as the component, and it provides that you can produce at 142 barrels of oil a day with a 2000 to 1 gas-oil ratio. And that's the benchmark that we're operating in.

When the 16 4 was first put on production and tested, it came in at rates substantially higher than the 142 barrels. It was producing 400 or more barrels a day.

Based upon that early performance data, Chesapeake's technical people believed they had enough predicate to file an application to change the rules for the whole pool to increase the allowable for the daily oil

production.

The gas-oil ratio is not an issue. Based upon that early data, they believed that they could support and justify a rule change of 400 barrels a day for the frac allowable.

Subsequently, additional production information from that key well has demonstrated that it's losing the capacity to produce in excess of the allowable.

So there is a period of time from January through the end of June in which it's estimated that well bore, if you use the 142 barrels a day, is going to accumulate 16,000 barrels of oil overproduction.

Realizing the well was depleting faster than expected, Chesapeake is withdrawing that portion of its application seeking a pool rule hearing.

And now the question before you is what, if any, relief you'll grant to Chesapeake as the operator for the State 16 4 well.

What the technical people are going to present to you is a technical case for a period of forgiveness of the overproduction, the 16,000 barrels, and for a procedure by which they can continue to produce this well at rates not in excess of 200 barrels of oil a day, so that by -- it will be for a period from July 1st of this year to July 1st of 2010.

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That would give them a year's period to produce at 200 barrels of oil a day. And as you're going to see from the forecast decline production rate in the decline curves, by the end of June, first of July of 2010, this well and its allowables will all be back in balance.

The reason for apportioning this well an additional allowable is that while this is not a rate-sensitive reservoir, this well has a high-capacity pump on it.

It moves great volumes of water and oil together, and the design limitation of the well itself causes the well to act improperly if it is produced at rates less than 200 barrels of oil a day.

The engineer can tell you those appropriate volumes, but he believes that with a cap of 200 barrels of oil a day, he then has enough margin where he can produce this well and not damage his pumps.

So that's the short version of the presentation, Mr. Examiner. We believe the relief requested, the cancellation of the 16,000 barrels of oil and this procedure for accumulating and canceling overproduction for next year, does no harm to Yates and violates nobody's correlative rights. And that will be our case.

MR. BRUCE: Three points, Mr. Examiner. Looking at this plat, you can see there are a number of wells out

there. I believe the total number of wells, both within this pool and the adjoining pool, total about 120 wells.

And as far as I know, there have never been any allowable problems in this pool or the adjoining pool, and as a result, Yates sees no need for an increased allowable.

Second, Yates is at this time prevented from drilling additional wells offsetting Chesapeake's acreage because of certain potash matters that Mr. Moran will testify about, thus allowing Chesapeake to produce at an increased rate that will adversely affect Yates.

And finally, we would note that just based on recent cases before the Division, I believe Chesapeake should be required to make up this overproduction and we will be presenting testimony on those matters. Thank you.

HEARING EXAMINER: Mr. Hall?

MR. HALL: No, thank you.

HEARING EXAMINER: All right. Would all witnesses that intend to testify today, please stand and -- first the witnesses for Chesapeake, please state your name.

MR. WESCOTT: Lee Wescott.

MR. TAYLOR: Ray Taylor.

MR. MORAN: Charles Moran.

MR. BARNETT: J. O. Barnett.

MR. PODANY: Ray Podany.

MR. KELLAHIN: Mr. Examiner, at this time I'll call Mr. Lee Wescott. Let the record reflect, Mr. Examiner, that Mr. Wescott continues under oath and has already been qualified as an expert in geology.

HEARING EXAMINER: All right.

LEE WESCOTT,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Wescott, lay some foundation for me about your involvement geologically with the subject matter of this application which is Chesapeake's well that we're talking about in Section 16, the Lost Tank 16 State No. 4 well.

A. Both the two wells that Chesapeake has drilled in the state lease in Section 16 fall within my area, and I was the geologist responsible and the one that drilled both the Lost Tank 16 State No. 1, as well as the 16 State No. 4.

I've prepared a stratigraphic cross-section that I'm prepared to discuss with you this afternoon, as well as a structural map that we'll discuss as well.

Q. All right. To orient the participants on where

the Lost Tank 16 4 well is, would you take a moment and look at what we've marked as Chesapeake Exhibit No. 1, Mr. Wescott? Do you have that before you?

A. I do.

Q. To the best of your knowledge, does this accurately depict your understanding of the pool boundary of the Lost Tank Delaware pool?

A. Yes.

Q. Has the data been provided to you by which you're satisfied in your belief that it has approximated the location of the various existing wells in the pool?

A. Yes.

Q. Help us find, Mr. Wescott, the area that you were involved in when you participated in the drilling of the State -- I believe it's the No. 1 and the No. 4.

A. Both of those wells were located in Section 16 which would be in the northeasternmost portion of the plat. You'll see the Lost Tank 16 State No. 1 is located in the southwest southwest of that section.

Lost Tank 16 State No. 4 is located in the northwest northwest of that same section.

Q. At the time that Chesapeake drilled these two wells, were the Yates wells already in existence in the south half of Section 17?

A. Yes, they were.

Q. Let's turn to Exhibit No. 2, Mr. Wescott. Let's use this generalized characterization of the organization of the formations in the Delaware basin and have you pick for us what portions of the Delaware this well penetrates.

A. All of the wells, and certainly the Lost Tank 16 State No. 4, as well as the other wells that are on this cross-section, would have penetrated the entire Delaware Mountain group, and so therefore, the Bell canyon, the Cherry Canyon, and Bushy Canyon.

The producing intervals as it relates to the two Lost Tank 16 State wells and also the Yates wells located in Section 17 to the west of us are producing from Cherry Canyon and Bushy Canyon.

Q. So when we look at your cartoon, Exhibit No. 2, none of these wells produce from the Bell Canyon?

A. Not to my knowledge.

Q. When we turn to your structure map of this area, using Exhibit 2 as our marker point, show us the geologic feature on this referring to your chart.

A. The structure is based upon the top of the Bone Springs. And so that would -- well, you can see it on the stratigraphic section here. That's going to be the base of the Bushy Canyon, top of Bone Springs.

Skipping ahead just a little bit if you refer to the cross-section, this brown marker, here is the bottom.

That would be the top of the Bone Springs formation.

Q. Is the top of the Bone Springs formation a readily identifiable marker for geologists like you?

A. Yes, it is.

Q. Is there disagreement among you as to how to do that?

A. No, sir.

Q. Let's turn past that indicator map, and I put in the exhibit book that is marked as Exhibit 3, there is a smaller portion of a larger map which then follows it, and before that, a smaller map.

Before you talk about the structure map itself, let's take a moment and look at the small copy of this map. When you look at Sections 17 and 16, there's a dashed black line that goes along a series of wells in 17 and then off up into the wells in the far western side of 16. What does that line represent?

A. That represents the line of section that you see before you on this stratigraphic cross-section. So moving from west to east starting with the Yates Caper BFE Federal No. 3 and moving eastward to the Chesapeake Lost Tank 16 State No. 4.

Q. We'll take a moment and we'll come back to what you referred to, which is Chesapeake's Exhibit No. 4 in just a minute. But I wanted to lay the foundation for

what the significance is of this locator line on your structure map. That will help us walk through your cross-section.

A. Correct.

Q. You don't necessarily have to unfold the big copy of Exhibit 3, that's the structure map. But using the small copy in Exhibit 2, summarize for us what you see about the structure as a component in determining productivity of these wells.

A. In this immediate area, structure does not seem to play a part in the overall production. As a matter of fact, the two Chesapeake wells, the Lost Tank 16 State No. 1 and No. 4 both are down dip from all of the Yates wells in Section 17.

Q. When we look at Exhibit 2, which is the cartoon of the subdivision of these various formations, and you look down into the Cherry Canyon and the Bushy Canyon, the appearance of this map would lead you to believe that you're just dealing with two different reservoirs, the Cherry Canyon and the Bushy Canyon.

A. Right.

Q. In reality, are we dealing with discrete uniform packages of formations in each of those two labels?

A. Yeah. And the overall Delaware Mountain group comprises about 3,500 feet of overall section.

And so if we just discuss that lower portion of the Cherry Canyon and all of the Bushy Canyon that make up the producing intervals in the five Yates wells in Section 17 and the two Chesapeake state wells in 16, you're talking about a 1,700 foot section from the top perf to the bottom perf.

And so, yes, in name only you have the Cherry Canyon formation and the Bushy Canyon formation. In reality, you have -- what you're looking at is an amalgamation of many, many separate depositional events in separate sand bottoms.

Q. Let's turn to the cross-section that is Exhibit No. 4. This is a cross-section that you prepared?

A. Yes, I did.

Q. And the locations on the exhibits, do they fairly represent your work?

A. Yes, they do.

Q. Take a moment again and let's use this copy and again find us the marker point in brown that is the top of the Bone Springs.

A. As a matter of fact, the lowest-most correlation line that you see going across the cross-section, that would denote the top of the Bone Springs formation.

Q. As we go across the top, the well closest to you, the one on the far left?

A. Yes.

Q. Go back to the locator map, Exhibit 3, that first well is a Yates well, is it not?

A. Correct. The name of that well is the Caper, BFE Federal No. 3. And it would be the westernmost well in that stratigraphic cross-section.

Q. And then as you move to the east from the 3, you pick up the --

A. No. 1.

Q. Yates Caper No. 1 as the next log?

A. Yes, sir.

Q. Compare those one to another starting down at the top of the marker for the Bone Springs, and let's go up the well bore and show us how Yates has chosen to complete each of those wells and what the significance is of the red shading, what does that mean?

A. Just a couple of descriptors on this cross-section as we walk through here. We've already discussed the top of the Bone Springs formation being the brown marker on there.

You'll see my correlation runs in green here. That's what's locally known -- or regionally known, rather, as the lower Bushy Canyon.

So this cross-section is hung stratigraphically on the top of the Lower Bushy Canyon which would be this

marker, the first green correlation line running across the cross-section.

So the second well in this stratigraphic cross-section which would be Caper BFE Federal No. 1, and it is completed only in the Lower Bushy Canyon -- and I'm sorry, let me back up just to describe one more thing.

I've highlighted the perforated intervals on this cross-section just simply so you could see it a little bit better by these red boxes in the depth frac. And so, the size of that box actually corresponds with the actual perforated interval.

In the second well, which I believe was the first well drilled by Yates in Section 17, the Caper BFE Federal No. 1 was completed only in the Lower Bushy Canyon in three separate intervals of that well of Bushy Canyon as seen by those three separate perforations.

Q. Move now back to the No. 3 and draw the comparison between the two.

A. Okay. And I guess I should say also, the perforations that I'm showing here are obviously what has just come from the public data.

And so you move over to the No. 3 and it is also completed in the lower Bushy Canyon. Two of the intervals that were completed in the No. 3 well are common with the completed intervals in the No. 1.

They've also completed in a separate Lower Bushy Canyon interval that apparently was either nonproductive or not present in the No. 1.

Q. Does it make sense to you as a geologist why the well bores in the Lower Bushy Canyons are completed in that fashion?

A. Sure.

Q. And what is that?

A. Well -- and hopefully what this cross-section is going to demonstrate is the stratigraphic complexity of the Delaware in general, but really, it's amplified in this particular area.

You have so many separate sand bodies that are amalgamated or shingled or pinch out or lack in porosity development. You have many, many different producing horizons that moving a short distance away -- and here, just witness between these two close well bores, you have very different producing intervals.

And so not only have they completed in the different intervals within just the Lower Bushy Canyon, but as you see as you move up through the well bore here, you have one, two, three, four separate intervals that are completed in either the -- what would be called the Middle Bushy Canyon to the Upper Bushy/Lower Cherry Canyon.

And those intervals, at least at the time of the

creation of this cross-section, had never been completed in the No. 1.

Q. When we look at Exhibit No. 3, Mr. Wescott, what's the significance of the green horizontal lines versus the red horizontal lines?

A. Really, that's just a dividing point, if you will, between the lower Bushy Canyon, which again, the first green line at the top of the Lower Bushy, which this stratigraphic cross-section is hung on, and so it just kind of denotes -- or separates out that Lower Bushy Canyon from the rest of the intervals.

Q. Let's look at another comparison. If you'll move over to the fifth and sixth wells on the cross-section, you're going to get the Yates Caper well. I think it's the No. 4?

A. That's correct.

Q. And then you go across the section line and you're now in Section 16, and you look at what looks like the No. 1 well?

A. Yes. That's the Chesapeake Lost Tank State No. 1.

Q. Compare how each one of those wells has been completed in relation to the others as far as perforates.

A. Sure. The perforated intervals -- And I think that this is an interesting relationship between these

two, because if you look on Exhibit No. 3, you'll see that these two wells that we're going to be discussing right now are the two that are in closest proximity to one another of all seven wells that we are going to discuss.

So if you look at the cross-section, you'll see in the Lower Bushy Canyon, the intervals that were completed, I believe to be in the same or common sand development in the Lower Bushy.

As you start making your way up the section, there's an interval that's -- well, this interval right here that was perforated, it appears as though Yates found a productive sand present, and they had that perforated.

As we look at the Chesapeake well immediately offset to the east, we did not find that to be developed and/or productive.

You move up to the next set of perforations in the No. 4 well, and again, we do find a common interval in the No. 1. The commonality really starts to separate at that point.

In the Chesapeake well, we find this interval present and productive, whereas Yates apparently did not find this to be present or productive.

The next interval is the same story, basically, in reverse. You have a sand development in the Yates well that's not developed in the Chesapeake well, but now we

have one above it that this one is present and productive and not found in the --

We can keep on going on up through this, but I think maybe you see where I'm going with this. Again, it's an extremely stratigraphically complex area. And with the shingling of all these various sand bodies --

I guess the picture that I'm trying to portray here is that this is not a single interval that we're talking about that we're -- that Yates has completed in and Chesapeake has completed in, we're competing for the reserves that are associated with that single sand body, you have a multitude.

As a matter of fact, in just the wells that you're looking at on this cross-section, you have 18 separate producing horizons that may or may not correspond from well to well to well.

Q. If you were in an area where these were single bodied in which Chesapeake and Yates were directly competing, a limitation on the ability of one well to produce more than another would make some sense to you, would it not?

A. Repeat that?

Q. If you have a reservoir that is more connected and the sands interfinger across the common boundary, the production from one well is going to affect production for

the same horizon across the common line?

A. Yes.

Q. Here the unique difference is what?

A. Well, the lack of lateral extent with so many of these sand bodies.

Q. Geologically -- I know you're not an engineer, but geologically, does it make sense to you that the Division, if they so chose, could cancel this overproduction and it wouldn't harm Yates?

A. I do not believe it would harm Yates, no.

Q. If you were in that position, would it bother you?

A. No.

Q. Would you have a choice as a geologist about whether you could produce these at capacity?

A. Do I have a choice?

Q. No, if you had a choice, if I gave you that choice to forget about the depth bracket allowable and just produce these wells at capacity, would you worry?

A. Would I worry about draining outside of my 40 acre unit?

Q. Yeah, from a geologic perspective.

A. Certainly not, not in this environment.

Q. In this kind of environment, is it possible for you as a geologist to construct an isopach within these

intervals that are useful at all?

A. Well, I think the key there is whether -- useful at all. And the answer to that firstly, is no. Because as we see between the two wells that Chesapeake has drilled, the discrepancy between the producing bodies.

And so if we walk through this logically and say that we drilled the No. 1 well and then mapped out the same bodies that we found producing in that, by and large we never would have found any of those same sand bodies in the No. 4.

Q. As part of your work, Mr. Wescott, did you aid Mr. Taylor in going through the logs to come up with what you would recommend to him would be a reliable thickness calculation to use in his volumetric calculations?

A. I did.

Q. What was the methodology used to get that number?

A. Well, in many cases, the perforated interval would correspond with the sand body that was bracketed by shale intervals. And we felt as though those shale intervals would act as a frac barrier.

And so if that overall interval was perforated, we counted up the total number of footage contained within that same body bracket by the shale -- by the shales.

In some instances -- and here's an instance

right here in this interval, you can see that you have a rather thick sand body in there, but yet the perforations are at just the top of that interval.

Well, we believe when this well was fracture stimulated that having nothing to act as a barrier, that that entire interval would have been fracture stimulated and therefore contributing to the overall production.

Q. Do I remember correctly from your analysis that you reduced the thickness of this generalized area down to about 1,700 feet, is that the generalization?

A. Yeah, if you look really from the uppermost perforation in any of these wells down to the lowest perforation, or, you know, the top of Bone Springs, that overall interval accounts for about 1,700 feet, roughly.

Q. And under your methodology, am I correct in remembering that you and Mr. Taylor came up with a number for his calculation of about 118 feet?

A. I believe that's correct.

Q. Something like that. And the method you used is the one you just described?

A. That's correct.

MR. KELLAHIN: Mr. Examiner, we would move the introduction of Mr. Wescott's Exhibits 1 through 4.

MR. BRUCE: No objection.

MR. HALL: No objection.

MR. KELLAHIN: Pass the witness.

HEARING EXAMINER: Exhibits 1 through 4 will be admitted.

CROSS-EXAMINATION

MR. BRUCE:

Q. Mr. Wescott, I have a few questions, and if they're better directed to the engineer, just let me know.

A. Okay.

Q. Did Chesapeake conduct individual tests of the perforated intervals, productivity tests?

A. No, sir.

Q. Were there any other indications while drilling that any particular zone stood out for productivity potential?

A. No, sir. I would qualify that with we did employ a mud logging service while we were drilling and maybe we would have had shows that were relatively better in one zone over another.

But as far as being able to determine any sort of production volumes from mud logs, we couldn't do that.

Q. Now, what type of pump is being used on this well?

A. It's a submersible pump.

Q. Do you know what depth that is set at?

A. I'm sorry, Mr. Bruce, I do not. Mr. Taylor may

be able to answer that better. I just personally don't know the answer to that.

Q. Okay. Was bottom-hole pressure data taken from there?

A. I don't recall that -- the answer to that.

Q. And was any microseismic done to verify the frac heights?

A. No, sir.

Q. The No. 1 well is the one that's in the southwest quarter of the southwest quarter of Section 17?

A. That's correct.

Q. What are the producing rates of that well?

A. I believe I'm going to defer that to Mr. Taylor. He's tabulated the production rates on that. And he would be better equipped to answer that.

Q. Okay. Basically, from your presentation on the cross-section, I mean, this is -- although particular zones might come and go from well to well, this is one common geologic formation across this area?

A. As it's known as the Delaware. And again, as I said earlier, in name, it is the same common formation. As far as actual discrete sand bodies, no.

Q. But there is no distinction between what you're mapping out between Sections 16 and 17?

A. There's no distinction in --

Q. It's the same reservoir?

A. Are you asking is it called the Delaware or is it called the Bushy Canyon and Cherry Canyon? I don't know understand what your question is.

Q. Well, just looking at your plat here, the 1,700 foot interval --

A. Is known as the Cherry Canyon and Bushy Canyon, that's correct.

Q. And there isn't any faulting or anything else out here that would separate production from Section 16 or Section 17 or from any other adjoining section?

A. In the work that I have done, I have not seen any evidence of a fault between Sections 16 and 17, no.

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

HEARING EXAMINER: Mr. Hall?

MR. HALL: No questions.

HEARING EXAMINER: Mr. Wescott, it looks like the bottom part of the Bushy is more continuous than anything else out there; is that correct?

THE WITNESS: In general, I think that statement is true. There's many of these intervals. As a matter of fact, if you -- what I have here labeled as the Bushy Canyon B or Lower Bushy B, if we just follow that across right there, that particular interval, other than in the No. 4, is present and productive in every other well out

there. And so that -- if you look for a point of commonality, that one sticks out more than anything else.

HEARING EXAMINER: No. 4 doesn't show up or --

THE WITNESS: Right.

HEARING EXAMINER: Why would it not be there?

THE WITNESS: I believe that the sand itself is present but I didn't feel as though it was productive.

HEARING EXAMINER: Okay. Productive in -- meaning --

THE WITNESS: Too high water saturation coupled with either weak or no mud log show.

HEARING EXAMINER: Does this have any of that avalon sand area out here that -- the Bone Springs avalon that what was the Lower Bushy/Upper Bone Springs potential?

THE WITNESS: Typically when you refer to the avalon sand, it's the first sand that develops under the Bone Springs line. And so looking at this cross-section here, you'll see that in most of these cases here, operators typically will just drill a rat hole into the top of the Bone Springs, because the main focus is on the Delaware.

And so in the majority of cases, those logs won't even go deep enough to see the avalon sand, if it is present or not.

HEARING EXAMINER: Okay.

THE WITNESS: Most of the avalon development that I'm aware of would actually occur west of here.

HEARING EXAMINER: Okay. This Nashdraw something --

THE WITNESS: Sure. Nashdraw would be south and west.

HEARING EXAMINER: South and west.

THE WITNESS: It's actually in Eddy County.

HEARING EXAMINER: Can you describe how these wells are completed or should I wait and ask Mr. Taylor?

THE WITNESS: Yeah, I think I will defer that to Mr. Taylor.

HEARING EXAMINER: Okay. So you got 3,500 feet of gross and up into the Bell Canyon, or are you just trying to stay away from the potash, is that the deal?

THE WITNESS: You know, we have never seen any sort of indication in our areas in the wells that we've drilled, that the Bell Canyon was productive.

HEARING EXAMINER: Okay. It's wet?

THE WITNESS: Yes.

HEARING EXAMINER: I notice people sometimes want to use it for a disposal well. So does the potash area cover both of these, 16 and 17?

THE WITNESS: Mr. Examiner, I don't know that

I'm equipped to answer that question.

HEARING EXAMINER: But would they have the same -- well, we're going to have testimony on that. So.

And you keep saying the structure's not pertinent out here. You're going to put all the geophysics people out of business.

THE WITNESS: Well, I was going to mention in your question about the Bell Canyon in just a generalized statement, it's been my experience most of the time that the ramsey sand, you know, the Bell Canyon is really -- you need a structural feature for that to produce.

HEARING EXAMINER: Because of its water.

THE WITNESS: Exactly. And when you get down into the Lower Bushy Canyon -- and there's exceptions to every rule, I suppose, but in these intervals from the Lower Cherry down through the Lower Bushy, typically that's more of a stratigraphic play than it is of a structural play.

HEARING EXAMINER: Okay. Did you mud log your wells?

THE WITNESS: Yes.

HEARING EXAMINER: And you don't have an interest in the Yates wells?

THE WITNESS: No, sir.

HEARING EXAMINER: So you didn't get that data?

THE WITNESS: No, sir.

HEARING EXAMINER: What would be your primary target out here if you had one zone to go for out of all of those?

THE WITNESS: There's really not one. And if we felt that there was one, we wouldn't have drilled the wells. It was the multi-pay nature of this play that caused us to drill the wells. Because there's, quite honestly, a high degree of serendipity in drilling in an area that has so many different producing intervals that has a potential of developing.

And so there's no one interval that has ever really stood out as, boy, if you could get this one to develop, then great, everything else is gravy.

HEARING EXAMINER: Was this interval -- did oil move in -- or oil and gas move in from the source rock? I guess below this, right?

THE WITNESS: I believe so.

HEARING EXAMINER: And got trapped by some changes in the porosity, is that what happened, or --

THE WITNESS: Well, I think that there's -- there's still arguments that rage on as far as where the oil came from.

I know that it's been hypothesized that some of the oil that you see in the -- the hydrocarbon production

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that you see in the Delaware was self sourced. And so -- and I think what you're alluding to is the source rock also being down in the Bone Springs having migrated upsection from there.

HEARING EXAMINER: Okay. But basically, what created the porosity out here, was it -- Is this secondary porosity out here?

THE WITNESS: No, sir, I don't believe so. I think this is all primary porosity, innergranular porosity.

HEARING EXAMINER: It's all plastic stuff?

THE WITNESS: It is all plastic. And this is, again, fine grain, you know, ranging from very fine to fine grain, and even down to silty-type material.

You do see some intervals in here where you actually have shales that develop. So you kind of have a range going from an actual shale up through silt, and then about as coarse as you get is typically fine grain.

HEARING EXAMINER: So it's calm environment, marine sands?

THE WITNESS: I believe so.

HEARING EXAMINER: And shales. I wish I understood it as well as you seem to understand it. It just seems like you get up in the Bell Canyon, you get all this real big porosity and the water seems to be more

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prevalent, and you got this little stuff trapped down below.

And then some people seem to go for fractures out here as far as saltwater disposal zones. Is any of this stuff fractured that you see?

THE WITNESS: The salt water -- No, not that I've seen, in short. And as far as the disposal zones, most that I have been either involved with or aware of, or as you alluded to earlier, up into the Bell Canyon, you really have somewhat of a different looking section of rock up in the Bell in that you have -- as you're aware of, much more massive-type sands with much, much greater porosity development than what you see down in here.

HEARING EXAMINER: So it's more of a shoreline sands?

THE WITNESS: I still don't believe there was ever really shoreline sand, I think it's all still deep-water deposition.

HEARING EXAMINER: But it's more easily correlated across, isn't it?

THE WITNESS: Yes.

HEARING EXAMINER: The ultimate ramsey?

THE WITNESS: Exactly. Exactly. They seem to be much more tabular or sheet-like massive sands.

HEARING EXAMINER: Water saturated structures?

THE WITNESS: Yes. And if you can get it on a little structural feature, then they seem to be quite prolific.

HEARING EXAMINER: Quite prolific, like Geraldine Ford stuff?

THE WITNESS: Yes.

HEARING EXAMINER: What about spectral gamma ray, do you use any of that to determine whether it was perforated?

THE WITNESS: We never have used a spectral gamma ray for Delaware wells.

HEARING EXAMINER: Is that only down south that they use it, down around the Loving area?

THE WITNESS: Loving would fall into my area also, and I've drilled Delaware wells there and have not utilized a spectral gamma ray to help me in my --

HEARING EXAMINER: Maybe I'm thinking of the Pennsylvania, though.

THE WITNESS: Yeah. I have utilized it for Bone Springs work but not for Delaware.

HEARING EXAMINER: Okay. And there was no way you could drill a horizontal -- So where do you think the water came from within your wells? I mean, where would it be given up from, which zones of these would be the most likely in your -- Surely you have an idea of which ones of

these you think is the best.

THE WITNESS: Well, I have a better idea of which of ones would be a culprit of giving up the water.

HEARING EXAMINER: Okay.

THE WITNESS: And I haven't -- I didn't necessarily prepare to answer that, but -- so I'm just kind of eyeballing it.

If we look right here on the No. 4, I can see that that interval right there has -- just from sitting back here, appears to have some pretty good porosity development in there and really low resistivity.

From over here, it looks to be under two hums, and that's probably about a 50 foot interval of which maybe 40 feet of it has very good porosity development and very little water -- very low resistivity. And so that to me could potentially be a culprit that could be giving up water.

MR. KELLAHIN: Excuse me, Mr. Wescott, for the record, would you find that for us in the depth component so the record could be read and understood?

THE WITNESS: Certainly. This is in the Lost Tank 16 State No. 1, and the zone that I was referring to is roughly around 7,300 feet.

HEARING EXAMINER: Okay. Any more questions? No questions?

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MR. KELLAHIN: I'll call Mr. Ray Taylor.

RAY TAYLOR,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. For the record, Mr. Taylor, what has been your involvement with the analysis of the performance of Chesapeake's Lost Tank State 16 No. 4 well?

A. I've been the reservoir engineer responsible for both of these wells since they were drilled.

Q. Are all the reservoir engineering data and conclusions we're about to see yours?

A. Yes, they are.

Q. Let's give the Examiners some background on the State 16 4. If you'll start and look at what is marked as Chesapeake Exhibit No. 5, this is a copy of the completion report for the well?

A. It is.

Q. Approximately when was this well completed?

Well, in the lower portion in the form, you can see the date of the test was February 2, 2009. So we would have been -- we actually were completing this well in early January of 2009. I believe it was first produced approximately -- if I recall correctly -- January 14,

2009.

Q. After completion, did Chesapeake go ahead and commence producing that well?

A. Yes, we did.

Q. Was it your early expectation that the performance of this well might be such that you could change or justify a change in the rules for the entire pool?

A. We did consider that possibility, however, unlike the matter we discussed this morning which involved a new technology, horizontal drilling, this is just vertical drilling and completion.

And so there wasn't enough uniqueness to this particular situation in our mind that would warrant a change to the rules in the field.

Q. As a reservoir engineer, can you characterize the drive mechanism of this?

A. Yes. I would fully anticipate that virtually all of these small reservoirs in this extensive vertical package would be solution gas drive reservoirs.

Q. Is this reservoir compartmentalized in such a way that you need to be worried about a gas cap forming?

A. No. There are obviously solution gas drive reservoirs and there's some small chance of free gas accumulations occurring, but there again, we're talking

about numerous small reservoirs in a very extensive gross sand -- gross overall package.

So to me, that is an inevitable situation, there may be small gas accumulations.

Q. Are we dealing with a reservoir that has an oil-water content?

A. No.

Q. The spacing in here is 40 acre spacing, and your depth bracket allowable is 142 barrels a day?

A. That's correct on both counts.

Q. And you're subject to a 2000 to 1 GOR?

A. That's correct. So you're limited to 248 CFA a day gas production.

Q. Is the gas production limited by this number of problems for production?

A. In the case of the Lost Tank system set forth, no, the gas reduction does not seem to be a problem.

Q. If you turn past Exhibit 5, Exhibit 6 should be another state form. I think it's form C104.

A. That's correct.

Q. It's one of the early tests on rates shown on that. If you turn past that, let's look at the tabulation, then, No. 7, in which you have a tabulation of the two Chesapeake wells in comparison with the wells that Yates operates in the adjoining section. Is that your

work?

A. It is. In this particular case, I attempted to demonstrate all the wells that are producing in the Lost Tank Delaware down to those wells that Yates operates in Section 17 and the two Lost Tank state wells that Chesapeake operates in Section 16.

Q. What is the source of your data?

A. Obviously, the Lost Tank state wells that Chesapeake operates and the internal data. The Chesapeake data from the Yates wells is public data.

Q. In analyzing your well bore and preparing your opinions, did you share data with Yates?

A. Yes, we did. We shared some production data, as I recall, up through approximately March 28, 2009. We also shared the open hole well logs with Yates on the well at that same point in time. This was at a point prior to them being publicly available.

Q. Let's turn back to Exhibit No. 7. And show us the conclusions that are important to you as an engineer in discussing the accumulation of the overproduction associated with the State 4.

A. The most important item I would glean from Exhibit 7 is that if you go over to the central portions of each exhibit where it shows initial rate for the various wells, and you drop down to Lost Tank 16 State 4,

you can see that that initial rate was as high as 477 barrels, 254 MCF, and 237 barrels of water.

And you compare that initial rate to the other initial rates of the Yates operated wells and our Lost Tank 16 State 1, and it is by far and away the very best well that's been drilled and completed in this immediate area in the Delaware.

Q. And that type of data, then, was the predicate on which the application was filed to change the rules and peg the producing rate of 400 barrels a day?

A. That is correct.

Q. Since then, has data been accumulated to cause you to withdraw that request?

A. Yes, it has.

Q. Can you turn now to Exhibit No. 8, and let's look specifically at the Lost Tank 16 4.

A. Yes. Once again, this is an allowable schedule. I will call it the Lost Tank 16 State 4. And I apologize, I've just noticed that the exhibit says federal, but it should be state.

Q. Would you analyze the exhibit for us?

A. Okay. As you move across the exhibit from left to right, you'll see the first column is month and year, obviously starting in January 2009.

When you move to the next column which is oil

production for that month, we move to the next column which is the depth bracket allowable, which in this particular case is, as we stated earlier, 142 barrels a day.

And then there is a Status column which is reflecting the status of production in relationship to that depth bracket allowable for each of the months.

If there is a negative value appearing here, that would have been indicative of underproduction; if there is a positive value, that would be indicative of production in excess of the depth bracket allowable.

If you move further across to the central portion of the exhibit, we have a column labeled Test Allowable and Status. And I just made a simple comparison here, there was a test allowable of 12,000 barrels granted by the Division for the month of February of 2009.

And based on that test allowable, we were actually slightly underproduced compared to what the well produced, the 10,397 barrels during February 2009.

If you move further across the exhibit now to the right-hand side, you'll see a column entitled Gas Production. This is the gas volumes the well has produced month by month since January.

You see an allowable 2000 to 1 GOR, that's the limiting 2000 to 1 GOR that's been applied. And finally,

you have Status column, and once again, if the well has not exceeded production -- not exceeded the allowable based upon the 2000 to 1 limiting GOR, those values would appear as negative values.

In this particular case, all five of the months listed here up through May of 2009, which would be historic data, the well has been underproduced in relationship to the limiting gas GOR.

Finally, down in the totals, through the end of May of 2009, this well would have accumulated 12,909 barrels of overproduction with respect to the depth bracket allowable.

Q. This data is just the tabulation of the historic production that's been reported from the well?

A. That is correct. This is historic production, and in fact, for May, it is also historic production. The 16 State 4 was shut in for the last portion of May.

We were doing some testing of the 16 State 1 well. These wells did at least produce in the common facilities, and we wanted to make sure that we were adequately monitoring the rates from both wells, so we had one shut in and we wouldn't be producing in that particular case. It was the Lost Tank 16 State 1.

Q. So at this point, the State 16 4 is shut in?

A. No, sir, I would assume that on June 1st, which

would have been yesterday, it would have been returned to production.

Q. The application asks the Examiner to cancel an estimated total 16,000 barrels of oil of overproduction that's going to accumulate from date of first production in January through the end of June of this year, June 30th?

A. Actually, we can probably address that by moving to the next exhibit.

Q. That's where I'm headed.

A. The volume is actually somewhat less than 16,000 barrels.

Q. Let's take that topic and go to Exhibit 9 and talk about it.

A. Certainly. And here again, I will correct the header of my exhibit. It is not the Lost Tank 16 Federal No. 1, it is the 16 State No. 4. I was having a bad day with Excel.

What I had done on this exhibit -- and it is an extremely similar to the exhibit prior, No. 8, now all I have done is added a projection to that historic data that was accumulated up through May 2009.

All of the columns are exactly the same. Most important of the issues on this particular exhibit are these cells that are labeled in yellow, the first being

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under the Oil Production column.

In the month of July of this year, I'm anticipating based on the projection I've made that the Lost Tank 16 State 4 will fall within or under the 142 barrel a day depth bracket allowable.

If you'll refer to the Status column, you can see that as of April of 2009, the maximum volume of overproduction that was accumulated on this well was 14,628 barrels. I think this is the number -- the value that relates to what Mr. Callahan has been speaking of when he was saying 16,000 barrels. That 16 is slightly large.

Some of that 14,628 barrels of overproduction has already been mitigated. As you can see in the Status column, the volume is getting smaller as we progress down the column through time.

And if we did nothing else other than produce this well against the depth bracket allowable of 142 barrels a day, I'm estimating that by May 2010, we would have mitigated all of the overproduction from this well.

As you can see over in the Gas columns, here again, all of the values are negative, there has never been any overproduction with respect to gas accumulated by the Lost Tank 16 State 4.

Q. That's the first component of the application's

request to cancel that volume of overproduction that accrues over a period of time?

A. That is correct.

Q. After June 30th of this year, your application requests an additional period of time -- I think it was about a year -- to then continue to produce this well at rates not in excess of 200 barrels of oil a day, and if you're allowed to do that, then by July of 2010, the well is back in balance with the allowable of 142 barrels a day.

A. And in point of fact, that's what Exhibit 9 reflects. And actually, I'm projecting it would occur by May 2010. We have requested the 200 barrel a day value. I don't believe the Lost Tank 16 State 4 will have that capability to produce that type of volume for a great deal longer.

Q. Give us the reasons, Mr. Taylor, you would like not to have to shut the well in entirely or produce it at rates not in excess of 142 barrels a day.

A. The well is produced via an electric sump pump. The sump pump is set at -- I believe the value is 6,506 feet.

That particular equipment, if you had your druthers, you would rather operate it full time rather than cycling it on and off continuously. That type of

operation can tend to be very hard on the equipment. We would rather produce it for consistent periods of time.

And that comes from the manufacturer of the equipment, in this particular case, it's the Wood Group.

Q. We'll look at that in a minute. Another option for you as the operator would be to produce your well so that the entire allowable permitted for the month, the 30 times the 142 barrels, is produced within a shorter period of time, 20 days or so, and then you shut the well in and wait another ten days before you cycle it back up?

A. That is a possible method of operation. It's, once again, probably not the most desirable method of operation. When the equipment is set, it is in a state of quiescence. You can have frac and formation sands accumulate in it, and the moment you turn it on, you're going to do a great deal of damage.

This is expensive equipment. We're talking $100,000 to $150,000 installation fee.

Q. What was the total cost of this well as completed?

A. This well cost Chesapeake approximately $2.5 million to complete and equip.

Q. Have you prepared a rate versus production plot?

A. Yes, I have.

Q. Let's turn to that. I think it's marked as

Chesapeake Exhibit 10. Would you identify that for us?

A. Yes.

Q. Would you describe it.

A. This is a rate versus time plot for Lost Tank 16 State No. 4. It is daily production plotted against time. The date that it was accumulated was from mid January through mid May. And obviously, mid May is when, as I previously indicated, the well was shut in.

And progressing up from the bottom of the plot to the top, you have GOR. The big blue triangles are water production. You have the green data. And then there is also a green projection line struck through that data. That would be projecting the performance of the well into the future.

And then likewise, you have the red data at the top with a red solid line struck through the data. That would be a projection for what I believe the well will produce in the future as far as gas is concerned.

I have labeled two other items on the plot. If you'll look in the month of April, there's a couple of small arrows that bracket about a one week period of time. And there is comment written there, "ESP" for electric sump pump, operated at 55 hertz.

The manufacturer -- dialing the equipment up and down, we're thinking in terms of hertz. Dialing down

would be a lower, dialing up would be a higher value.

We were trying to determine how most to efficiently operate the well, what is the lower limit of what we could do. We had some difficult periods in that one week time trying to operate the well at 55 hertz.

It would want to move oil and water, and then if it started to become starved for liquid, it would want to shut down. And then when there was sufficient oil and water accumulated in the well bore, it would kick back in and lift that liquid.

As I said earlier, that's not the desirable methodology to be utilizing this equipment where it's constantly cycling on and off. Representatives of the Wood Group have told me that they would certainly, violently recommend against trying to operate the equipment in that fashion.

Q. What is the minimum number you found that the well could sustain itself?

A. Well actually, if you would turn to the exhibit, and from the latter part of April through that mid May point, there's another little arrow. And I've denoted there that the ESP was operated at 58 hertz.

We seem to be able to operate the equipment at about 58 hertz without any significant problems, at least at this point in time. Who knows about the future. But

we at least made that test and seem to be able to operate the equipment in that fashion.

Q. If you look at the production plots in April and May, am I correct in seeing that if you operate off the 58 hertz, in terms of total fluids moved, you're moving more oil in relation to the water moved, the water curve seems to drop a little bit and the oil curve seems to go up?

A. Yes. You know, you're obviously operating at a higher level, you're able to move more liquid. In this particular case, the well seems to want to behave the way it moves a little more oil and a little less water.

It's interesting to note that throughout the life of the Lost Tank 16 State 4, water production has been diminishing and it's diminished to approximately a hundred barrels a day.

I know from operating this 16 State 1, that's very unusual, because we move a great deal more water out of the 16 State 1 than we do this well.

Q. Let's turn to Exhibit No. 11 and look at the data received from the Wood Group. What am I looking at here?

A. This is just a performance curve for the equipment that's been installed in the 16 State No. 4 well.

Q. Show us how to read this.

A. Across the bottom you've got barrels per day. And when I'm saying barrels per day here, I'm talking about oil and water. I'm not talking about either product singly, because the pump has no idea what it's moving. Essentially, a barrel of oil or a barrel of water.

And then you have a depth on the Y axis, that's the depth -- that would be the setting depth of the equipment. In this particular case, I said it was set at just a little over 6,500 feet.

And there are a family of curves on the exhibit labeled 50 hertz up to 70 hertz that go in five hertz increments. And also, that family of curves has been traversed by a couple of brackets towards the middle of the plot. That's really the desirable range to operate this equipment.

If you look at 6,500 feet and 55 hertz and try to move out toward that desirable operating range for this equipment, you really want to try to be moving around 500 barrels of total liquid a day, oil, gas.

So, we're kind of in a range right now where the equipment is probably not going to be the ideal application. At some point in the not too distant future, we may have to go to a rod pump.

Q. Mr. Taylor, you're dealing with what now appears to be about 14,670 barrels of oil of overproduction you're

asking the Examiner to cancel.

In dealing with a compartmentalized or at least a subdivided reservoir as you've got here, can you give us a calculation that puts some perspective as to how big an area is being occupied by that volume of overproduction.

A. Certainly. If we move to Exhibit 12, it's a volumetric computation. Here again, I apologize it says 16 Federal No. 4, it's 16 State No. 4.

At the top of the exhibit after the well identifying information, you have the various reservoir petrophysical values that were input for volumetric computation.

There is a maximum overproduction volume. It is volume in parentheses. And that is 14,628 barrels, as I previously had indicated from Exhibit 9, and a volumetric computation utilizing 118 feet average porosity of water saturation. That equates to an area of about 3.4 acres.

So that's a maximum overproduction accumulated actually occupied in a very small area.

Q. In your opinion, Mr. Taylor, as a reservoir engineer, do you see the approval of the application adversely affecting the interest owners of Yates or the entities that share in production from the Delaware wells in Section 17?

A. I do not.

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Q. Do you see any harm coming to them?

A. No.

Q. What could be the harm?

A. Well, I suppose if the well was capable of joining into Section 17, there might be some uncompensated drainage harm.

But I believe at some point in time it would be incumbent upon Yates to go out and drill a well or wells to protect themselves, their working interest owners, their working partners and their mineral owners to, in fact, protect their leasehold.

Q. The point in time in which production from this well would reach a point where it might possibly exceed the outside limits of its 40 acre spacing surface is not present at this time, is it?

A. No, it is not.

Q. Sometime in the future?

A. It would be in the future. There will be substantial recovery from 16 State 4 in the future.

MR. KELLAHIN: Mr. Examiner, we move the introduction of Exhibits 6 through 12 into evidence.

HEARING EXAMINER: Any objection?

MR. BRUCE: No objection.

HEARING EXAMINER: Exhibits 6 through 12 will be admitted.

MR. KELLAHIN: Pass the witness.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Mr. Taylor, first let's get a couple questions out of the way that I asked Mr. Wescott. Do you have bottom hole pressure data?

A. We do not.

Q. Either initial nor current?

A. That is correct, sir.

Q. Now, talking about this pump, looking at -- when you were testifying on your Exhibit 11, you said you want to move about 500 barrels of fluids per day, correct, that would be the ideal amount?

A. The equipment would like to try to move that type of volume.

Q. And from what you're telling me -- and I don't have the exact number, you're moving about 300 a day?

A. It's somewhere in that vicinity. And turned down to 58 hertz, it doesn't currently seem to be having a problem functioning appropriately.

Q. Are there lower capacities for submersible pumps?

A. I'm not a production engineer. I'm familiar with the equipment that's in this well at this time. There may well be. As I said, this could even, in fact,

become a rod pump candidate in the not too distant future.

Q. One final question. On your Exhibit 12 discussing your volumetric data, do you have any PVT data?

A. No, I do not. These came from various correlations that are easily accessible to all people in the industry. I do not have any PVT on that.

MR. BRUCE: I think that's all I have.

HEARING EXAMINER: Mr. Hall, do you have any questions?

MR. HALL: No questions.

HEARING EXAMINER: Do you know what your bubble point is?

THE WITNESS: Specifically, no. What I have attempted to do by using the correlation is, I have assumed that the bubble point would be slightly below initial reservoir pressure, which would mean there would be no free gas in the reservoir at that point in time. Do I have specific data that indicates that, no, I do not.

HEARING EXAMINER: But you're not -- you don't look like you're breaking out a bunch of gas?

THE WITNESS: No.

HEARING EXAMINER: By that alone, you might think you're still above your bubble point, doesn't it?

THE WITNESS: That's a possible conclusion, yes, sir. As I said, I just don't have any specific data that

tells me what the bubble point is.

HEARING EXAMINER: Standing curves or whatever.

THE WITNESS: I'm going to say I was relying primarily on standing corollaries.

HEARING EXAMINER: Have you noticed in these reservoirs, if -- do they need to be continuously produced to maximize your recovery? In other words, a bunch of periods of shut-ins, start-ups, does that retrace your relative firm curves and mess up you relative permeability?

THE WITNESS: Once again, I don't really have any specific data that tells me that. And to this point in time, the performance of the well hasn't really indicated that.

But we've got a well here that's produced for about four months, so who knows what it may manifest in the future. But I don't have specific data that leads me to believe that.

HEARING EXAMINER: Between all these different sands, are the fluids pretty consistent as far as their properties?

THE WITNESS: As far as I know, we did not individually test sands as we came. Up this particular well was really completed in three stages. There was a lower stage, a middle stage, an upper stage, and they were

fracture treated together.

So I don't have any, once again, specific information that tells me, you know, that there's a great deal of variability in the fluid characteristics from sand to sand. I'm assuming that there's not, but I don't have any specific data that tells me that.

HEARING EXAMINER: Were they frac'ed down the casing and set in plugs and it was all done in one day?

THE WITNESS: I don't believe this operation was completed in a single day, but it was: Perforate, fracture treat, set a plug, move up to the next interval, et cetera.

HEARING EXAMINER: Okay, and then flow back the whole thing?

THE WITNESS: In this particular case, yes, we pretty much flowed back the entire well. There was no individual flow of the three stages.

HEARING EXAMINER: Was that completion procedure done on your advice or was it done just to optimize the completion costs?

THE WITNESS: I will honestly admit, it was done by our operations people. There was probably more cost concern than reservoir concern. If they have reservoir concerns, they will contact me, but I have to honestly admit, that that was done more by production and

operations people.

HEARING EXAMINER: Okay. But you probably could have -- if you really had a concern about something you saw on the log or the mud log that meant that you really needed to test separate, you probably could have over -- prevailed on them to do that?

THE WITNESS: Yes, we could. And in fact, there are occasions where that does take place.

HEARING EXAMINER: But this is a good well. So where is it coming from?

THE WITNESS: I wish I fully understood that situation. Is there something different or unique about the sand bodies that exist in the northwest quarter northwest quarter of Section 16? Perhaps.

HEARING EXAMINER: Why did you move up there that far to drill this well?

THE WITNESS: As I recall, there were some lease issues, and so we drilled to the southwest southwest to address an issue down in that half of the section, and then we drilled it -- we moved to the northwest northwest to address a similar issue in that half of the section. So it was land driven, not operations or reservoir or geology driven.

HEARING EXAMINER: Okay. But it looks like you might have found something.

THE WITNESS: So far in Sections 16 and 17, we found the best well of the seven that have been drilled.

HEARING EXAMINER: Okay. So the pressures may likely to be the same. What about your -- those three fracs that you did, do you see big changes in the ISIPs for the frac pressures?

THE WITNESS: No, sir, they all seem to treat relatively consistently.

HEARING EXAMINER: Okay. Seem to be beating a dead horse there, aren't we? Are you still taking the 200 barrels a day, are you still asking for that here?

THE WITNESS: Yes. That is primarily, sir, driven by the equipment that is currently producing the well and trying to keep that equipment functioning appropriately as long as we can.

There may be, as I said, a need in the not too distant future to reconsider the installation. But at this point in time, four months ago, we did invest about $150,000 in that equipment and we would like to utilize it as long as we could.

HEARING EXAMINER: Okay. The well is still producing?

THE WITNESS: Yes, sir. I'm sure it was returned to production yesterday, June 1st.

HEARING EXAMINER: Okay. Your submersible pump,

do you have three-phase power out there with three transformers?

THE WITNESS: I believe we do, sir.

HEARING EXAMINER: So you've got a variable speed drive on it?

THE WITNESS: As far as I recall, we do. I don't consider myself a submersible pump expert, so -- but I believe we do.

HEARING EXAMINER: Who is this Wood Group, who do they --

THE WITNESS: The Wood Group is just one of several suppliers of submersible pumps.

HEARING EXAMINER: They must have bought Rita or something.

THE WITNESS: I assume that's possible, but I don't know that.

HEARING EXAMINER: To design your submersible pump and to have your PI curve or your RPR curve or whatever, you kind of need to estimate your bottom hole pressure, don't you, your reservoir pressure?

THE WITNESS: Yes, and of course we were estimating bottom hole pressure, essentially believing it was a normal pressure gradient, and that was really borne out by the mud weights requirement during the drilling.

HEARING EXAMINER: Okay. Your payout on this

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thing, do you need this kind of relief to affect payouts that will make it economical to keep drilling wells out here? Obviously, you compare projects, economics, projected economics.

THE WITNESS: That's certainly true. But always in our business, better payouts, a higher rate of return tend to move projects from the lower end of the scale to the upper end of the scale.

So, protracted payouts, lower rates of return, that's going to drive projects back down and they're going to be preferentially overtaken by other, better projects.

HEARING EXAMINER: But the overproduction that's happened so far, do you think it's hurt your reservoir?

THE WITNESS: No. Once again, the classic literature on solution gas dry reservoirs, tends to indicate that recovery is relatively independent of the rate of which a well is produced.

HEARING EXAMINER: Are you guys limited on where you can drill here because of potash concerns?

THE WITNESS: In our particular case -- of course, we have the two existing wells, I believe we're -- and I'm not in a good position to answer this question, Mr. Birdshead would be in a better position. But I believe we're going to be able to obtain permits for the No. 2 and No. 3 well, which would be the two locations in

between the 4 State and the 1 State, in the very near future.

HEARING EXAMINER: These are state lands, right, so you would need an OCD permit?

THE WITNESS: Yes, sir.

HEARING EXAMINER: Is there any way to economically drill S-shaped wells here to access areas that potash would be a limit to -- limiting?

THE WITNESS: You know, I suppose anything's possible, and it's always a matter of how much money you want to throw at the problem. To start to drill exotic well-bore configurations -- we're only at 6,500 feet here, and sometimes that gets to be a little difficult and cost prohibitive and you have trouble getting casing into the hole --

HEARING EXAMINER: Or pumping the well?

THE WITNESS: Or pumping the well, that's exactly right.

HEARING EXAMINER: How deep do you have your submersible pump?

THE WITNESS: I believe it's set at 6,506 feet.

HEARING EXAMINER: Is that at the bottom or --

THE WITNESS: No.

HEARING EXAMINER: I forgot how deep this well is.

THE WITNESS: No. In fact, I think the bottom perforation -- Let me refer back to an exhibit. If we go back to Exhibit 5 in the booklet, we're actually set above the top perforation, because to perforate the interval was 6,698 to 8,850, and I'm sure a significant consideration there was to try to avoid any frac sands that might be produced back early on in the life of this well.

It's possible that we may be able to lower the equipment, but that has not manifested as a concern in operating the equipment, once again, for a little bit longer period of time more efficiently.

HEARING EXAMINER: You lose your pump down there, you might lose your whole well.

THE WITNESS: That's very possible.

HEARING EXAMINER: Any questions?

MR. BRUCE: No questions.

MR. KELLAHIN: The last exhibit we have is Exhibit 13 in the book, my certificate of notification where we renotified everybody of the amended application, and we would ask that that be introduced at this time, Exhibit 13.

HEARING EXAMINER: Exhibit 13 will be admitted.

MR. KELLAHIN: That concludes our direct case.

(Note: A break was taken.)

HEARING EXAMINER: We'll start with Mr. Bruce's

witnesses.

CHUCK MORAN,

the witness herein, after first being 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. Charles Moran.

Q. Where do you reside?

A. Artesia, New Mexico.

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

A. I work for Yates Petroleum Corporation and I'm the chief landman.

Q. Have you previously testified before the Division?

A. Yes.

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

A. Yes, they were.

Q. And are you familiar with the land matters involved in this area of the Lost Tank Delaware?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I tender Mr. Moran as an expert petrol landman.

MR. KELLAHIN: No objection.

MR. HALL: No objection.

Q. Mr. Moran, you sat here and listened to Chesapeake's witnesses, did you not?

A. I did.

Q. And their last witness, in response to a question from the Hearing Examiner, said, well, Yates should just go drill its wells. Did you understand him to say something to that effect?

A. I understood him to state what we would desire to do, would be go drill a well to protect our rights.

Q. And would that be Yates' preferred method of protecting its correlative rights?

A. It is our preferred method of protecting our correlative rights.

Q. Why can't you do that?

A. Currently we have 11 APDs in Section 17 that have been appealed by Intrepid Potash to the D.C. Circuit Court of Appeals.

Q. And we'll get into that in a little more detail in just a minute. But why don't you first start out by identifying Yates Exhibit No. 1 for the Examiner?

A. Yates Exhibit No. 1 is a commonly used Midland map that we had modified internally that shows the area in question of the Lost Tank field.

And if you notice, there's a blue outline on the

map in the center of the map. That is intended to outline the sections that were referenced in the notice, not necessarily the exact area of the Lost Tank field, except for a correction where the notice improperly listed Section 36 and I believe it missed Section 35.

Q. And the area we're here for today is up in the upper portion of the map, correct?

A. Yes. The area in question is in Sections 16, 17, 31, and 32.

Q. And the yellow designates Yates' interest, or at least partial Yates' interest?

A. The yellow on this map indicates an ownership interest in Yates, yes.

Q. And let's look at the leasehold situation first. What type of land is Section 16, Chesapeake's acreage?

A. Section 16 is State of New Mexico minerals with a state lease issued to Chesapeake.

Q. And this is in the oil/potash area?

A. Yes.

Q. When a company opens a state lease or fee land in the potash area -- although there is not much fee land, do they have a procedure to obtain APDs before going to the Oil Conservation Division?

A. They do.

Q. Is it possible to at least obtain APDs in the

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potash area when you're dealing with state acreage?

A. It is an easier burden to meet to obtain an OCD permit to drill on state land in New Mexico.

Q. And then when you're moving over to Yates acreage, what type of acreage is that?

A. Section 17 is federal minerals and gas lease.

Q. And is it a long, drawnout process to obtain APDs on federal acreage?

A. Is a very long, drawnout process -- or can be.

Q. It can be. Now again, looking at Section 17, Yates has drilled several wells in Section 17, correct?

A. We have drilled five wells in Section 17.

Q. And how many are you seeking to permit on Sections -- well, let's start with Section 17.

A. In Section 17, we went in and applied for, originally, every 40 acre spacing unit and commenced a drilling program and got five wells drilled.

Q. Then what happened?

A. Then our APDs were appealed by Intrepid Potash, and we've been going through -- we've been through the Interior Board of Land Appeals and now we're going to appeal to the Eastern Circuit Court over the APD permits.

Q. And let me ask you this, Intrepid appealed it; do they have a potash lease on this acreage?

A. Last time I looked, no, they did not.

Q. Yet the BLM approved your APDs upon the appeal of Intrepid?

A. The APDs, I think the best way to state it, are subject to appeal at this point.

Q. Okay. Now, you have been with Yates for a number of years, have you not?

A. I have.

Q. And have you been involved in not only this potash appeal, but in other potash appeals filed by potash companies?

A. I have watched and learned potash appeals starting with the case starting in '92 which was appealed and is now back down, and we don't have a solid answer as to what we can do.

Q. Seventeen years later?

A. Yes.

Q. Do you see any quick resolution for Yates being able to obtain approved APDs from the BLM in Section 17 or any other of these federal sections, adjoining Section 16?

A. I am very worried about the timing of the issues of our APDs in 17. We have applied for some APDs in Sections 8 and 9, and it would be interesting to see what time frame we're put under for those.

Q. So again, you would agree that Yates' preferred method would just be to go out and drill wells and protect

its correlative rights?

A. Yes.

Q. And we might not even be here today if that was the case?

A. That is correct.

Q. But since you can't drill, in your opinion, will Yates' correlative rights be affected if this application is granted?

A. By being prevented from drilling, our correlative rights have a potential impact, yes.

Q. Was Exhibit 1 prepared by you?

A. Exhibit 1 was prepared under my direction, yes.

Q. Do you have any other comments on Exhibit 1, Mr. Moran?

A. I do not.

MR. BRUCE: Mr. Examiner, I'd move the admission of Exhibit 1.

HEARING EXAMINER: Any objections.

MR. KELLAHIN: No objections.

HEARING EXAMINER: Exhibit 1 will be admitted.

Q. Mr. Moran, in your opinion, would the denial of Chesapeake's application protect Yates' correlative rights?

A. I believe it would.

MR. BRUCE: I have no further questions.

MR. KELLAHIN: Thank you, Mr. Bruce.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Moran, let me ask you some questions about Yates' willingness to drill wells in competition with the Chesapeake well out in the northwest corner of Section 16. It is your testimony that you prefer to drill?

A. I believe we would prefer to drill our own wells.

Q. You understand that the remaining application before the Examiner today has to do with the cancellation of a certain volume of overproduction?

A. I do.

Q. Whether or not the Division grants that application and cancels the overproduction, the Chesapeake well will continue to produce, will it not?

A. Over the long term, yes. It might be shut in by the OCD.

Q. I understand, but over the long term, if it's the only well in this area producing, it is going to drain not only its area, but it could potentially drain the acreage in your area that you're concerned about?

A. Yes.

Q. The single well will do it?

A. So the engineers tell me. That's the answer.

Q. So when we talk about correlative rights, we're simply talking about the opportunity to drill your well, and you're claiming that your opportunity has been frustrated by the fact that you can't get your APDs approved through the potash proceedings?

A. Right now, the APDs did get approved and then they got appealed. And there's a question whether we can act on the APDs because we're subject to appeal to the D.C. District Court.

Q. Currently of the five Delaware wells in 17, they're all continuing to produce, are they not?

A. I believe they are, yes.

Q. They are not part of that District Court litigation which has been appealed by --

A. No. As I told you, we applied for 16 permits out there, and at that time, we received the permits to drill. And it was only subsequent -- with the subsequent permits that we put in, those were the ones that got appealed by Intrepid.

I don't know the exact timing of when we filed all the APDs, but those were obtained prior to the appeal.

Q. When the original five wells were drilled and completed, they were not subject to appeal by Intrepid?

A. No.

Q. So they've not contested those?

A. No.

Q. And when you filed your APD for the additional wells in 17 and the APDs for 8 and 9, did you receive a waiver from Intrepid on any of those wells?

A. We did not, to my knowledge.

Q. Let me show you a letter, Mr. Moran, that I've marked as Chesapeake No. 14. It's a letter on Chesapeake's letterhead dated April 9 of this year. It's directed to you signed by Mr. Ed Birdshead. Did you receive this letter?

A. I did.

Q. Did you and Mr. Birdshead have a telephone conversation prior to this letter?

A. I believe we did. I don't remember the exact date.

Q. The first paragraph of the letter indicates that the letter is a follow up to your phone conversation, shows you and Mr. Birdshead spoke together on the phone.

A. I believe we did, yes.

Q. During that conversation, did Mr. Birdshead advise you that Chesapeake had received waivers from Intrepid as the potash holder in Section 16?

A. Yes, he did.

Q. Did you go on and discuss -- or does this letter also tell you that Mr. Birdshead has confirmed with

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Intrepid the point that they're interested in, why Yates has also not requested a waiver from Intrepid?

A. I vaguely remember that, yes.

Q. Have you contacted Intrepid subsequent to this letter to see why they've taken this position?

A. No, because we're actively involved in the appeal of my APDs.

Q. Have you directed your attorneys or someone on your behalf in that litigation to inquire of Intrepid what they intended to do with a letter such as this?

A. I have discussed the matter with counsel representing me in the other appeal.

Q. Do you anticipate taking any action based upon the letter that Mr. Birdshead sent to you in terms of getting an APD approved?

A. Without getting into specifics of the conversation, the discussion was, this was not going to help us in our current matter.

Q. Give me the short version of what Intrepid's position is in these appeals in litigation as you understand it.

A. Intrepid is claiming that there is -- they believe the potash out there would be wasted if our wells are allowed to be drilled.

Q. Well, if Chesapeake has already drilled wells

pursuant to a waiver, that potash has already been wasted, hasn't it?

A. It depends upon what -- how you map it and how you analyze and determine where the potash is. Intrepid is taking the position that they can use core hole logs to determine where the potash is.

In a conversation with the president of Intrepid -- I'm just remembering this conversation. I had a very candid conversation with the president -- who is no longer president, he didn't last too long.

I asked him how come he was letting Chesapeake go ahead and he was fighting us tooth and nail. And his answer to me at the time was, "That one slipped through because we were going public at the time." And they just missed this one.

My suspicions then are, is that because they were on state lease, they could require Intrepid to disclose information that I've been trying to get on the federal side that I could no longer get, that Chesapeake would have been able to subpoena on the state lease through the OCD process.

Q. I've been dealing with the old potash area since you and I were boys, and I remember that you can obtain permits using the R11 process through the Division on federal lands. You can get it done, there's a

procedure to allow that to happen, is there not?

A. R11P is for the state lease. And the BLM retains the final decision making under the secretarial rule.

Q. And there's some memorandums of understanding about how the process goes and links them together?

A. Probably there is.

Q. And so, it's not impossible to obtain an approved permit that's not appealable even though it's on federal lands?

A. It is possible. But we are subject to appeal on that.

Q. Okay.

MR. KELLAHIN: I'd move the introduction of Exhibit 14, Mr. Examiner.

HEARING EXAMINER: Any objection?

MR. BRUCE: No objection.

HEARING EXAMINER: Exhibit 14 for Chesapeake will be admitted into evidence.

MR. KELLAHIN: No further questions, Mr. Examiner.

HEARING EXAMINER: Mr. Hall?

MR. HALL: No questions.

HEARING EXAMINER: Mr. Moran, just quickly here, you mentioned something about a notice issue, something

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about Section 35 was listed twice in the notice section --

THE WITNESS: When I looked up the docket, on the docket it listed a bunch of sections, and it goes 35, 36, 36 in the legal description for 21 and 31 on the docket call. And I presume that was a typo and they actually meant 35.

HEARING EXAMINER: But you didn't object to that --

THE WITNESS: No. I think it's part of the Lost Tank field.

HEARING EXAMINER: If there's a half mile buffer zone around wells drilled deeper than 5,000 feet, why isn't there a half mile buffer zone around Chesapeake's well in the north -- in the No. 4 well?

THE WITNESS: And it should be around the rest of mine, as well, but they are not currently considering that subject to my appeal. Because I have a well in the center of section -- approximately in the center of Section 17, and when you put those two together, it should be a -- it should be an open area. Because as we all know from an oil and gas perspective, the potash people don't play fair.

HEARING EXAMINER: Well, is Yates in danger of losing any leases in these three sessions you're talking about?

THE WITNESS: Section 17 is held by production from the other Caper wells, and Sections 8 and 9 are brand new federal wells.

HEARING EXAMINER: And how long a term do they typically -- you don't have to say specifically --

THE WITNESS: Approximately ten years.

HEARING EXAMINER: Ten years? And Intrepid, do -- you said they now actually refer -- did you say they prefer using electric logs to potash or they will accept --

THE WITNESS: Intrepid is trying to promote the concept of using oil and gas logs to identify potash reserves. Yates Petroleum Corporation does not believe that that is an adequate way to present or identify potash reserves.

They claim to have some technology they have not presented, but they are trying to call on the BLM to accept their well log analysis for use in determining where the potash reserves are.

And a report done by Sandia which was out earlier this year tends to discount the ability to use the well logs to identify the presence of -- or the porosity quality of the potash present.

HEARING EXAMINER: No matter what kind of log? There's all kinds of new logs they're always coming up

with.

THE WITNESS: This is the most current information. And they were trying to use it just on their own gas logs.

HEARING EXAMINER: Did Intrepid intend for the -- to be a requirement that the oil companies actually log wells to identify and determine the potash while they're drilling so that they can help delineate potash, for instance?

THE WITNESS: I think that would be a benefit they would like to cause us to pay to do, but because we do log, they're using existing --

HEARING EXAMINER: Existing technology.

THE WITNESS: They're using existing technology out there.

HEARING EXAMINER: Through casing logs.

THE WITNESS: Through case logs, which we -- you know, we have pointed out several flaws in that methodology.

HEARING EXAMINER: This secretarial order you're talking about, is there a legal definition of that somewhere?

THE WITNESS: It's a secretary of potash order.

MR. BRUCE: We could get you that if you want it, Mr. Examiner. It may be referred to somewhere in the

Division's proceedings.

HEARING EXAMINER: Okay. That's the best way -- Actually, that's way over my head. This is the first I've heard of it.

MR. BROOKS: And I would like to have easy reference to it. I've heard of it before but I --

MR. BRUCE: It's published in the Federal Register.

HEARING EXAMINER: This is something probably Mr. Brooks here might want to ask, but the definition of correlative rights, how would you define it?

THE WITNESS: In a very simple analysis, it's the ability to protect my rights to drill while at the same time providing someone else the opportunity to protect their rights to drill and develop the reserves.

HEARING EXAMINER: Okay. I better pass the witness.

MR. BROOKS: What lands are affected by the potash appeal that you referred to?

THE WITNESS: The case in particular that has us held up is an appeal of only Section -- APDs issued to Yates Petroleum Corporation in Section 17.

MR. BROOKS: Okay. And it doesn't affect any other land -- that particular case doesn't affect any other land in Section 17?

THE WITNESS: Only deals with Section 17.

MR. BROOKS: Okay. And the existing wells you have, those APDs were issued before they filed suit?

THE WITNESS: Yes, they were.

MR. BROOKS: Okay.

THE WITNESS: And actually, they appealed to the BLM and I'm challenging the BLM. I knew that I'm within my rights.

MR. BROOKS: Okay. I guess that's all I have.

MR. KELLAHIN: Just a follow up clarification to Mr. Brooks' question.

RECROSS-EXAMINATION

BY MR. KELLAHIN:

Q. So when Yates in Sections 8 and 9 to the north of 16, those are oil and gas leases that are now under Yates' control?

A. Yes. That's one lease in Sections 8 and 9.

Q. And they are not subject to the litigation for the wells in Section 17?

A. Correct.

Q. And you filed for APDs in Sections 8 and 9?

A. Just recently.

REDIRECT EXAMINATION

BY MR. BRUCE:

Q. Along the same lines, you have recently filed

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APDs in Sections 8 and 9, correct?

A. Yes. Those APDs were filed recently.

Q. And when you say recently, let's start out, the new federal lease covering Sections 8 and 9, was that just issued in the course of the last few months?

A. That was issued, I believe, with a March 1 date.

Q. March 1, 2009?

A. March 1, 2009.

Q. Okay, so your fairly promptly filed applications for permit to drill shortly thereafter?

A. Yes.

Q. And they are not approved yet by the BLM?

A. They have not had enough time to -- I think they were turned in the week of the 21st of May.

Q. And the BLM has the right to withhold a decision on an APD for at least 30 days after they deem the application complete?

A. Technically complete, yes.

Q. And they have are potentially subject to appeal by Intrepid Potash?

A. Yes.

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

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RAYMOND PODANY,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence for the record?

A. Raymond Podany, Artesia New Mexico.

Q. And who do you work for and in what capacity?

A. I work for Yates Petroleum Corporation. I'm a senior geologist.

Q. And have you previously testified before the Division?

A. I have.

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

A. They were.

Q. Are you familiar with the geology in the Lost Tank Delaware pool?

A. Yes, I am.

Q. And does your area of responsibility at Yates include this area of southeast New Mexico?

A. It does. And I drilled all five Yates wells here.

MR. BRUCE: Mr. Examiner, I tender Mr. Podany as

an expert petroleum geologist.

MR. KELLAHIN: No objection.

Q. Have you prepared an exhibit for presentation today, Mr. Podany?

A. I have. I prepared a log cross-section.

Q. Exhibit 2?

A. Yes. And it shows a cross-section through the wells through the completed interval from west to east with the Lost Tank No. 4 well on the very right-hand corner of the cross-section.

It is hung on the top of the Bone Springs formation. That's at the very bottom where there's a straight line. That line that goes across the bottom, that's the top of the Bone Springs.

A subsequent marker was picked at the top of the Bushy Canyon marker, and it goes across the top, and then there's a second one approximating the top of the Bushy Canyon lying going across the well logs.

These are showing the density neutron log and the dual lateral logs, the primary logs we run in all our wells in New Mexico. It shows the perforated interval highlighted in yellow. And there's a heavy line in black that goes along the thing, and that usually is the overall interval reported by the commercial log reporting service.

And occasionally, that might be an overall

interval and it's not -- you know, the entire interval is not perforated. But knowing where the exact perforations are is important to that, and when a well is completed, they may pick up the initial completion interval.

And that might be reported and that might be why some of the intervals there might be some differences in previous...

Q. Let's go into that. This cross-section uses the same wells as the Chesapeake cross-section?

A. Yes. They're the same wells. I believe they're the same order.

Q. Okay. And so let's start with the -- First of all, you say that some things might not be reported, or there might just be the initial report -- or you're going off of what is being reported commercially. The second well from the right is the Chesapeake No. 1 well, correct?

A. Right.

Q. And you do not show any perforated intervals in this well; why is that?

A. From the commercial logging service, they only reported the overall interval. And subsequent searching of the OCD papers filed with them, that was -- all that was reported on the completion report was the overall interval --

Q. The gross interval?

A. The gross interval.

Q. Okay. And then let's look at the second well from the left which is your Caper No. 1?

A. Right.

Q. You show more perforated intervals than Chesapeake showed on its plot. Why is that?

A. When this well was drilled, it was originally completed in the basal sands that were perspective in the zone. Not all zones were perforated right away.

In subsequent drilling of other wells, we tested upper sands and saw that they were contributing quite a bit to the production. So we went ahead and recompleted that well.

And then in -- In these upper sands. And so basically, the intervals reported on here are the perforated intervals in our wells and the Chesapeake well No. 4, which they supplied -- graciously supplied the log for on the No. 4 well, and the perforated interval was taken from the reports that they -- the OCD reports and the commercially available reports of what was perforated.

Q. Okay. So with those two exceptions, pretty much your cross-sections show pretty much the same thing?

A. Right. The only difference being that they hung it on the top of the Bushy Canyon, Bushy Canyon marker, and we hung it on the base of the Bushy Canyon, which

would be the top of the Bone Springs.

Q. And so, these producing zones within the Delaware -- And you agree that the Bushy Canyon and part of the Cherry Canyon are productive in this area, do you not?

A. That is correct.

Q. And although the zones may come and go from well to well, there are multiple producing zones in this area extending obviously from Chesapeake's lease onto Yates' lease?

A. That is correct.

Q. And so, pretty much whatever section you're looking at out here, you're looking at the same reservoir, although it may be -- or these zones may come and go from well to well?

A. That would be correct.

Q. And looking at it from a geologic standpoint, does Yates need the opportunity to drill and produce its wells in order to prevent drainage and protect its correlative rights?

A. Yes, I believe so. We had saved a well up in the northeast quarter. It was moved up onto the drilling rig schedule. We were going to move in in December to drill a well in the northeast quarter of Section 17, and subsequently, as was described, the appeal that was made

after the -- The BLM -- At the very last minute they appealed.

Q. So you had to cease your operations?

A. And so we did not risk drilling a well with that appeal outstanding.

Q. Okay. And you mentioned the well up in the northeast quarter. That would have been one at least fairly well offsetting the Chesapeake No. 4 well?

A. That is correct.

Q. Do you have anything else to state with respect to your exhibit?

A. No, not unless there would be questions.

Q. Was Exhibit 2 prepared by you?

A. Yes, under my direction.

Q. And in your opinion, would the denial of Chesapeake's application be in the interest of conservation and the prevention of waste?

A. I believe so, yes.

MR. BRUCE: Mr. Examiner, I'd move the admission of Yates Exhibit 2.

HEARING EXAMINER: Any objection? Exhibit 2 will be admitted.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Just briefly, Mr. Podany, when you're looking at

this area using your expertise, do you try to use a strategy where you try to visualize with your data a certain orientation preference to these little particular portions of the Bushy Canyon or the Cherry Canyon?

A. That would be fairly difficult. I would say that it would be very hard to do. And one way to do that would be to drill wells and collect data to use for -- you know.

When this well was drilled, there was one well to the north a mile away, our originally discovery well was a mile away, and it had oil shows. And that was the basis for us to go in and drill a wildcat well in 17 and make that extension of this field into 17 at that time.

Q. So when you look to population wells in 17, you had the file?

A. Yes.

Q. You analyzed the logs of those wells. Was there any indication to you as a geologist that there is some kind of preferential orientation to any of these depositional tends that have turned out to be productive?

A. I did not determine any. There may be some that may come out with additional drilling. We had decided to move away from our existing wells that -- of the No. 1 and 2. We drilled those fairly close together.

We decided to step out, to move out to see the

productive limits, and that's what our objective was at that time.

Q. Well, did Chesapeake 16 4, then, give you a nice stepout?

A. It does.

Q. And so if you're looking for a well -- protection well I'll call it for lack of a better word, if you're looking for a protection well location, is there any reason that a well in the southwest quarter of 8, or the southeast quarter of 8, or the southwest of 9 would not also be adequate for protection?

A. For those particular leases in that leasehold area, yes.

Q. So there is no bias or preference as to the orientation of how these various reservoirs are positioned?

A. Well, there would be some -- We're in a deep water setting. We have sands coming into a deep water area. There will be an orientation of -- there would be some chanalized features of some of the sand, and as they enter into deeper water, they'll spread out.

Now, some of this will be the shingling effects that have been described, and in this particular case, you know, there could be an orientation that becomes apparent as -- with further study of this. But --

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Q. My question was, there is not a specific first preference as to the three offsetting locations that Yates would control?

A. We were prepared and we're ready to drill the one in 17 first.

Q. I understand that. Besides the appeal problem, geologically there's no difference?

A. Then would be the other two.

Q. Did you help Mr. Barnett, as Mr. Wescott and Mr. Taylor did, in working out the net footage calculation for volumetrics for Chesapeake?

A. Yes, we discussed it.

Q. Did you help him do that, is that your work, counting the footage that was used in the volumetric calculations?

A. We discussed the perforated intervals as being the zone of where we thought the pay was, and to use that as a -- That's the pay interval as we perforated everything in our wells, and you guys perforated the good stuff in your wells, and --

Q. So that was the value for heights used in the calculation?

A. That would be the value for heights used in the calculation, yes.

Q. So Mr. Barnett has done a volumetric calculation

like Mr. Taylor did?

A. I believe so, yes.

Q. And what was the total footage thickness that you used with Mr. Barnett in his calculations, do you recall?

A. I do not recall on an individual well basis, or which well he was doing was the 16 hole or -- I'm sure he could tell you that.

Q. Very good. Thank you.

HEARING EXAMINER: Well, when you -- on your wells in Section 17, how were they completed, were they the three frac jobs and one-half days with plugs?

THE WITNESS: There's various methods. The first well, we went in and perforated that first interval, you know. We would generally swap test and use up a new area to make sure that their oil had no shale before we frac'ed them.

This first well we produced for us, you know, several months on this lower zone before moving up after drilling the subsequent wells. But in general, once it becomes, you know, a known area, yes, we would do the same -- similar treatment.

Cost is a major factor in planning, you know, completion. Completion costs are a major -- you know, frac jobs are a major cost in doing these wells. So

keeping those -- making these better wells is -- everything we can do that way is done.

HEARING EXAMINER: Is it through this Lower Bushy is a little more continuous across, or do you look at it that way at all?

THE WITNESS: I think it is here. I think it is. As you go further to the southwest, there is a part where in the southern part of the field where you go to the east and it's not productive, it's shaly or -- you know.

But in this particular area, it appears to be continuous that -- you know. One day it may be possibility a horizontal candidate. But the performance from our first well was not as -- as attractive to say that this is -- you know, that this would be a good horizontal candidate from that.

HEARING EXAMINER: Everybody's looking for a horizontal zone nowadays, it sounds like.

THE WITNESS: Well, that's -- to be economic, that's one of the ways to do that.

HEARING EXAMINER: Yeah. Can you tell from the logs whether -- or can you predict what kind of water you're going to make in any one zone here in the Delaware Mountain group, including the Bell Canyon?

THE WITNESS: In addition to these logs, we do

run one other log which is called a CMR log, reliable magnetic resonance log. We do run those in all our Delaware wells.

HEARING EXAMINER: And it helps?

THE WITNESS: Generally -- well, in the process of drilling these wells, we drill these very fast, you know, over thousand feet a day sometimes. The mud logs are diminished in value, that you got to show that -- you know -- 200 feet to find what -- where that well -- ten foot well column is is somewhat difficult.

And sometimes to pinpoint those we use the CMR log, which is an interpreted log of the presence of oil and where those are. And those are what we use to help these other things in addition to the basic water saturation calculations which sometimes can vary quite a bit based on the shale content or other factors that -- you know, that might produce more water than you expect, or adjacent sands to these reservoirs, you know, if you perforated them, you maybe produced water.

So, you know, depending on how high your frac went, you'd be pulling water from the whole interval eventually.

HEARING EXAMINER: So you're trying not to limit your frac height?

THE WITNESS: In general, yes.

HEARING EXAMINER: Can you say on your wells which intervals are the highest yielding intervals as far as oil?

THE WITNESS: In this particular area, we could not. We have some areas that are the southern area of this field close down to an area called the Livingston Ridge, which is at the base of the Cherry canyon.

Sometimes when you get that zone, you know that it performs quite a bit different than the other zones, and it is a good zone. We may -- you know, this may or may not be a good, you know, zone here that they have, is the reason.

But I don't know -- It's not obvious. Sometimes it doesn't look that different, and yet could still perform very good.

HEARING EXAMINER: You have to frac these wells, right?

THE WITNESS: Most of the intervals that we have perforated are frac'ed and are Delaware wells. Occasionally we don't frac some of the upper zones. If we look on our CMR and we interpret it to have good firm, and we're adjacent to water zones, we may not frac all of them in that way.

HEARING EXAMINER: Well, what kind of frac link are you getting in the frac jobs? What do you design for

and what do you get?

THE WITNESS: That part is unknown. I mean, as far as -- I do not design the frac and I don't know -- There is a way to tell the length that is actually obtained. I mean, we don't go in with tracer surveys or do microseizmics on some of our vertical wells to see how high the frac goes, we monitor that and how much, you know, is actually needed, or whether, you know, there's shale barriers here. Are those really good shale barriers or do you just think they are, you know.

Most of our experience, though, in the Delaware, there's not many barriers hardly to frac. And the bigger your frac, sometimes you can just, you know, get a little more out there, more height extension.

HEARING EXAMINER: Well, you're frac'ing them down casing, though, right?

THE WITNESS: Yes.

HEARING EXAMINER: What kind of rate do you go?

THE WITNESS: In general, we some, you know, on the order -- I would have to look to see which ones -- what we did on these wells. There are some that are done at 40, 50 barrels a minute.

HEARING EXAMINER: What kind of sand concentration do you get up to?

THE WITNESS: I don't know that. In general, we

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don't use a very high sand concentration depending on what sort of gel or whatever that they might be using.

HEARING EXAMINER: But you're considering this the same reservoir but lenticular?

THE WITNESS: It's possible to be lenticular that these -- you know, that there's some difference. But, you know, the oil here, you know, that sand could be directly related to this part and this next one might not be, you know.

The only way to tell would be to drill a well and line it up and go in there and see if, you know, we can produce oil from the same sands, and make your evaluation that way.

HEARING EXAMINER: But sometimes a reservoir, you consider it to be water, oil, gas, you'll see like -- I'm not hearing you say you see water in the bushy and gas up in the -- I think you just said water up in the Cherry Canyon, right? So as far as that goes, that definition of a reservoir goes, you wouldn't -- this is not --

THE WITNESS: It's not one reservoir in the sense of -- It's all in communication. There are vertical barriers to making the stratigraphic accumulation, there's differences in porosity and permeability or shales that are sealing off the oil and its migration up in the section so that there will be a little zone of oil just

like it's been described, and then above it will be water. And then the next one will be where there's a trap, that will be the next accumulation.

HEARING EXAMINER: Okay. And the one Chesapeake well, you only had available you to the gross perforated interval, that must have been on the completion report?

THE WITNESS: That was just from the completion report. That one was filed differently than the other one.

HEARING EXAMINER: Okay. Different person filing, maybe.

THE WITNESS: I looked at, you know, this one and it was late enough that I didn't have time to add the individual perforations on. I mean, to call them up and ask them what they were.

HEARING EXAMINER: Okay. In that one little zone in that good well, the No. 4 well, that zone that's not correlative in the Bushy, was not perforated in their well, and you show that also on yours and they showed it on theirs, but their well turned out to be the best well so far. Who knows if it will be -- cumulatively, but at least so far, it started out really good. So, do you have any reason why -- if you looked at that log you would interpret at that zone too?

THE WITNESS: That one just above the yellow on

the bottom?

HEARING EXAMINER: Yeah.

THE WITNESS: My first look at this log, I thought that's where the -- you know, where the oil was most likely coming from. There are a few cases where you see that kind of separation where you do see a significant well.

HEARING EXAMINER: That's a resistivity separation, isn't it?

THE WITNESS: Right. And that would be indicating invasion.

HEARING EXAMINER: But they didn't perforate it.

THE WITNESS: They didn't perforate it, it's possible they frac'ed into it.

HEARING EXAMINER: Okay. I don't have any more questions. Do you?

MR. BROOKS: No questions.

MR. BRUCE: Just one follow-up question.

REDIRECT EXAMINATION

BY MR. BRUCE:

Q. Mr. Podany, you said that Yates was ready to commence drilling a well in the northeast quarter of Section 17?

A. That was prior to -- that was in December.

Q. December of '08?

A. Yes.

Q. Do you happen to know if the staking and permitting for that well by Yates was done before Chesapeake permitted the 16 4 well in the northwest northwest of Section 16?

A. I don't know. I think it was before, but I don't know for sure. I was not aware of their well until I saw an application for an increased allowable, and I was like, "Oh."

Q. Thank you, Mr. Potany.

J. O. BARNETT,

the witness herein, after being 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. J. O. Barnett.

Q. And where you do you reside?

A. In Artesia.

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

A. I work for Yates Petroleum. I'm the reservoir engineer.

Q. And have you previously testified before the Division?

A. No, sir.

Q. Would you please summarize your educational and employment background for the Examiner?

A. Well, I went to the Colorado School of Mining, got a petroleum engineering degree. After that I went to work for over Slumber-J overseas as a well test engineer, and then as a reservoir engineer for their Geoquest group prior to coming to Yates.

Q. How long have you been at Yates?

A. Since '07.

Q. Okay. And your area of responsibility, does it cover this part of southeast New Mexico?

A. I used to look after Chavez County, Delaware, some of the other stuff in Lea County.

Q. And are you familiar with the engineering matters related to Chesapeake's application?

A. Yes.

MR. BRUCE: Mr. Examiner, I tender Mr. Barnett as an expert reservoir engineer.

MR. KELLAHIN: No objection.

MR. HALL: No objection.

HEARING EXAMINER: Mr. Barnett is qualified as an expert.

Q. Mr. Barnett, could you identify Exhibit 3 for the Examiner?

A. This is the daily production that we got from

Chesapeake for this 16 State 4. And basically it's -- the green is the daily oil production, and blue is water. We have the red, and gas are the circles in the dots. On the right side, I believe it's -- like you said before, we got the daily production through March 28 of this year. This is my decline analysis from March 29 forward. Just ten weeks ago that we got.

Q. What rate of decline are you using for oil?

A. This is a hyperbolic decline of the -- The time curve here, it shows 131. And we couldn't figure this -- and Delaware and go to a six and a half percent exponential. Some of these wells after looking through all 121 of the wells, some of them are more optimistic, you know, I think this Wolf well that we've got is about 3 percent incline. So there's a range on the different wells in how they decline.

Q. And would this be a reasonable rate that is often produced by Yates for its own internal purposes?

A. Yes, sir, it is. And that's exactly what my point was trying to do here is evaluate it how we evaluate all the wells.

Q. Okay. Now, your next exhibit is a drainage area map. Before you testify about that, could you answer the questions about the water saturation, the thicknesses you used, et cetera, for your volumetrics?

A. Yes, sir. We came up with thickness for it based off of the perforated interval that we got off the OCD completion report. We also used our equation to come up with water saturation through these perforated intervals. And we got cross-plot porosity off the neutron density that they gave us. And some of the other -- assumptions that were made, I took off of some of the -- in our Martha wells, we have some PVT data from -- which is in the Livingston Ridge just south of this pool. I got the PVT data from some Cherry Canyon Delaware production that we have there. And I used -- I got formation volume factors off of that as well as -- and the GORs came off of this PVT.

Q. Okay. And let's identify some of those. What thickness did you use?

A. We came up with 69 feet for the porosity. We got 16 percent. My water saturation is pretty low for Delaware. We came up with 42 percent. And for the initial formation volume factor, we got 1.27 off of the PVT data. I also used the 1.08 as the formation volume factor at abandonment. The volumetric equation I used was straight out of Craft & Hawkins, Page 150, for a solution gas dry reservoir with no water input. Another equation I put from Craft & Hawkins was recovery factor, and I used 15 percent as a recovered factor for a solution gas dry

reservoir.

Q. And then identify Exhibit 4 and discuss what numbers you came up with.

A. Exhibit 4 is using the EUR based off of the decline curve analysis. And then put in that volume of barrels came to a volumetric equation and backing out a drainage area. Based on my assumptions, it comes out with a drainage area of 703 feet, which gives a drainage radius of 703 feet, which equates to roughly 36 acres.

Q. And based upon the location of this 16 State No. 4 well, would that drain portions of Yates' acreage if Yates was unable to drill its well in a timely fashion?

A. Yes, sir, it looks like it would.

Q. You mentioned 121 wells in this area. What is Exhibit 5, Mr. Barnett?

A. Exhibit 5 is just tabular data of the cums for the different wells within this pool and the Lost Tank West Delaware pool. And it's also got the IPs on here and the EURs that I came up with based off of the decline curve analysis for all the wells that are in the pool.

Q. Okay. And toward the end there are selected decline curves. What type of wells did you select to show here?

A. The first general batch are the ones that have the high IPs just it see the wells that come on really

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strong, what kind of decline curve do they have. And then the last five wells within this little packet are our Caper wells to see what kind of type curves that we put on them.

Q. And it looks like the high IP wells do decline at a rapid rate initially?

A. Yes, sir, they decline -- as most Delawares do, they decline pretty fast.

Q. And is Exhibit 5 primarily backup data for the Examiner's reference?

A. Yes, sir, that's right.

Q. Let's move on to your final two exhibits. What are Exhibits 6 and 7?

A. These are basically just the tabular data on a graphical easy to read form, really, just so we can kind of have a bubble map to see how the different wells compare and show that some of the better wells within the field, you know, weren't the best IP wells. They have long production lives of the -- you know, still a decline after the initial hyperbolic.

Q. So Exhibit 6, the cumulative oil production. It does show that in the area we're concerned with here today, these wells are pretty new, correct?

A. Yes, sir, for the most part.

Q. And so the higher cum wells are farther to the

southwest. And then Exhibit 7 is your depiction of the EURs for the current wells in the pool?

A. Yes, sir, that's right.

Q. Now, you listened to Chesapeake's witnesses testify, did you not, Mr. Barnett?

A. Yes, sir.

Q. And I think Mr. Taylor said something to the effect that the oil rate for its No. 4 well would be below the allowable sometime in July. Do you approximately agree with that statement?

A. Yes, sir. I roughly came out in the middle of June when I came up with those calculations. That's reasonable.

Q. They're fairly close to each other in your predictions?

A. They're pretty close, yes.

Q. Based on the rapid declines in these wells, is there really any need to increase the oil allowable above 142 barrels per day in your opinion?

A. I don't see why. I mean, it's clear from a couple of the wells, our Wolf No. 7, that some of the oil wells in the field don't have these huge IPs. I mean, you got oil for a long time. I don't see the point to accelerate it.

Q. So what you're saying is some of these wells

that are -- will have estimated ultimate recoveries in excess of 200,000 barrels were not really high IP wells?

A. Yes, sir, that's correct.

Q. In your opinion, would a reasonable solution to this be to have -- well, let's go back. Chesapeake stated that the total fluids being moved today are roughly 300 barrels per day?

A. Yes, sir.

Q. And their pump would rather have 500 barrels a day?

A. That's right.

Q. Would it be a more reasonable solution just to put a rod pump on it?

A. It looks like to me it would, and some of our latest wells we've drilled in the Delaware, one of the solutions we came up with was to rent a submersible pump for the initial production of the well until we start pumping it off and then to go back and rod pump the well.

Q. Does it sound like the 16-4 well is being pumped out?

A. It looks like it to me if they're having to lower their hertz, it sounds like they're underload, so that seems like the obvious thing to do.

Q. In your opinion, should the Chesapeake well be shut in or restricted on production to makeup on the

overproduction?

A. It looks like to me Yates Petroleum would benefit from it being shut in.

Q. Were exhibits --

A. Were all prepared me by me.

Q. Exhibits 3 through 7 prepared by you?

A. Yes, sir.

Q. And in your opinion, is the denial of Chesapeake's application in the interest of conservation and the prevention of waste and the protection of correlative rights?

A. Yes, sir it would.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibits 3 through 7.

MR. KELLAHIN: No objection.

HEARING EXAMINER: Exhibits 3 through 7 will be admitted.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Barnett, when we're looking at the Chesapeake application, at this point in time we're looking at canceling certain overproduction that's going to accumulate from the initial production to a point in time when the well can no longer exceed 142 barrels of oil a day.

A. Right.
Q. It's that's volume of oil --
A. The 14,000 barrels, right.
Q. Right. When I go back to your Exhibit No. 3, if you can look at the decline curve --
A. All right.
Q. The data points you have is the production data that Chesapeake supplied to you back at the end of March of this year?
A. Right.
Q. You didn't call Chesapeake to obtain the additional data in order to further update your production on the curve?
A. No, sir, I did not.
Q. Using the data that you have here and looking at the green line, there's a point in time when the green line is going to fall below the daily allowable of 142 barrels a day, right?
A. Right.
Q. Can you project for me on this Exhibit No. 3 where I find that point?
A. Well, if you look down at the bottom, it says '09. That's January 1. And then each of the vertical dashed lines are months.
Q. So at the end of June?

A. Right.
Q. So you and Mr. Taylor are in agreement?
A. Oh, exactly.
Q. So that's not a problem?
A. No, that's not an issue at all.
Q. When I look at your volumetric calculation, you don't have a similar exhibit like Mr. Taylor's Exhibit 12?
A. No, sir.
Q. I'm going to hand you an extra copy of his exhibit.
A. Sure.
Q. I know you responded to Mr. Bruce about some of the components of that calculation.
A. Right.
Q. Help me understand what those things are. I'm going to take a copy of my Exhibit 12, and let's go down the data that you used for the volumetrics and you tell me what numbers to substitute in so I can comply with what you did.
A. Well, the equation is actually -- it's a little bit different. The equation I got from Craft & Hawkins, it takes into account -- because -- begin with a closed reservoir. So as you get below bubble point, gas is coming out of the solution. And that gas has to occupy space. And based off of Mr. Taylor's equation, you're not

taking into account for that. I mean --

Q. Regardless of which equation you apply, you still need the same values --

A. But the input should be the same.

Q. Let's get those numbers.

A. Okay. Go for it.

Q. Tell me.

A. You're at 69 feet for height, 15 percent for porosity, the water saturation came up with 42 percent, the BLI that he's got is 1.48. From our PVT data, it's 1.27.

Q. What difference does that make in the calculation, is that big enough difference to matter?

A. Yes, sir.

Q. So then you've got a recovery factor of 15, I think you said?

A. Yes, sir.

Q. Remember the premise Mr. Taylor was using is he was trying to take the volume of overproduction of 14,600 barrels.

A. That's really apples and oranges.

Q. I'm going to try and make them apples. If we take your calculation, instead of using the total ultimately recovery of the well bore, how much area is going to be affected by Mr. Taylor's 14,628 barrels of oil

of total production?

A. I don't know, but I have a feeling you know.

Q. No, I'm not that smart, but it's not the number that you've given me on Exhibit 3. This was generated to give you an EUR?

A. Yes, sir, that's correct.

Q. And that EUR was 200,007 barrels?

A. No, the EUR -- the oil I came up with was 187,000, is the oil.

Q. So at the end of the life of the Lost Tank 16 No. 4 well, I'm going to -- total cum production is going to be -- what was the volume you said before?

A. 187,000.

Q. When you project your decline curve out to that volume of oil, what is going to be the date at which I recover that?

A. Oh, I don't remember that. I want to say '25, maybe.

Q. Twenty-five years?

A. No, 2025. Another calculation I made based off of the same assumptions is what kind of volume we have to get before you all reach 333 feet to our lead, and that calculation came up to be 41,000 barrels. And when I went back to what you said before about the 16,000 barrels of overproduction and the 25,000 of cumulative production,

that's going to happen real soon. Next month, you all will drain that area.

Q. Under your calculation using these volumes --

A. That's right.

Q. You're saying that --

A. We're saying it takes 41,000 barrels to drain a 333 feet radius. And at the time that this thing goes, like you said, to the allowable, you all will be at volume.

Q. I think I see where that magnitude of difference comes from. It's largely attributed to the thickness component of the calculation?

A. Right.

Q. And you've used 69 feet and Mr. Taylor has used 118 feet?

A. Right. That and the difference of the PVT assumption.

Q. Well, whether or not the overproduction is cancelled or otherwise, unless Yates chooses to drill a well offsetting this well, this single well is going to take it all, right?

A. Right.

Q. And if that volume of oil is sufficient enough to extend beyond the 40 acre tract, it will have some effect on the offsetting tracts, will it not?

A. Yes, sir.

Q. So whether or not we cancel or not, the single well, unless there's competition, under the rules of procedure, this is going to take it all?

A. Right.

MR. KELLAHIN: No further questions.

HEARING EXAMINER: Okay, Mr. Barnett, did you do a plot of IP versus ultimate, and if you did, what would you think you would get out here, a scatter, or would you get a pretty good straight line?

THE WITNESS: You're going to get a whole bunch of scatter in there. Well, some of the reasons is the wells have been drilled over, you know, 18 years, and the completion techniques have changed.

I mean, there's a lot of, you know, things going into this that contribute to this, you know. And some of the wells have been not offset like -- and some of the wells have been.

All this, you know, has to be accounted for some in some way or another. But when I looked -- I tried to do that and I couldn't make any correlation between IP and the EURs.

HEARING EXAMINER: What about correlation between -- you guys are both -- I mean you and Mr. Taylor both did hyperbolic declines at least initially here and

then you got your exponential, and you've used six and a half percent.

But the point where -- before -- once you start your exponentials, from there to your initial production time, is that -- what kind of lenses would be producing then, you think, in your reservoir, translating that from a decline curve back here looking at your rock, what -- how would you envision then that -- this lenticular reservoir producing a hyperbolic decline curve like this?

THE WITNESS: You'll have to give me a minute to think about it. Well, I think, you know, you're getting on to a transient flow. I mean, you're going to be feeling -- you're going to have gas breaking out which is restricting the oil production as well, I think.

You know, there's some PVT properties on here that are going to make a difference as well. You know, this stuff is tight. I mean, I don't have any DST data or anything, but, you know, it's going to be very tight as well. It's going to not take very long for it to get into, you know, exponential decline.

HEARING EXAMINER: Is it possible that some lenses give you that initial -- I don't want to say flush production but they give you the high IPs and then they play out after a while, and then you've got your long-term lenses that are more connected out farther away from your

well and --

THE WITNESS: I think it could be. I mean, we don't -- the way we've tested the wells, we don't have sufficient information to say either way, really.

HEARING EXAMINER: Okay. I guess I should ask you the same question I asked Mr. Taylor. Was this reservoir harmed by producing at your maximum production right off the bat?

THE WITNESS: I guess I have a little bit of mixed feelings about this. I mean, just looking at some of the high IP wells, it looks like there may be something there, you know. I mean -- But there's nothing -- I don't have anything really negative to say about that.

That's kind of a feeling I've got. I mean, some of the wells -- and this well, you know, they've produced 600 barrels a day for a couple of days, and some of the other wells in the field have an IP of 500 barrels a day, but they're not your 300,000 barrels a day wells.

HEARING EXAMINER: So IP is not necessarily totally related to your ultimate?

THE WITNESS: No.

HEARING EXAMINER: And your ultimate -- if you did a drainage radius of your ultimate production, of course, it would kind of be a jagged line, but that would be a different circle than the drainage radius for your

IP; is that correct? You show both of them here, so we got both of them -- interpretation.

What about the -- when you fracture a well at this depth and of these pressures, or closure pressures, if you produce it real fast right away, are you harming your frac job?

THE WITNESS: These are -- I'll answer this in a little bit of a roundabout way, but our Caper wells, we have a lot of problems with sand production from those wells.

And they pulled pumps -- our rod well pumps, and we've pulled these pumps, you know, I think a couple of them already three or four times this year. And we have a lot of the problems with sand production in these Capers especially.

I want to say it's more fines than prop, you know what I mean, we're not seeing props on those.

HEARING EXAMINER: Okay. Mr. Podany said that you drill through that Delaware real fast. Does that have something to do with how well it will hold the frac sand?

THE WITNESS: I'm not sure.

HEARING EXAMINER: All right.

THE WITNESS: I don't have a good answer for that.

HEARING EXAMINER: All right. Any questions?

MR. BROOKS: No questions.

HEARING EXAMINER: Okay. Thanks. Mr. Barnett. Case 14301 will be taken under advisement.

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

_____, Examiner
Oil Conservation Division

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

REPORTER'S CERTIFICATE

I, PEGGY A. SEDILLO, Certified Court Reporter of the firm Paul Baca Professional Court Reporters do hereby certify that the foregoing transcript is a complete and accurate record of said proceedings as the same were recorded by me or under my supervision.

Dated at Albuquerque, New Mexico this 10th day of June, 2009.

PEGGY A. SEDILLO, CCR NO. 88
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