STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	)	CASE NO. 12,808
APPLICATION OF DAVID H. ARRINGTON OIL AND GAS, INC., FOR AN UNORTHODOX OIL WELL LOCATION AND SIMULTANEOUS DEDICATION, LEA COUNTY, NEW MEXICO	)	

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

February 7th, 2002

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, February 7th, 2002, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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Examiner Hearing
CASE NO. 12,808

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A P P E A R A N C E S

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By: MICHAEL H. FELDEWERT

* * *

WHEREUPON, the following proceedings were had at 9:12 a.m.:

EXAMINER CATANACH: Okay, at this time we'll call Case 12,808, the Application of David H. Arrington Oil and Gas, Incorporated, for an unorthodox oil well location and simultaneous dedication, Lea County, New Mexico.

Call for appearances in this case.

MR. FELDEWERT: May it please the Examiner, Michael Feldewert with the Holland and Hart law firm, their Santa Fe office, for the Applicant David H. Arrington Oil and Gas, Inc. I have two witnesses today.

EXAMINER CATANACH: Okay, any additional appearances? There's none.

Let the witnesses be sworn in.

(Thereupon, the witnesses were sworn.)

BILL BAKER, JR.,

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

DIRECT EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Baker, would you please state your full name and address for the record?

A. Bill Baker, Jr., and I reside in Midland, Texas.

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

A. David H. Arrington Oil and Gas, and I'm the exploration manager.

Q. Are you a geologist?

A. Yes, sir, I am.

Q. Have you previously testified before this Division and had your credentials as a petroleum geologist accepted and made a matter of record?

A. Yes I have, and yes they were.

Q. And are you familiar with the Application that has been filed by Arrington in this case?

A. Yes, sir, I am.

Q. And are you familiar with the status of the lands in the subject area?

A. Yes, sir, I am.

Q. And have you made a technical study of the area that is the subject of this Application?

A. Yes, sir, I have.

Q. And you're prepared to share the results of your work with the Examiner?

A. Yes, sir, I am.

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

EXAMINER CATANACH: They are.

Q. (By Mr. Feldewert) Why don't you, Mr. Baker, turn to Arrington Exhibit Number 1, identify it and then

briefly state what Arrington seeks with this Application?

A. Okay. Mr. Examiner, Arrington Exhibit Number 1 is a land plat showing the location for the Mayfly 14 State Com Number 7 well, located in Section 14, 16-35, in Lea County, New Mexico.

We're here today to seek the approval to recomplete this Mayfly 14 State Com Number 7 in the Strawn formation of the North Shoe Bar-Strawn Pool at an unorthodox location of 330 feet from the north line and 330 feet from the east line, Unit A of Section 14, and to simultaneously dedicate this well to a previously approved 160-acre oil spacing and proration unit consisting of the northeast quarter of Section 14.

Q. Is there a Strawn well that is already dedicated to this spacing unit?

A. Yes, sir, there is, it's Arrington's Mayfly 14 State Number 2.

Q. Is this Strawn pool subject to an allowable?

A. Yes, sir, under Rule 6, special pool rules, there's a depth bracket allowable of 605 barrels of oil per day.

Q. And has Arrington included the special pool rules for the North Shoe Bar-Strawn Pool as Arrington Exhibit Number 2?

A. Yes, sir, Arrington Exhibit Number 2 is the

rules, yes, sir.

Q. Is the existing well in this northeast quarter spacing unit, is it meeting the allowable under these rules?

A. No, sir, it's currently not.

Q. And does Arrington Exhibit Number 3 indicate at the bottom the January rate of production from that existing well, the Mayfly Number 2?

A. Yes, sir. Exhibit Number 3 is a production history of the Mayfly 14 Number 2. And the most recent history -- as a matter of fact, in just the last couple of days the well has gone from a production of approximately 335 barrels a day to about 400 barrels a day and 1.4 million cubic feet of gas per day.

Q. And do these special pool rules for the North Shoe Bar-Strawn Pool allow for more than one well on a 160-acre spacing and proration unit?

A. Yes, sir, they do.

Q. Is that under Rule 6?

A. Yes, sir, under Rule 6.

Q. Okay. Now, turning to your proposed recompletion, why don't you review for the Examiner the history of the Mayfly 14 Well Number 7?

A. Okay. Mr. Commissioner, the Mayfly 14 State Com Number 7 was originally proposed to test the Mississippian

and Morrow formations at a previously approved unorthodox gas well location in the northeast quarter of the northeast quarter of Section 14.

Subsequent to the drilling of this well, the Morrow was non-present in the well, and the Mississippian tested noncommercial gas. Upon the drilling of the well we did encounter a Cisco formation, which we subsequently attempted a recompletion in. This zone is located above the Strawn formation. It did produce a limited amount of oil for a very short period of time, which is now depleted, and the well has been shut in since September of 2000. And basically, we're here today to hope to try to salvage the well by recompleting in the Strawn and simultaneously dedicating it to the northeast quarter of Section 14.

Q. Okay. Now, is this well -- will it still be unorthodox in the Strawn formation?

A. Yes, sir, it is.

Q. And does Rule 4 set out the orthodox locations for a Strawn well?

A. Yes, sir, Rule 4 of the Special Field Rules and Regulations for the North Shoe Bar-Strawn Pool provides for locations within 150 feet of the center of a quarter-quarter section, and our well is 330 feet from the north and the west line -- It's actually from the east line, it would be 330 from the north and the east lines.

Q. Now, does the special pool rules for the North Shoe Bar-Strawn Pool provide for any exceptions to the well-location requirements?

A. Yes, sir, they do. Rule 5 allows for administrative approval if an unorthodox location results from the recompletion of a well previously drilled to another horizon.

Q. And that's what you're doing here?

A. Yes, sir, that's the case here.

Q. Now, Rule 5 also indicates that the offsetting operator shall be notified if an exception to the location set forth in Rule 4 is sought. Who are the offsetting operators for this proposed recompletion?

A. Okay, located in the southeast quarter of Section 11, is operated by Yates Operating. They have two wells up in here, the Morrow well, R.L. Burns well, which is located in the southeast southeast quarter, and then their Runnels ASP Number 2 well, which is in the northwest quarter of the southeast quarter, which is a dual Atoka-Strawn oil producer, and they do not have any objections to what we're seeking here today.

The southwest quarter of Section 12 is currently owned by Chesapeake Petroleum, and to the best of my knowledge there's no productive wells in that southwest quarter of Section 12. Chesapeake Petroleum also has about

a 23-percent interest in the Mayfly 7, and agrees with the recompletion of this well.

The northwest quarter of Section 13 is operated by Permian Resources, Inc. They most recently drilled two wells in the northwest quarter of Section 13, both of which were dry holes that I will address in just a few minutes, and to the best of my knowledge they do not oppose what we're here today doing.

Q. Is Arrington Exhibit Number 4 an affidavit with attached letters giving notice of hearing to each of these affected parties?

A. Yes, sir.

Q. Okay. Mr. Baker, why didn't you seek administrative approval for this proposed recompletion?

A. Because of the regulatory history of this well.

Q. Okay, let's walk the Examiner through that regulatory history, starting with the first order for this well. Is that marked as Arrington Exhibit Number 5?

A. Yes, sir, it is.

Q. And is this the order that first approved the unorthodox location of this Well Number 7?

A. Yes, sir, it is.

Q. Now, if you turn to page 5 of that order, paragraph 4 references a 50-percent production penalty for certain formations. Do you see that?

A. Yes, sir, I do.

Q. Do you propose that a 50-percent production penalty also apply to your proposed recompletion of the Mayfly 7 in the Strawn Pool?

A. Yes, sir, this 50-percent penalty is consistent with our agreement with Yates.

Q. So you have an agreement with Yates, the offset operator, that you will abide by a 50-percent production penalty?

A. Yes, sir, we do.

Q. Okay. Did Arrington previously propose this recompletion to the Division?

A. Yes, sir, we did.

Q. And was that application at that time opposed by Permian, the offset operator to the east?

A. Yes, sir, it was.

Q. And was that application eventually denied?

A. Yes, sir, it was.

Q. Is Arrington Exhibit Number 6 Division Order Number R-11,646, which was entered on September 11th, 2001, denying your application for approval of this recompletion?

A. Yes, sir, it is.

Q. Okay. Now, I want you to turn to page 5 of that order --

A. Okay.

Q. -- which sets forth a number of concerns. I'm looking at paragraph 13, which indicates that Arrington did not present structure and isopach maps or bottomhole pressure data to substantiate its request. Are you going to do that here today?

A. Yes, sir, I plan on it. Yes, sir.

Q. Okay. Paragraph 14 raises a concern about the eastern boundary of the structure that you're proposing to target with your Mayfly Number 7. There's some concern that it may extend into Permian's acreage. Are you going to testify about that concern today?

A. Yes, sir, I will.

Q. Paragraph 16 indicates that Permian had no offsetting well in the northwest quarter of Section 13 to help define that structure but that they plan to drill a well. Are you going to talk about that concern?

A. Yes, sir, I will.

Q. And are you going to talk about the well that Permian did drill in that quarter section?

A. Yes, sir, I will.

Q. Finally, if you look at page 6, paragraph 20, it indicated a concern that the recoverable reserves in the northeast quarter of Section 14, where you already have an existing well could effectively be produced by the existing Well Number 2 in that section?

A. Yes, sir.

Q. Are you going to offer testimony today about that issue?

A. Yes, sir, Mr. Sledge, our engineer, will offer testimony that addresses that.

Q. Okay. Now, what has happened since the entry of Division Order Number R-11,646 expressing these concerns that causes you to come back to the Division and ask that it now approve your recompletion proposal?

A. Permian Resources drilled a well in the northwest quarter of Section 13 and subsequently kicked the well to another bottomhole location, both of which were dry holes.

Q. Does that directly offset your Mayfly Number 7?

A. Yes, sir, it does.

Q. Was Arrington a participant in those drilling efforts?

A. Yes, sir, we were a participant within the wells.

Q. And did you obtain data from these completion efforts?

A. Yes, sir, we did.

Q. And what does that data indicate?

A. Basically what I'm going to show here today is that that data indicates that they did not even encounter the productive interval that we have in the Mayfly 14-2 in the Mayfly 14-7. They did encounter a separate

stratigraphic Strawn reservoir that's located deeper than ours is, which tested noncommercial and very tight and has different bottomhole pressures that definitely separate out our algal mound from theirs.

Q. Okay. Now, are you going to present geologic information today to substantiate those results?

A. Yes, sir, I am.

Q. And is Mr. Charles Sledge going to present engineering information?

A. Yes, sir, he will.

Q. Okay. Let's turn, then, to your geologic study, and why don't you start with Arrington Exhibit Number 7, identify that and review that for the Examiner?

A. Okay. Mr. Examiner, this is just a production map of the area surrounding the key wells noted here. I have color-coded the different producing horizons in here, to be able to identify which of them produce from certain horizons, yellow being Wolfcamp, Cisco is identified by a green color, Strawn producers are all noted in blue, Atoka producers are noted in orange and Morrow producers are noted in red.

The key well we will be talking about today is located in the northeast quarter of Section 14, and there is a color symbol around it which is green, which was the last productive horizon, being the Cisco formation for the

Mayfly 14-7.

Also the production history located under each well, the oil production is located in green and then gas production is located by the numbers represented by red. We have put -- The shallower formation will be above a deeper formation in the case of a dual completion or multiple completions within the well.

This particular information right here was taken from *Dwight's Production History*. I will note for the Examiner that the Mayfly 14 Number 2, which is located in the northwest quarter of the northeast shows a productive history of 367,000 barrels and approximately 754 million cubic feet of gas, Mr. Sledge will testify a little bit later. Those numbers are actually a little bit higher. That's because our in-house record keeping doesn't -- we're a little ahead of the *Dwight's*, so it will be a little bit different when you compare those numbers.

Q. Okay. Now, you have a legend up there in the corner, right?

A. Yes, sir.

Q. Okay. This map does not show the new Permian wells?

A. Yes, sir. Both two new Permian wells will be noted on my structure map and isopachs. I apologize for not putting them on here. They were both dry holes, and my

geotech didn't pick them up, so... They'll be shown on my structure maps and isopachs.

Q. Why don't you turn to Arrington Exhibit Number 8, identify that and review that for the Examiner?

A. Okay, Exhibit Number 8 will be a structure map on top of the Strawn "B", which is the top of the producing algal mounds in the area. Basically what this map is going to show is that we're situated on kind of a large east-northeast-plunging structural nose. I have represented the Strawn producers here in blue, I put their subsurface datums located in red directly under them. You will note that there's cross-section A-A'. That will be Exhibit Number 9 that I will get to next, it's noted on here.

And then you will notice some key information, some -- certain drill stem tests under certain wells. This is key information to showing how our algal mound is not associated with Permian's algal mound located in Section 13.

Mr. Examiner, if you'll look like there in Section 11, I have noted the drill stem test that was taken on the Runnels ASP Number 2. This well was done in May of 1999. It recovered 2137 feet [*sic*] of oil. It had a shut-in bottomhole pressure of 4232 pounds. That is a normal virgin pressure for the Strawn. Okay, 4232 pounds, that's a key thing.

If you'll look directly south of that where our Mayfly 14 Number 2 was drilled, it was drilled in September of 1999. I show that it recovered 1351 feet of oil. It had a bottomhole pressure of 4135. Once again, virgin typical standard pressure for a Strawn reservoir.

Now, if you move over to the Mayfly 14 Number 7, which is located there in the northeast quarter of Section 14, you'll see that this drill stem test was taken in July of 2000, which was basically 10 months after the Mayfly 14 Number 2. Basically that was gas to surface in five minutes. Mr. Examiner, that should be oil to surface underneath that, not gas to surface, again, in 38 minutes. We actually recovered 71 barrels of oil on this test. We have had a maximum bottomhole pressure of 2900 pounds. So right there, you're seeing some depletion from a well in the immediate area. It is our interpretation that this was being depleted from the Mayfly 14 Number 2.

Now, the key thing is, if you'll move directly to your right from the Mayfly 14 Number 7, you'll see two dry holes drilled in the northwest quarter of Section 14. These are the most recent wells drilled by Permian Resources. You will see where their surface location was, and they actually had a surface location, Mr. Examiner, of 510 feet from the north and I believe it was 250 feet from the west line.

And then they were basically setting up a pilot hole, they were in hopes of taking this horizontally to the east. They bottomholed it at what appears to be 660 from the north and 510 feet from the west line. They came in at a structural datum of minus 7371, which is 40 feet low to our Mayfly 14 Number 7.

They drill stem tested this interval. This drill stem test across the Strawn recovered 400 feet of oil- and gas-cut mud, with a maximum bottomhole pressure of 4042 pounds, a virgin reservoir. That clearly shows that whatever they encountered in their wellbore right here was not what is located in our wellbore in the Mayfly 14 Number 7, by drill stem test.

They subsequently did kick this well, Mr. Examiner, further to the east 1200 feet. They did gain a little bit of structure here. I did not put the drill stem test on here. They had a very similar drill stem test, and that one actually recovered 90 feet of oil- and gas-cut mud and had a bottomhole pressure of around 4100 pounds. I'll show on my isopach in just a minute that they actually picked up a little bit of additional porosity. But basically, both these two wells were very tight. And they subsequently did not run pipe on them and deemed them both noncommercial and plugged the wells.

Q. Before we leave this exhibit, do you have

information on the Yates well to the north there in the southeast quarter of Section 11?

A. Yes, sir, directly across the line from my Mayfly 14 State Number 7 is the R.L. Burns well, and it's located 330 feet out of the south and east quarter right there. That particular well is a Morrow gas well. And this kind of sets up our northern boundary for what we believe is our Strawn algal mound. They had very tight Strawn, no productive Strawn algal mound at all, and I think that's going to prove to be the key northern point for my isochron -- or isopach map for porosity of our zone.

Q. Okay. Why don't you turn, then, to Arrington Exhibit Number 9, which I believe is a cross-section?

A. Yes, Mr. Examiner, this is basically a three-well cross-section. And at the very top of there it should be A-A', not A'-A'. I apologize for the error on the very upper left-hand corner right there.

This is an east-west-oriented cross-section going from our Mayfly 14 Number 2 through our Mayfly 14 Number 7 and over to the Permian Resources Hilburn Number 3.

If you will notice, on the far left-hand side of the Mayfly 14 Number 2 the top of the Strawn "B" carbonate, that is my map datum for my structural horizon. This is the top of the algal mound system. This shows the original algal mound that was penetrated by the Mayfly 14 Number 2.

I have noted the drill stem test results right there on the sides. Once again, it shows that it had a final shut-in bottomhole pressure, 4195 pounds. The well is an outstanding producer, 773 barrels of oil a day, 1.6 million. It has a current cumulative production -- and this is an accurate cumulative production -- of 391,000 barrels and .81 BCF.

The rates that I put on there, that was as of December, and at that time that well was producing 335 barrels a day and 1.1 million. Just within the last couple of weeks, that production has bopped up a little bit, and Mr. Sledge is going to address that in his engineering testimony as to some concerns we have about the GOR changing in the reservoir right now.

If you will move right on into the next well, the Mayfly 14 State Number 7, you will see the same correlative interval, you'll see that the algal mound is thinning at this point, you'll see our drill stem test taken back in 2000. At that time, once again, we had a bottomhole pressure of 2886, approximately 2900 pounds bottomhole pressure.

Now, if you just move to the very far right-hand side, you will see Permian Resources Hilburn Number 3, the most recent well drilled in the area. If you would just look just simply at the logs, you'll see correlativewise

they didn't even encounter any porosity in what I correlate to be our algal mound. That would be the very top part there.

You'll see where they have encountered another kind of little hot streak there that I've marked in purple right there. I think that that is a separate stratigraphic sequence there. That is where they developed what little porosity they got there. And if you'll notice, I colored over there kind of in yellow basically the two feet that they did encounter there on drill stem tests. They did get gas to surface on this, but they recovered 400 feet of oil- and gas-cut mud. And once again, their final shut-in pressures were approximately 4175 pounds on this thing.

That clearly tells me not only from a correlative interval that we're not in the same reservoir, but also from the bottomhole pressure. You've got brand-new reservoir, once again, with virgin pressures.

So I believe that they did not encounter our reservoir at all.

Q. Okay. Why don't you then turn to Arrington Exhibit Number 10, identify that and explain that to the Examiner, please.

A. Okay, Arrington Exhibit Number 10 is an isopach of the Strawn "B" porosity in this area, and I was using a porosity cutoff of 4 percent or greater.

Basically what this shows is the orientation of the algal mounds in the immediate area. For the most part -- You can tell that these algal mounds are kind of located in a northeast-southwest orientation.

For the most part, they're very thin, linear-type algal mound deposits. The one which the Mayfly 14 Number 2 and 14 Number 7 is located appears like we entered with the Mayfly 14 Number 2 on the western edge of it. Our horizontal went through the meat of the algal mound and bottomholed kind of on the eastern boundaries of it.

If you'll not here, I have a maximum porosity in here, or thickness in here, of approximately 60 feet. That has had to come through working with reservoir engineering and the volumetrics and trying to get accurate numbers as to what we think the reservoir actually has within it. We have pretty well defined by wells surrounding it, that it can't areally be much bigger than this. So it means that it does have to be thicker and that it's probably somewhere on the reservoir got some pretty good porosity in it. It's just that the two wells that penetrated the Mayfly 14 Number 2 had 38 feet of porosity greater than 4 percent, and the Mayfly 14 Number 7 had 27 feet.

Simply by doing the volumetrics and some stuff that Mr. Sledge will introduce in his testimony, we know that somewhere out there this thing has to get much

thicker.

If you'll notice, we now have a well to the north, the R.L. Burns well there in Section 11 that had zero feet of porosity in it. That kind of helps define the northern boundaries, along with the fact that Yates Petroleum has their Runnels "ASP" Number 2 in a mound located kind of to the northwest over there, that we know by bottomhole pressures that it is separate from ours.

We now have the Permian wells located directly east of us, through log correlations and bottomhole pressures that define the eastern limits of it, indicating that it does not appear like our mound went over on to their acreage.

There's a dry hole located southeast of our Mayfly 14 Number 2. This was a Mesa well. It's located there in the northeast quarter of Section 14. That's kind of my southeastern boundary right there.

And then we have our Mayfly 14 Number 3, which is located west of our Mayfly 14 Number 2, which is a very, very small little algal mound. And it had an original bottomhole pressure of 1300 pounds, so we know by a bottomhole pressure test that that one was not connected to the Mayfly 14 Number 2's mound.

So I've pretty well got the areal extent of my mound defined by well control right now, and that's

basically what this shows, is that -- It's my interpretation and my belief that Arrington probably controls 98 to 100 percent of this algal mound on our acreage right now and that the recompletion of the Mayfly 14 Number 7 will not hurt anyone, any offsetting operator's correlative rights at this point. Those rights have been pretty well defined by existing well control.

Q. Mr. Baker, in your opinion, will the granting of this Application then be in the best interest of conservation, the prevention of waste and the protection of correlative rights?

A. Yes, sir, I believe it will.

Q. Were Arrington Exhibits 1 through 10 prepared and compiled under your direction or supervision?

A. Yes, sir, they were.

MR. FELDEWERT: Mr. Examiner, I would move the admission, then, into evidence of arrington Exhibits 1 through 10.

EXAMINER CATANACH: Exhibits 1 through 10 will be admitted as evidence.

MR. FELDEWERT: And that concludes my direct examination of this witness.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Baker, over in Section 12, the two dry holes

that you show there, were those tested in the Strawn?

A. Yes, sir -- Well, the one right there in the southwest quarter, yes, sir, that was a Strawn test, an old well drilled by TXO. And excuse me for not knowing the dates, but it was early 1970s. And they were basically trying to get in the old Hilburn-type mound, and it had zero porosity in it as well.

That well up there to the north, Mr. Commissioner, in kind of the northwest quarter of the southwest quarter, that is -- actually it should be an abandoned location up there. Yates had one of those. I apologize. That well is not a well that did penetrate the horizon.

Located directly north of that -- and it's actually in the northwest quarter -- you'll kind of see a diagonal coming in there. That's the tail end of Chesapeake's Kala well, and that was a horizontal well drilled in the northwest quarter of Section 12 that was a very prolific Strawn producer as well, yes, sir.

Q. Okay. Now, the algal mounds that you have identified in Section 11 and Section 14, what data did you use to determine that those were not a part of your mound?

A. Well, I mean it's kind of a combination of subsurface well control, a lot of bottomhole pressure information, and we worked very closely with Yates. When

we drilled all these, we actually did some studies in here to possibly look at pressure maintenance doing some gas-fill injection to try to get these outs, so we shared an awful lot of bottomhole pressure information.

And then we do have 3-D seismic across this area in here, which helps -- I mean, it's not conclusive, because seismic cannot get down to the resolution of defining the end of the reservoir, but it is very definitive as far as just identifying the mound characters.

Q. Okay. Now, the well was just drilled by Permian. Is it your testimony that that Strawn zone is not present in that well, or that it's present and it has no porosity?

A. It has no porosity, yes, sir.

Q. So it is present, but it has no porosity?

A. Yes, sir. Well, I mean, stratigraphically, if you look at that, yes, sir, it has 10 or 15 feet of rock there. It does not have any porosity and it had no shows on the mud log. Now whether to say that's part of the same algal mound, or whether to say it's the intermound system, very strong carbonate there, yes, sir.

Q. So there's no chance that Permian could produce that, in your estimation, in the --

A. No, sir.

Q. -- northwest quarter?

A. No, sir. I think that we all know that they gave

it the best shot that they could in getting in there to try to get into it, and they ended up encountering something new and different.

And that was part of why they kicked it the second time, is, after they got this initial well with these initial shows and this bottomhole pressure, they went back to some seismic that they had and I'm not privileged to, and they came back to us and indicated they could get approximately 40 feet high, and they thought they were going to get into a new mound by kicking it directly east.

They kicked it east, they did gain about 20 feet of structure, but they only picked up about six to eight feet of porosity. And once again, it was perm tight. They didn't have enough permeability to flow test.

Q. Okay, so the data at this point -- does it demonstrate also that the northwest quarter is not part of the mound to the south there?

A. Yes, sir, it's my belief that mound to the south, that Hilburn well, has made 500,000 barrels and 1.3 BCF. And personally, Mr. Examiner, I can't see that it would have 4100 pounds of bottomhole pressure if it was tied to it. So that bottomhole pressure, to me, was very significant in the fact that whatever they encountered there had not been depleted by any offset wells.

Q. Okay. Now, you testified that you thought that

your mound was thicker, and that's because you did the decline curve?

A. No, sir, it's going to be volumetric. And when Mr. Sledge gets up here and he shows you decline curves and gives you ultimates as to what we think our well is going to be, with the well control there's just not much more room to areally extend it. So if you can't extend it out areally, you've got to go up with it. Okay?

And when we drilled our horizontal in there, I mean, you realize that's just a 7-1/2-inch hole going through a portion of that reservoir. I can't tell as I go through that how thick that may be this way, and our seismic is not accurate enough to really do that either. And what Chuck is going to show in his testimony is that it's got to be thicker out there somewhere than we know through well control.

Q. So you think you have a pretty good handle on the boundaries, horizontal boundaries?

A. Yes, sir, and I think Mr. Sledge's engineering testimony is going to fit outstanding as to -- I think right now we've got a pretty darn good handle on what this well is going to do in the areal extent of the mounds, yes, sir.

Q. Okay. Tell me, Mr. Baker, how you're going to deal with the 50-percent penalty. Is that going to be

based on the well's ability to produce?

A. Well, once again, Mr. Sledge will address some of that when he talks about the productive history of the well, but we will have a separate tank battery -- and Chuck may end up -- he's really the one to more do this -- will have its own tank battery there for the Mayfly 7, so you can monitor the production that comes from that wellbore.

Now then, how that well initially tests, if it tests pretty good you might actually end up curtailing the Mayfly 14 Number 2, because he's going to show you information that -- we're starting to blow down our gas cap, we're starting to blow down the drive, the GOR is starting to climb, which under the original hearing when Permian testified out here at that time, our GOR was pretty flat. And that was their argument for saying that the reservoir was much bigger. But just in that short amount of time, our GOR is starting to skyrocket.

And so you're going to start to see through the information that he's going to show you today that we're kind of losing our gas drive in this thing right now. And he's got some ideas about when we perforate this thing here, you might want to curtail the Mayfly 2 and save some of the pressure -- because it is located structurally higher than where the Mayfly 7 is -- curtail it to save some of your drive mechanism, because that gas does help

move that oil. But he'll address that and answer most of your questions on the production history.

EXAMINER CATANACH: Okay, I have nothing further.

MR. FELDEWERT: I have two more questions.

FURTHER EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Baker, in the -- this 50-percent production penalty that we've talked about here today, is that a matter of -- in essence, a contractual matter between you and -- between Arrington and Yates?

A. Yes, sir, and that was originally done for the Morrow because at their unorthodox hearing -- or their unorthodox well proposal versus our unorthodox well proposal, we both entered into an agreement to do a 50-percent production penalty so we wouldn't fight each other, basically, and that -- we were unorthodox. We went ahead and agreed to that for the Strawn as well, because we really don't believe that the Strawn is going to be capable of probably making 300 or 400 barrels a day here. So I mean easily -- I mean, we can stay within that 50-percent deal and probably get out the reserves that we're going to get.

Q. Mr. Baker, absent that contractual arrangement between Arrington and Yates, do you feel that a production penalty would be necessary -- do you feel it would be

necessary for the Division to impose a production penalty in this case in order to protect the correlative rights of the offset operators?

A. No, sir, not this one, I don't think it would be necessary.

Q. So that production penalty aspect is really a matter of contract between Arrington and Yates?

A. Yes, sir, it is.

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

FURTHER EXAMINATION

BY EXAMINER CATANACH:

Q. Well, why wouldn't you try and renegotiate that with Yates, Mr. Baker?

A. It's just been something that -- This all came about so fast we haven't even talked to Yates since the Hilburn well got back down. Logic-wise, if we think that well could come in here and make 300 or 400 barrels a day, yes, sir, Mr. Catanach, that would be the thing to do, try to renegotiate that thing in here.

I think when we get to the point of Mr. Sledge's testimony, if we can get between these two wells together 600 barrels a day, I think we're going to adequately drain -- eventually drain the reservoir.

I'd love to have it, but when we saw that Hilburn well come down, the information, we moved as fast as we

could to get this back up to you so that we can get that well opened and just simply try to get some reserves out of it as soon as possible.

EXAMINER CATANACH: Okay.

MR. FELDEWERT: Mr. Catanach, perhaps this might be a -- I mean, it seems to me that this is a matter that any order out of the Division has to, I would believe, reference the agreement between Yates and Arrington, because that was indeed part of -- presumably part of Yates' non-objection, I guess, to this Application.

But certainly I think it is a -- with the new information that Arrington has, it certainly would appear to be something that Yates and Arrington may want to get together on and decide whether it's really necessary as a matter of contract between them.

EXAMINER CATANACH: Well, it will still be a stipulation and order, Mr. Feldewert.

MR. FELDEWERT: Okay, we'll call our next witness.

CHARLES W. SLEDGE,

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

DIRECT EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Sledge, would you please state your full name

and address for the record?

A. Yes, my name is Charles Wesley Sledge, I live in Midland, Texas.

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

A. I work for David Arrington Oil and Gas, I'm an operations engineer.

Q. And have you previously testified before the Division?

A. No, sir.

Q. Wy don't you then summarize for the Examiner your educational background and your work history, please?

A. I received a bachelor of science, petroleum engineering degree, from Texas Tech University in 1984. I worked 12 years for Murphy H. Baxter Oil and Gas as an operations engineer in the Permian Basin, and then I worked four years for Collins and Ware, Incorporated, as an operations engineer in the Permian Basin and in south Texas.

I became employed with David Arrington in June of 1996, where I've been an operations engineer performing drilling, production and some reservoir engineering.

Q. Did you say -- Now, your employment with Arrington began when?

A. June of -- June of 2000.

Q. 2000.

A. Did I say 1996?

Q. Yeah.

A. That was with Collins and Ware.

Q. Beginning with your employment in 1984 by Murphy, did your areas of responsibility include the southeast portion of New Mexico?

A. Yes, sir, it did.

Q. Are you familiar with the Application that's been filed by David Arrington in this case?

A. Yes, sir.

Q. And have you made a technical study of the area that is the subject of this Application?

A. Yes, sir, I have.

Q. And are you prepared to share the results of your work with the Examiner?

A. Yes.

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

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Feldewert) Mr. Sledge, why don't you turn to Arrington Exhibit Number 3 and explain to the Examiner what your engineering study of this area tells you about Arrington's proposed re-entry and recompletion for the Mayfly 14 State Com Well Number 7?

A. Yes, sir, I'd like to repeat and then add to what Bill Baker was saying on the bottomhole pressures of these wells. The initial bottomhole pressure was approximately 4200 pounds from the drill stem test of the Mayfly Number 2. As soon as the Hilburn well was down we got pressure data, and we realized that they most likely were not in our reservoir. Within a week, we -- I dropped some bottomhole pressure bombs in the Mayfly 2, and we obtained the bottomhole pressure, and that was extrapolated out to an average reservoir pressure of 1491 pounds. That difference of 2700 pounds is 64 percent decline in the bottomhole pressure in 27 months' or 28 months' production.

Q. Is this shown on Exhibit Number 3?

A. Yes, sir, in the bottom I just show underneath there, 64.6-percent decline in pressure.

Q. So the fifth column over has your initial bottomhole pressure for the Mayfly 2 and then the bottomhole pressure in December; is that right?

A. That is correct.

Q. Okay, go ahead.

A. That averages out to approximately 90 to 100 pounds of pressure drop per month over the production life of this well. I think that's important to keep in mind when trying to tie it into the Mayfly 7, and again the Hilburn 3.

When we drilled the Mayfly 7 I had just come aboard there, and they ran a buildup on the Strawn, or ran a drill stem test, and that bottomhole pressure was 2900 pounds. At that point, the Mayfly 2 had been producing for approximately 12 months, and that was a 1300-pound pressure drop, which fits with the pressure drop over the 28 months of the Mayfly 2 from beginning to the 1491 pounds, meaning it averaged out to approximately 100 pounds per month pressure drop throughout the reservoir. I think that just gives us some added information that they are in the same reservoir and are communicated.

Q. Do you agree with Mr. Baker's opinion that the Hilburn Number 3 encountered a different Strawn reservoir than what is being produced by the Mayfly Number 2?

A. Yes, I do, by evidence of the 4000-pound bottomhole pressure, if we were seeing that kind of pressure drop in the Mayfly 7 in 12 months, you would have -- if they were any way tight, you would have seen a lot lower pressure in the Hilburn 3 if it was in the same algal mound porosity that we are in, in the Mayfly 7.

Q. What does this Exhibit Number 3 tell you about the GOR?

A. The GOR is significant, and I'll have some plots to back this up here in a moment. But if you look down column number 3 under Mayfly 2 and you see the GOR from the

beginning, approximately 1500 standard cubic feet per barrel, as you go into year 2000, you see it gradually come up.

And then toward the end of 2001 you see a -- kind of a quantum leap, almost, 3160 standard cubic feet per barrel. Well, you know, you don't let one month scare you, but at the beginning of the first two, three weeks -- really over the past three weeks -- we've seen that gas rate increase to 1400 MCF a day. That's without changing our choke setting or anything. And actually the oil rate has actually come up a little bit. But the gas rates come up really fast, and that is equivalent to a 3500-standard-cubic-foot-per-barrel gas-oil ratio. And in the following graphs I'll show you why I find that a significant point in the life of this reservoir.

So I think what's important on this Exhibit 3 is to realize that we have lost 65 percent of our bottomhole pressure, we're losing approximately 90 to 100 pounds per month in bottomhole pressure, and that our gas-oil ratio is starting to increase significantly, and the last current GOR is 3500 standard cubic feet per barrel.

Q. Okay. Then why don't you turn to Arrington Exhibits Numbers 11, 12 and 13, identify each one of them for the record, and then explain to the Examiner what they show.

A. Yes, all three of these graphs on these three pages are the production-history graphs of three surrounding and similar algal mounds in wells that Bill Baker mentioned earlier, the first of which is the Runnels ASP Number 2. It's in Section 11, due north of us.

Q. Is this marked as Exhibit Number 11?

A. Yes, this is Exhibit Number 11. And on this page, the red curve at the top is the gas production from inception of the well, in MCF per month; the green line indicates oil production in barrels of oil per month; and the purple line is the GOR, gas-oil ratio, in standard cubic feet per barrel.

I have kind of started looking around at some of these, knowing that these were similar and analogous algal mounds to what we have in terms of pressure. I think it's only fair to suggest that the type of decline activity of these wells would be similar to ours.

If you look -- and I just picked 4000 standard cubic feet per barrel -- you'll see an arrow there pointing up to the purple line. Somewhere between 3000 and 4000 standard cubic feet per barrel, a trend started surfacing, looking at these graphs, and all of a sudden you see a dramatic change in oil production when the GOR reaches that amount. I just drew a corresponding, just average line that I penciled in through your graph, just show the

changing slope of the oil production at that point. You see a significant drop in oil through the remainder of that year, once the GOR reaches that point.

If we could go to Exhibit Number 12, this is the Runnels ASP Number 3. Again, in red is the gas production; green, oil; and purple, the GOR. I've also marked on this the 4000-standard-cubic-feet-per-barrel mark and the corresponding slope change in the decline rate of the oil production.

If you look at it, for example, in this one, at 4000 standard cubic feet per barrel, the well was probably making 13,000, 14,000 barrels of oil a month. And by the end of the year, that very same year, that GOR -- and I'm just going to pick the point on my line, just because they had a big drop there. I don't know why, but I mean, it dropped to approximately 4000 barrels of oil a month. That's a huge drop.

If we can go to Exhibit Number 13, please -- I forgot to write in 4000 standard cubic feet, but my arrow indicates that same mark on the bottom of that graph. This is the Kala Number 12, this is in Section 12. It's a horizontal well drilled by Chesapeake. It's in the section northeast of our section. Again, right there at the 3000- to 4000-standard-cubic-feet-barrel mark you see a significant decline in production, oil production.

Q. Mr. Sledge, each of these three exhibits demonstrates a point at which you believe there is a significant decline in oil production from these types of Strawn algal mounds?

A. Yes, sir, that's correct.

Q. Okay. Why don't you then turn to Arrington Exhibits -- we can pull them out -- 14 and 15? First identify them for the record, review them and explain to the Examiner what conclusions you draw.

A. Exhibit Number 14 and 15 are production history -- at least Exhibit Number 14, excuse me, is production history and our prediction of the decline in rates and the decline history in the future of the Mayfly 14 State Number 2.

In the red is the oil production. At the bottom of the graph are years. In 1999, 2001, that is the oil and gas production, red being -- I apologize, gas, green being -- red being gas -- oil -- green being oil. And what I've done here -- I'm sorry, in the bottom curve -- and it didn't come out very good, I apologize, it's in a light brown color at the bottom -- is the corresponding gas-oil ratio curve and my interpretation of what I believe will happen this year and the years to come.

Taking the analogy from the algal mounds to the north of us, the northeast of us, you can see at the very

tail end of 2001 that gas-oil ratio bumps up to 3100. This month it will probably average 3500, and probably next month in March you'll see it expand to 4000 and 5000 standard cubic feet per barrel. That is analogous to these previous wells in looking at the area.

And when you consider our bottomhole pressure dropping at the rate of 100 p.s.i. per month, I predict that these curves are fairly accurate in what we can expect this well to do in the coming months, and that is to drop significantly in oil production based on these facts and these analogies.

Exhibit Number 15 is my prediction of what the Mayfly 7 will do and the corresponding decline-rate curves, once -- if we're allowed to put it on production. I estimated that it would come in initially at 150 oil a day. On this map, that is designated in the green line. That's 150 times 30 days a month; that's approximately 4500 barrels a month.

And the red line is the gas production. That signifies 300 MCF a month gas rate.

And the light brown line that you see right underneath the green line there, beginning at '02, is the anticipated corresponding GOR that would result in the production of this amount.

I feel like these are conservative numbers. The

well in my opinion will probably do a little bit better, but as an engineer you tend to be conservative with these estimates for economics and such.

Q. Okay. Now then, taking these exhibits, did you then create what's been marked as Arrington Exhibit Number 16?

A. Yes, I did.

Q. And --

A. If you'd look -- I'm sorry.

Q. -- why don't you identify that first and then review that for the Examiner?

A. Okay. Exhibit Number 16 describes production and estimated -- the current production and estimated remaining reserves, based on the decline curves of these previous two exhibits in front of you.

Starting with the Mayfly Number 2, it has already produced as of the end of December, 2001, 391,477 oil, 813,557 million cubic feet of gas. My estimates, based on the decline curve show that there are remaining 173,000 barrels that this well could produce and 1.6 BCF of gas. The ultimate recoveries in that wellbore are 564,000 oil and 2.4 billion cubic feet of gas, out of the Mayfly 2.

The Mayfly 7, based on my decline curves I anticipate that the well could make 82,000 oil and 317 million cubic feet of gas, a third of a B.

Field total, the two wells together, the ultimate recoveries out of this Strawn algal mound throughout the life of these two wellbores could produce 646,000 oil and 2.7 billion cubic feet of gas.

Q. Okay, now you make some statements at the bottom of Exhibit Number 16. Would you explain them, please?

A. Yes, sir. I believe -- If you look at Exhibit 8, Bill Baker's structure map, the Mayfly 7 is 30 feet low, roughly, on the structure map of the Strawn "B" algal, the top of that porosity zone. And being low, this well kind of benefits from two drainage techniques, solution gas drainage and then also gravity drainage, being a little bit lower in the reservoir.

And I think that -- and I'm just -- it's a guess, but I estimate that there will be incremental reserves going into the Mayfly 7. 82,000 barrels represents 4 percent of the original oil in place, and I believe half of that would be unrecoverable if we didn't get in the Mayfly 7, because you'll be able to pick it up due to gravity drainage alone. Being downdip, I think it will recover reserves that are in the eastern flank of the reservoir that would otherwise not be produced in the Mayfly 2.

Q. So the primary drive in this reservoir is solution gas?

A. Correct, that's gas breaking out of solution as

the pressure drops, and that expanding gas carries with it oil to the lower-pressure wellbores.

Q. And as that drive mechanism dissipates, you then have gravity taking over?

A. Well, gravity always happens, but when you lose that drive and that oil breaks out of solution and the pressure drops in that reservoir, oil will drop to the bottom of the reservoir, and the high perm in this well, it will gravitate to -- you know, it will bank against the lowest part of the reservoir.

Q. Do you have an opinion as to how many barrels of oil and how much MCF of gas will be recovered by the Mayfly 7 that would not be recovered by the Mayfly Number 2?

A. Yes, based on my assumption that 50 percent of the reserves in the Mayfly 7 would be produced on gravitational mechanism, that would be 40,000 oil and approximately 150 million cubic feet of gas.

Q. Okay. Now, those are reserves that could not be recovered or would not be recovered, in your opinion, by the Mayfly Number 2?

A. That's correct.

Q. Okay. So is it your opinion, Mr. Sledge, that the granting of this Application will result in the recovery of reserves that would otherwise be lost?

A. Yes, sir.

Q. In your opinion, will the granting of this Application be in the best interests of conservation, the prevention of waste and the protection of correlative rights?

A. Yes, I do.

Q. Is Arrington ready to move immediately with the drilling of this well, or with the recompletion of this well --

A. Yes.

Q. -- if approved by the Division?

A. Fortunately, and unfortunately, there are plenty of pulling units available. We would be ready to get on this well, if approved, next week; I could move as soon as next week.

Q. Is there a concern -- Are you asking that the Division expedite the decision if at all possible?

A. Yes, sir, I am.

Q. And what's the concern that is leading to that request?

A. Well, Number 1, I would say that with the reservoir pressure dropping at the rate of approximately 100 p.s.i. per month, I think, and then of course the corresponding rise in gas-oil ratio, I think that any time frame, say two weeks, four weeks, six weeks, I mean, that's why we jumped all over the bottomhole pressure data on the

Mayfly 2 to come before you today, is, I think the longer you wait, the fewer recoverable reserves you will get out of that wellbore.

And also, and I think more importantly, is, if and when we are able to open this well up and we find that it can produce up to 200, 300, 400 barrels a day within our stipulations on production quotas, but I think what we'll find is, if it's got a really low GOR and we make quite a bit of oil out of this wellbore, we would choke back or curtail the production on the Mayfly 2 and keep that gas in the reservoir if at all possible, because we want to maintain our primary drive mechanism and keep that gas in the reservoir so it can, you know -- it will help us recover a lot more oil. There would certainly be a significant amount more oil recovered if we could lower the gas production at surface out of this algal mound.

Q. Were Arrington Exhibits 11 through 16 prepared and compiled under your direction and supervision?

A. Yes.

MR. FELDEWERT: Mr. Examiner, I would move the admission into evidence of Arrington Exhibits 11 through 16.

EXAMINER CATANACH: 11 through 16 will be admitted as evidence.

MR. FELDEWERT: And that concludes my direct

examination of this witness.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Sledge, as far as the penalty is concerned on the Number 2 well, it's just your plan to determine what the productive capability of the well is and then just reduce that by 50 percent?

A. I think that according to our agreement with Yates, that's what we would do. I mean, if the well, which I anticipate comes in flowing and I estimate 150 barrels a day, you know, I think you would want to probably determine a maximum rate or an absolute rate if it could maintain that rate, because if you open it wide open on a choke you may be able to achieve 300 barrels a day, record that for a day or two, and then curtail it back to 150. If the maximum rate is 150, you may only be able to produce 75 barrels a day.

And if we get 300 barrels a day, or whatever ultimate rate, maximum rate we achieve, we'll immediately go to Yates and try to renegotiate that or see what we can do to alter that agreement.

EXAMINER CATANACH: So that may involve coming back before us one more time? I mean, if the stipulated penalty is in the order, the 50-percent penalty, we may have to amend the order again, Mr. Feldewert.

MR. FELDEWERT: Yeah, we'll have to visit with that. I guess what I'm hearing is that the way it's presently presented to the Division, it's your belief that the 50-percent curtailment has to be a part of the conditions of approval by the Division, as opposed to a recommendation in the order that Yates -- that there's a contractual agreement between Yates and Arrington concerning the production penalty?

EXAMINER CATANACH: Well, yeah, the way I see it -- It's already in one of the orders, and it covers the Pennsylvanian formation.

MR. FELDEWERT: Are you talking about the original order?

EXAMINER CATANACH: Yeah, I'm talking about the original order. Even though it may not have been intended to apply to the Strawn, it still says the Pennsylvanian formation. I believe -- I guess it's the Division's belief that that is --

MR. FELDEWERT: I see what you're saying.

EXAMINER CATANACH: -- the agreement that's out there with Yates, and we would have to, in order to protect the correlative rights of Yates, still have to enforce that penalty for the Strawn, unless something was changed, unless Yates dropped their objection or, you know, changed the agreement.

MR. FELDEWERT: I understand. I mean, perhaps the most prudent thing might be to see if we could visit with Yates immediately, and if we were able to get a letter to the Division from them indicating that that production penalty was no longer necessary given the geologic and engineering information that Arrington has, would that be of assistance to the Division?

EXAMINER CATANACH: Certainly. If you can accomplish that in the time before we draft an order in this case, that would simplify the matter.

MR. FELDEWERT: Okay, thank you.

EXAMINER CATANACH: And if you do obtain something, I would leave the record open and let you submit that, you know, within a reasonable time period.

MR. FELDEWERT: Okay, thank you.

Q. (By Examiner Catanach) Mr. Sledge, I'm a little curious on how you arrived at the initial producing rate for the Number 7 and how you would do a decline curve on that.

A. Well, the decline curve is roughly based on -- The drill stem test back in August of 2000 was -- produced approximately 70 barrels of oil in a two-hour flow period, 40 barrels recovered out of the drill pipe and 30 barrels flowed to surface. The gas rate, we didn't really -- we had a gas rate at surface but kind of choked it back, and

it wasn't a good record of it.

But the sample chamber covered -- when you look at the 900 cc's of oil in the sample chamber and the mud-cut oil, and the corresponding 8 standard cubic feet they recovered out of it, that corresponds to a 1500-standard-cubic-feet-per-barrel GOR in the sample chamber from that drill stem test.

I looked at that, I looked at how much it flowed during the drill stem test when the reservoir pressure was 2900 pounds, and I kind of looked at a 24-hour rate, and I kind of divided by 2, and I just kept cutting back. I mean at that point, if you made 70 barrels in a two-hour flow period, you know, that would be a significant amount of oil in 24 hours. So I kind of looked at where our reservoir pressure is now and I just kind of cut it back and cut it back to a rate that I thought would be something realistic.

Q. So you really don't have a good handle on what it's going to produce at this point?

A. No, sir, because it's been shut in for a year and a half. I based it on where our reservoir pressure is now and what the drill stem test produced when the reservoir pressure was 2900 pounds. And using that gas-oil ratio of 150 barrels, I just kind of assumed 300 MCF would fit.

Q. Okay, it's your belief that there is a gas cap in this Strawn reservoir?

A. I believe there is now, sir, yes, sir. Originally, there probably wasn't; all the gas was in solution. There were some reservoir studies done in the area and that the gas starts breaking out of solution at about 3800 pounds when the reservoir pressure drops below that point. Knowing now that we're at 1409 pounds, there's no doubt in my mind there's a large gas cap in this reservoir.

Q. Can you take any steps in the Number 2 well to reduce that drawdown?

A. That's a good question. We did this week. We actually choked it back from a 30/64 choke down to a 26. We're actually going to start doing that now. I was really shocked watching it jump up like it did this month, and we've cut it back to where -- the flowing tubing pressure was 420 pounds before; it's approximately 460, 470 pounds right now. It was yesterday morning. I haven't found out today what that is, but -- and that will reduce the gas rate and keep some of that gas back in the reservoir. We'll probably continue to do that.

I think that we're fortunate that we have this other wellbore, in that if it does come in with a low GOR, you know -- I think this is an important point back in Exhibit 3. When we did the drill stem test on the Mayfly 7, the GOR in the sample chamber was 1551 standard cubic

feet per barrel. At that time the average GOR that month in the Mayfly 2 was 2216. So the tip of that lateral, at the very end of it, is 528 feet from our wellbore. That's not too far, it's not too close either. But you had a 700-standard-cubic-foot-per-barrel difference in the GOR at that time.

So that's an indication, in my mind at least, that there wasn't a gas cap on that end, and being lower in the reservoir that makes sense, that the GOR would be lower. 1551 standard cubic feet per barrel, kind of corresponds to the first three months' production of the Mayfly 2, where it averaged 1471, 1650 and 1526 for the first three months.

So at least GOR-wise, it's an indication to me that there's still a lot of oil banked up on that eastern flank of the reservoir.

Q. If you had the flexibility to produce the Number 2 at a higher rate and maybe cut back on the -- I'm sorry, produce the Number 7 at a higher rate and cut back on the Number 2, do you think that might increase the recovery?

A. Undoubtedly, if you can keep that gas in the reservoir, which is your primary drive mechanism, and you can produce at a low-GOR rate in the Mayfly 7, if that Mayfly 7 -- if our allow- -- Let's just say the penalty gets cleared up and our allowable is 605 barrels a day. If

that well is capable of making 600 barrels a day, I would, in a heartbeat, want to pinch back, curtail that Mayfly 2, maybe up to the point of shutting it in, in order to recover much more oil out of that reservoir than you would have otherwise. There's no doubt in my mind.

I mean, you're lower. It makes sense to me that it's going to gravitate to the end. As that gas expands, if you could keep that in the reservoir, you'll get the benefit of the gravity drainage and solution gas.

It just -- You know, it's kind of overwhelming to think that by the end of this year the bottomhole pressure could be close to 500 pounds, based on the linear decline in the bottomhole pressure over the last 28 months.

Q. I know it's kind of a small reservoir, but would gas reinjection have any benefit?

A. You know, they did a study when they initially produced the Mayfly 2, and in fact, a number of companies did, and they considered buying make-up gas and keeping the pressure up, and they wanted to keep it around 3700, 3800 pounds, which was the magic point where gas really starts breaking out of solution.

I think they did a big look at it, and seeing how these algal mounds weren't clearly defined, and it was so deep and expensive -- really, you know, the reservoir wasn't quite as defined as it is now. These are small

reservoirs. It just wasn't economic, and you didn't have a clear enough picture of the parameters of the reservoir to justify something like that, then.

If you really -- If it was a bigger project where this was a four- or five-section algal mound or something like that, that would be a viable project where you could unitize and do something like that. But you just didn't have enough control to justify doing a project like that in my mind. I think that's why they decided not to.

Q. Okay. The only other thing I had was, on Exhibit Number 15, down in the bottom left-hand corner, were you responsible for that title down there?

A. That's incorrect.

Q. I'm sorry, where it says "Project GAS Cum" --

A. Yes, that is incorrect.

Q. Okay, that's not what I'm asking about. The part below that is something about a Bill's Hopper.

A. Yeah, that's incorrect.

Q. That's incorrect?

A. Yeah, that shouldn't be there, and that's the first time I've noticed that. Thank you for pointing that out. That shouldn't be there. That has nothing to do with this well.

Q. Okay, I was just -- I was curious, because I've heard of a Dave's Hopper and a Joe's Hopper, but I have

never heard of a Bill's Hopper.

A. Well, we have a Bill's Hopper on production right now, and we're drilling a Lou's Hopper.

Q. So there must be a Bill's Hopper?

A. There's a Bill's Hopper that's producing, and I'll have to go back and see how that got in there. I think it was in one of my sub-notes that I carried over. But in the top right is the accurate well name for this decline curve.

EXAMINER CATANACH: Okay, I have nothing further.

EXAMINATION

BY EXAMINER BROOKS:

Q. But the statement "projected gas cumulative, zero MMCF" is also inaccurate?

A. Right, that well -- On this decline-curve program that I have, it uses that as what is produced prior to your initial decline.

Q. Okay.

A. I think if you reference our Exhibit Number 14, it shows projected oil cum at 391,000 oil and 813 million cubic feet as the production cums at a certain date.

Q. Okay.

A. Part of that is me getting more familiar with our reservoir engineering decline program. I apologize for that.

EXAMINER CATANACH: Okay. Do you have anything?

EXAMINER BROOKS: No.

EXAMINER CATANACH: I have nothing further.

MR. FELDEWERT: Thank you.

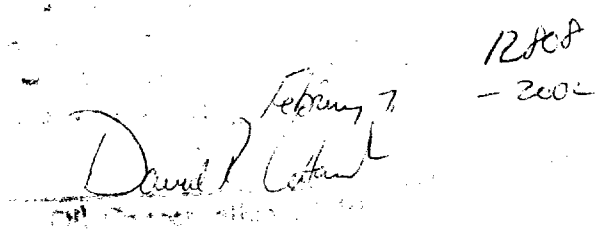
EXAMINER CATANACH: Then, there being nothing further in this case, we'll take Case 12,808 under advisement at this time.

THE WITNESS: Thank you.

EXAMINER CATANACH: Thank you.

(Thereupon, these proceedings were concluded at 10:23 a.m.)

* * *



CERTIFICATE OF REPORTER

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

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

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

WITNESS MY HAND AND SEAL February 11th, 2002.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002