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. 12,181
APPLICATION OF DAVID H. ARRINGTON OIL AND GAS, INC., FOR AN UNORTHODOX LOCATION AND FOR AN EXCEPTION TO DIVISION RULE 104.D (3) FOR SIMULTANEOUS DEDICATION, LEA COUNTY, NEW MEXICO	)	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

August 5th, 1999

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, August 5th, 1999, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

August 5th, 1999
Examiner Hearing
CASE NO. 12,181

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E X H I B I T S

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By: WILLIAM F. CARR

* * *

WHEREUPON, the following proceedings were had at 8:30 a.m.:

EXAMINER CATANACH: At this time we'll call Case 12,181, which is the Application of David H. Arrington Oil and Gas, Inc., for an unorthodox location and for an exception to Division Rule 104.D (3) for simultaneous dedication, Lea County, New Mexico.

Call for appearances in this case.

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

EXAMINER CATANACH: Additional appearances?

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge and Sheridan. We represent Yates Petroleum Corporation in this matter.

Mr. Examiner, I can advise you that Yates is prepared to withdraw the objection it filed in this case.

EXAMINER CATANACH: Any additional appearances?

Do you have any witnesses, Mr. Carr?

MR. CARR: No, I do not.

EXAMINER CATANACH: Okay. Will the witness please stand to be sworn in?

(Thereupon, the witness was sworn.)

MR. KELLAHIN: Mr. Catanach, if I may provide you a brief summary, I can explain the status of the case.

EXAMINER CATANACH: Okay.

MR. KELLAHIN: If you'll look at Exhibit Number 8, which is a plat of this area, you'll see the configurations of some gas-well dots. And if you'll look closely in the area contained within the colored dots, you'll find Section 14. We're dealing with the west half of Section 14 insofar as we're forming a 320-acre spacing unit for deep gas.

Within the west half of 14 is a yellowish-green circle. That's the existing gas well on this spacing unit. It's operated by Mark Shidler. It's the Monsanto State Com Number 1 well.

Mr. Arrington is seeking to drill a well at an unorthodox gas well location where the red triangle is located. That location is 330 out of the north and west corner of that 40-acre tract. His primary objective is to drill a Strawn oil well.

Mr. Stogner has determined for us that this location is adjacent to and currently subject to inclusion in the Northwest Shoe Bar-Strawn Oil Pool. That pool is spaced on 40 acres. So the oil well to the Strawn would be standard and not subject to a location penalty.

Because of the proximity of the Strawn to the

deeper gas incrementally, it will cost Arrington only approximately $83,000, $85,000 to go ahead and drill to the deeper zones.

In order to do so, we would be at an unorthodox gas well location. And as you look at the map, that location encroaches on the tracts in Section 11. Those two wells are operated by Yates.

If you look to the west in Section 10, the east half, those two wells are operated by Yates. They were the subject of earlier hearings in which the Brunson sand of the Morrow formation is being produced in those two wells as exception from the second-well rule that we currently have under Rule 104.

The west half of 10 is Ocean's well. It's producing out of the Carlisle sand. You may remember that well -- it was a big blowout -- and that everyone else has been searching for the Carlisle sand. It's the only well that produces from the Carlisle sand.

The rest of them shown on the plat with the color code produce from the Brunson sand. And, as the geologist will show you, it's slightly shallower and stratigraphically different.

We are seeking approval, then, to have the Division approve this unorthodox location. In order to facilitate that, if you'll look at Exhibit 10 that's got my

letterhead on it, that's the stipulated penalty that has the approval of Ocean and Yates, and it is simply this, that in the event of deep gas production below the top of the Wolfcamp, the well is subject to a 50-percent production penalty. We will apply the standard Division deliverability testing for that well. It will be semi-annual, and we'll produce it accordingly.

In addition, there are other stipulations between the parties with regards to corresponding waivers of objection and exchange of data. We believe with that stipulated penalty, then, the correlative rights have been satisfied as to all parties.

The last remaining party to describe are the interest owners in Section 15. It currently is undrilled as to the deep gas. Chesapeake Operating, Inc., has proposed and obtained approval for an east-half dedication for deep gas. With their assistance, we've got a notification list of all the owners in the northwest quarter, northeast quarter, the southeast quarter.

And on the notice list, Exhibit 9, all those names are identified. they were all sent appropriate notice of this hearing, and there is no objection from any of the interest owners in Section 15. There was an entry of appearance by Mr. Bruce on behalf of Ocean, and then Mr. Carr entered an appearance for Nearburg. Nearburg's

interest appears within the context of Section 15.

With that introduction, then, Mr. Catanach, we'll proceed to have Mr. Bill Baker, Mr. Arrington's petroleum geologist, describe for you the geology.

BILL D. BAKER, JR.,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A. Bill Baker, and I'm exploration manager for David H. Arrington Oil and Gas in Midland, Texas.

Q. Are you also a qualified petroleum geologist, Mr. Baker?

A. Yes, sir.

Q. On prior occasions, have you testified in that capacity before this agency?

A. Yes, sir, I have.

Q. As part of your responsibilities for Mr. Arrington, including those of a petroleum geologist, have you and others under your control and direction developed a geologic evaluation of this particular location and this prospect?

A. Yes, sir, we have.

Q. And based upon that evaluation, have you come to certain geologic conclusions?

A. Yes, sir, we have.

Q. In your opinion, in the west half of Section 14, is the proposed well to be drilled at the optimum location in which to attempt to access and produce hydrocarbons from the Strawn formation?

A. Yes, sir, it is.

Q. Why are you proposing to utilize this same wellbore to access the deeper gas reservoirs that are spaced on 320-acre gas spacing?

A. Because I'm prepared to show today that there's justification to drill on down deeper for the Atoka Brunson zone that has not been adequately depleted by the well in the south half of Section 14.

Q. Are the circumstances available to you in Section 14 such that you could drill from surface to total depth a second wellbore, if you will, to penetrate and produce the deep gas?

A. Yes, sir.

Q. Could you do that economically, though, in light of the potential reserves for the deep gas?

A. No, sir.

Q. Your proposed plan, then, is to utilize the Mayfly well?

A. Yes, sir.

Q. And to access the Strawn, take it down incrementally to the deeper zones and test the deep gas?

A. Yes, sir.

Q. Do you have a geologic opinion as to whether this well is necessary in light of the fact that Mr. Shidler, Mr. Mark Shidler, has a well in the southwest quarter of this spacing unit?

A. Yes, sir.

Q. And what is that opinion?

A. That is that his will not drain the reserves in the north half of this unit, and I'm prepared to show that through my exhibits.

Q. Is Mr. Arrington prepared to enter into an agreement with Mr. Shidler so that the Division has but one single designated operator for the deep gas formations being produced out of the Townsend-Morrow Gas Pool?

A. Yes, sir.

Q. Let's look at your analysis. Let's start at Exhibit 1, take a moment and have you explain to us what it is that we're looking at.

A. Okay, actually if you don't mind, you'll need Exhibit 2 to complement Exhibit 1 here, to help us explain it.

Exhibit 1 is taken from a 3-D data -- seismic

data set that is conducted over the prospect area.

Q. What would you call Exhibit 1?

A. Exhibit 1 is a Strawn algal isochron map, taken from the 3-D data set that we acquired over this.

Q. All right. When we look at Exhibit 2, what do you call this?

A. Okay, Exhibit 2 is an arbitrary line taken from our 3-D data set that shows the zero crossing the line at the top of the Strawn B and the base of the Strawn B and will give you what we consider to be our algal isochron.

And if you'll look at Exhibit 2, and at the very top of it, you'll see the top of the Strawn B and you'll see where I've labeled the base of the Strawn B. If you'll go along and follow those blue lines, you'll see where the Strawn thickens. Okay, that thickening right there is what is represented in Exhibit 1. That's the algal isochron. This is a standard practice for identifying these algal mounds out in this West Lovington area.

Q. To aid Mr. Catanach in seeing what you've just described, have you color-coded that interval in any way that he can see?

A. Yes, sir, it's the area colored in yellow.

Q. And that represents, again, what, sir?

A. That indicates the algal thickness from the top of the Strawn B to the base of the Strawn B, the

thickening.

Q. There's a vertical red line that intersects that yellow pod?

A. Yes, sir.

Q. What does that represent?

A. That is our current proposed location for the Mayfly 14-1.

Q. As we read horizontally, what's the scale of each of those intervals or data points?

A. Okay, that's one millisecond, is what you're looking on your Exhibit 1, and those are basically the contour intervals, and one millisecond equates to approximately eight to ten feet.

Q. When we look at Exhibit 2 and we're looking at the horizontal scale on Exhibit 2, the data point is pulsed, if you will --

A. Uh-huh.

Q. -- at various horizontal intervals. What are those?

A. Once again, those are time intervals, is what they are, showing -- and they are measured in -- well, you can figure anything from one-millisecond up to ten-millisecond intervals, showing the thickness of the Strawn in here.

Q. Each interval represents what distance in

footage?

A. Okay, if you're going in a horizontal mode, it's 110-foot spacing.

Q. If you were to move the Mayfly 14 well in a position in the west half of 14 so that it would also be a standard deep gas well location, you would have to be at least 1650 from the north line. To do that, what happens to your opportunity in the Strawn?

A. You have no opportunity in the Strawn.

Q. Why is that?

A. Basically, as you can see, we would move approximately three to four traces further back to the south, and we'd also have to move to the south and east, in which you'd basically go into just the typical Strawn carbonate platform, which has no porosity in it. It would be tight.

Q. Okay, let's go back to Exhibit 1. There is a vertical scale and a color code on the far right. Identify for us how we associate that color code with what you believe to be the opportunity for a Strawn reservoir.

A. Okay, this color code is what I kind of mentioned a little bit before, but it measures the thickness that we have measured on the seismic section in Number 2, and it's numbered by one-millisecond increments. In other words, this is going to be your contour interval. And for every

color change, you're increasing seven feet, seven to ten feet.

And as you can see, the most optimum place to be would be in that white area, and that would be approximately 21 milliseconds of thickness in there. The Mayfly 14-1 is in that real light brown area, which is as close as we can get to an unorthodox location.

Q. So Mr. Catanach understands the scale of what he's seeing on Exhibit 1, the square that contains the Mayfly 14 well location and this color data is an area of how many acres?

A. That's 40 acres. This is on a 1-to-500 scale, so you can see the little 40-acre outline right there, which would be the northwest of the northwest.

Q. Using Exhibit 1, then, if you were to move south to a standard deep gas well location, if would put you in the blue area?

A. Yes, sir.

Q. And the blue area is an absence of Strawn reservoir?

A. It's an absence of porous Strawn algal mound.

Q. All right. How was this 3-D seismic data prepared and evaluated and analyzed?

A. We have a consultant by the name of Louis Lint who does all our geophysical interpretation. Lou oversaw

the data acquisition parameters. It was processed by Western Geophysical, he oversaw that, and then he did the interpretation as well, tying all subsurface well data and any synthetics that we have in the area.

Q. Are you satisfied that this has been done correctly to the best of yours and Mr. Lint's ability?

A. Yes, sir, I am.

Q. Has it provided Arrington and others utilizing this the technology to access reservoirs that otherwise would not have been discovered and produced?

A. Absolutely.

Q. Let's turn your attention now to the issue of the deeper gas zones.

A. Okay.

Q. If you'll take a moment and find Exhibit 3, before we talk about the details of Exhibit 3, describe for us the coding of what we're seeing.

A. In Exhibit 3 will be a net interval isopach of the Brunson Atoka sand, which is the primary pay sand out here. And this will be based on a 6- to 8-percent porosity cutoff.

As you can see on Exhibit 3, the channel system is a north-south oriented channel system, but due to bottomhole pressure information, I believe we have a number of isolated reservoirs in here. And as you can see on the

Exhibit 3, I'll show you three different wells in here which all have different bottomhole pressures, indicating that the reservoir is either encountering some permeability barriers within the sand itself, or else some fault systems. And I will back this up with some 3-D seismic data as well.

Q. Let's take a moment and look at Exhibit 5, which is the cross-section, so that Mr. Catanach can see what you are identifying as the Brunson Atoka sand. Let's unfold that display and identify that interval for him.

A. Mr. Catanach, Exhibit 5 is a structural cross-section, and basically it's a two-well cross-section with our proposed location. And it runs kind of from the northeast through the Yates Runnels ASP Number 2 well, which was drilled in -- I think it was October of last year -- down to our proposed location and down to the southeast through the Monsanto well.

I've indicated the Strawn interval on here, the top of the Atoka lime, which are just good markers in the area, and then I've indicated the Atoka Brunson sand, which is the principal pay zone in this area, the top of the Morrow Lime, and then the approximate interval where the Carlisle sand should be present if it is here.

Q. Is it your understanding that the Division nomenclature is such that when they identify the Townsend-

Morrow Gas Pool, that is a collective identification of an interval that includes the Atoka Brunson, as well as the Carlisle sand?

A. Yes, sir.

Q. They have not been distinguished by the Division?

A. No, sir.

Q. The operators have been looking for the Carlisle sand in certain of these wells, have they not?

A. Yes, sir.

Q. Let's find the Carlisle well. It's in the -- What, the west half of 10 on Exhibit Number 3?

A. Yes, sir, if you look on Exhibit Number 3, it is that the well on the far west side, which is the Number 1 Carlisle, and this was Ocean's well that was drilled -- I think it was early 1998 -- in an attempt to encounter what we now call the Atoka Brunson sand.

That particular sand was absent there, and they stumbled into this lower Morrow sand, which is the zone that subsequently blew out for about 30 days before they killed the well and subsequently drilled the twin well to it.

Q. They were trying to offset what Yates had discovered in the east half of 10 with what you identify as the Brunson well?

A. Yes, sir, correct.

Q. Ocean drills the Carlisle well, and then Yates drills the Big Flat well?

A. Yes, sir. And they drilled that in an attempt to find the Carlisle zone.

Q. And they were successful or not?

A. No, sir, they did not find any Carlisle sand but once again encountered the Brunson interval.

Q. Let's look now at your opportunity in the Brunson in the west half of 14. There currently is the Monsanto 1 well producing out of the Brunson sand, is there not?

A. Correct, yes, sir.

Q. Describe for Mr. Catanach your argument that the Mayfly well is not going to be competing for the same Brunson reserves that have been produced or will continue to be produced by the Monsanto Number 1 well.

A. Okay. There are two compelling facts that indicate that the Mayfly will not be competing for the same reserves, and the Monsanto well has produced about 3.9 BCF to date and is currently producing at a rate of around 200 MCF a day. I do not have the bottomhole pressure on it, but by all indications it has to be low. The well has produced for over 20 years.

With the new well activity that mostly Yates has done in Section 10 and 11 to the north, we started encountering higher bottomhole pressures from the same

stratigraphic interval. Well, that's a clue to you real quick that there's some separation, either by different sands, faults, permeability barriers, something. If you will look in Section 10, the Brunson well in 10 of 1997 had a bottomhole pressure of 4086 pounds.

Shortly after the Brunson well was completed, Yates re-entered and deepened the Shell Lusk well there in Section 11, and they got that well at 3016 pounds of bottomhole pressure.

After that well was drilled in March of 1999 they drilled the Runnels well, which is on my cross-section, and I have a shut-in bottomhole pressure of 1881. That was run in March of 1999. The well when it was originally drilled in November of 1998 had a bottomhole pressure of 3500 pounds.

Well, all of these wells have a higher bottomhole pressure than you would have expected in the Monsanto well, to the south, given the reserves it has produced and the current producing rate, and the fact that structurally it's running about 200 feet high too.

So that information right there would lead you to believe that there's something more complex going on.

And then through our 3-D seismic data -- and you can even infer it with subsurface well control -- it's my opinion that we now have fault separation from the zones to

the north and the Monsanto well to the South. And that's the reason for the Mayfly proposed location, is that I do not believe that we're going to be in the same reservoir as the Monsanto well, due to a fault separation.

Q. When we look at Exhibit 3, finding Section 14, and in the northwest quarter of 14, running east and west, there is a line.

A. Yes, sir.

Q. What does that line represent?

A. That line is a fault, and that fault I'm going to show you in just a few minutes that we identified through our 3-D seismic data.

Q. Okay. If you were to move to a standard deep gas location in the west half of 14, where would you be in relation to that fault?

A. You'll be just about in the approximate fault plane, is where you're going to be. Or you're going to -- If you happen to miss the fault, you'll probably come in upthrown in the same reservoir as the Monsanto well, which we believe now to be depleted.

Q. Your best opportunity, then, remaining in the west half of 14 for producing deep gas that's not currently or could be produced by the Monsanto well, would be at this unorthodox well location?

A. Yes, sir.

Q. And it would place you north of the fault?

A. Yes, sir.

Q. Let's look at Exhibit 4 --

A. Okay.

Q. -- and have you identify and describe this display.

A. Exhibit 4 is nothing more than a subsurface map for the top of the Morrow limestone, which you will see on Exhibit 5 is a marker that is directly below the Brunson interval. This is a very good seismic marker that we have out here, it's a very good regional marker.

As you can see from here also, you'll see that there's a lot of structural difference between the Monsanto well to the south and all of the wells located in 10 and 11. There's approximately 200 to 2100 feet of vertical relief in there.

You could have put these faults in there without 3-D seismic data, different interpretations could just indicate a steep dip, or you could say that it was due to faults. I think with the 3-D seismic data we will definitely determine that there are fault separations in here.

Q. Let's look at that data. If you'll turn to Exhibit 6, identify and describe Exhibit 6.

A. Okay. Mr. Catanach, Exhibit 6 is an arbitrary

line that basically mimics the cross-section line, A to A'. It comes from the Runnels well on the far south side through the Monsanto well on the left.

If you will look down kind of midway, you will see some markers that we have identified on the right side out there. That very top one is the base of the Atoka limestone, and then you will see the yellow marker down there, and we call that the Brunson. That's where the Brunson sand should occur if you could see it via 3-D seismic data.

The Morrow lime is that strong peak that's indicated in red directly below the Brunson. It's an outstanding seismic marker in here.

And then drop on down to what we call the top of the Austin, there in blue, the top of the Chester, and then the top of the lower Mississippian.

If you look at the Runnels ASP 2 and just take the Morrow marker in there -- that's probably the best one in there -- and you follow that peak right on up, you will see that there's a termination directly to the west of the Runnels. That's the fault that we believe separates the Runnels well from probably the Lusk or the west half of Section 11. It's clearcut in this seismic data set here.

You'll see that you drop down approximately 20 milliseconds, and you'll see how the red marker comes

through our proposed location, and then it pops back up right there, just south at around 74/114, it pops back up, and this is the same fault block that the Monsanto would -- the well would be in.

So there's clear interpretation that there is fault separation between all three of these reservoirs in here.

Q. If the Division approves the unorthodox location for the Mayfly 14 well, looking at Exhibit 6, are you able to conclude that there's a reasonable geologic probability that it may be in its own separate Brunson sand reservoir, fault-separated from the other wells that are producing from that reservoir?

A. Yes, sir, I mean, we feel right now they're definitely going to be fault-separated from the Runnels. I don't have enough information to definitely say whether there is a fault over -- separating us from the wells in 10, but we note from pressure information something's going on over there. My seismic data set did not go over that far, so I cannot conclusively say that I know there's faults or permeability barriers.

But yes, sir, we could be in our own reservoir.

Q. Looking at Exhibit 6 as you move to the left or south, by going to a standard location you increase the probability of being close to or on the same side of the

fault as the Monsanto well?

A. Yes, sir.

Q. You'll either be close to that fault or competing for Monsanto in the same --

A. Right.

Q. -- fault block?

A. You're going to be so close in the interval that you could theoretically fault out your interval altogether. Or if you happened to get lucky enough not to do it, you're probably going to be on the upthrown side with it, of which -- I mean, you're in a depleted reservoir.

Q. Are the economics of this prospect such, Mr. Baker, that Mr. Arrington could drill a stand-alone deep-gas well?

A. No, sir.

Q. You couldn't do it?

A. No, sir.

Q. How is the most effective and efficient way for Mr. Arrington to accomplish that objective?

A. It's for us to take this proposed location that we've got for the Strawn and simply deepen it to the Morrow, which is about 1200 feet.

Q. Have you prepared an analysis to demonstrate to Mr. Catanach that opinion?

A. Yes, sir. Exhibit 7 is just some drilling and

completion AFE costs that we have prepared on wells that we're drilling in the area. We're currently drilling a well, the Mayfly 14-2, right now, which is a pure Strawn test, and it has a completed AFE cost of $967,000. The proposed well here, the Mayfly 14-1, for a 12,700-foot Mississippian test, is a little over a million dollars, $1,050,000.

So you can see that the incremental cost simply to deepen the Strawn test is $83,000.

Q. The total bottomhole depth of your proposed Mayfly well is intended to be deep enough to access the lowest of the Pennsylvanian formation?

A. Yes, sir, it will be proposed to go through that Carlisle interval. At this particular time, there's so little geological data, because we've got one well that's actually found it, it's very difficult to map. But it makes sense to go that additional 200 or 300 feet. If you go on to the Brunson it's not but about another 300 or 400 feet just to look for it, to see it, because it is so prolific when you do find it.

Q. Have representatives of Mr. Arrington been in contact with the successor to Mr. Mark Shidler operating the Monsanto State Com well?

A. Yes, sir, we have.

Q. Okay. That successor operator is Five States, is

it not?

A. Yes, sir, it is.

Q. And the discussion is that both companies will reach some type of agreement so that one of you is the official designated operator of the spacing unit within the Townsend-Morrow Gas Pool?

A. Yes, sir, they have indicated they will work with us.

MR. KELLAHIN: All right. Mr. Catanach, that concludes my examination of Mr. Baker.

We move the introduction of his Exhibits 1 through 7.

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Baker, you've not yet determined who's going to operate this half section?

A. From the deep standpoint, we are completely prepared to do the operations. Five States has indicated to us that that is not a problem and that they will work with us, but that agreement has not just simply been inked.

Q. And that will be accomplished before the Mayfly is completed and starting to produce?

A. Absolutely.

Q. Have you guys done any drainage calculations on that Monsanto well?

A. No, we have not done any formal volumetrics on that.

Q. Why is that?

A. Well, first of all, it's -- we don't have a reservoir engineer. But then also, we have determined that, based on the well that's over in the east half of that, the Skelly 6 well, which hardly produced anything, that the Monsanto well around here has a very limited area, being this kind of mid-area right in here, and that it's probably going to end up making approximately 4.5 to 5 BCF, and that's about all it's going to end up doing.

Q. So you've still got that well projected to produce for quite a long time?

A. Well, sir, the decline curves on it are producing 200 MCF on a fairly shallow rate, yes, sir.

Q. And that's producing exclusively from the Brunson; is that right?

A. Yes, sir, to the best of my knowledge. They did attempt a dual completion in the Wolfcamp, but I think the Wolfcamp depleted, and they subsequently just went back to purely the Atoka interval in there.

Q. Do you know if that well went deep enough to penetrate what may be the Carlisle sand in that --

A. They -- I believe, sir, that it went right to the top of the Morrow, is where it's at. I do not believe it went deep enough to go to the Carlisle.

Q. That well encountered the thickest pay section in the Brunson; is that right?

A. Yes, sir, it appears to have hit just about the meat of it. The Runnels well, if you will look on that cross-section, those two wells almost look identical. And it's simply -- When you get into the net-pay cutoffs, is that it looks like it has two or three more net feet of pay, but it looks like those two wells are almost in the thickest part of the channel system.

Q. You guys, according to your geology, you're targeting about 15 feet of that Brunson sand in the Mayfly?

A. Yes, sir, 15 to 20 feet of it. We believe it's being influenced by a deep fault system over here, and how fast that thing thickens and thins due to that fault system over there we can't determine, but we're guessing we're going to have around 15 feet.

Q. You've got a permeability barrier shown between that Mayfly well and the wells in Section 10, but you don't know that that actually exists?

A. No, sir. I'm basing that on, is the fact that we have such discrepancies in the bottomhole pressures here, something has to be separating this. It could be another

fault like we see between the Runnels well and the Mayfly location. I just don't have any type of data to put it in there. But there is something that appears to be separating these things out.

Q. Now, did you have differences in bottomhole pressure between the wells in Sections 10 and 11?

A. These bottomhole pressures are pressures that were filed by Yates Petroleum and Ocean in another case. We, being Yates or David Arrington, we do not have interest in those wells, so I don't have that hard data. That came from hearing data that they supplied.

Q. But there is a difference between those and --

A. Yes, sir.

Q. -- and the wells in Section 11?

A. Yes, sir. Yes, sir.

Q. Have you guys used 3-D seismic to identify faults previously?

A. Oh, yes, sir. Yes, sir, I think seismic data, both 2-D and 3-D, was used principally to identify faultblock-type reservoirs. So we've used it for ten years.

Q. So even though you guys believe that you may be separated from the rest of the Brunson wells, you've still agreed to a production penalty for the well?

A. Yes, sir, and I think -- There's so many unknowns

there that you can't conclusively say, beyond a shadow of a doubt, that I'm not in some type of communication with the well in the north half of 11, that Shell Lusk well. I think I can pretty conclusively say that I'm not going to be in communication with the Runnels well, but I can't positively say I'm not going to be in some type of communication with the Shell Lusk.

Q. And you're pretty confident that you're not going to be in communication with the Monsanto well?

A. Yes, sir, I feel pretty strongly about that. You don't know what type of pressure drainage may occur across a fault, but I have to make assumptions it's a sealing fault at this particular time, and that if I'm on the downthrown side I will be pressure-separated from the Monsanto well.

Q. Is that well, the Ocean well, is that the only one that's encountered the Carlisle sand?

A. In this particular area, yes, sir. Yates Petroleum just drilled a well up in Section 3 that I have just got the logs, and it appears like they have encountered about six feet of what appears to be a Carlisle interval to the north of us. But as far as in this immediate area right here, commercial Carlisle sand, yes, sir, it's the only one.

On the Runnels ASP Number 2, you will notice

there's about four feet of tight sand in that particular well there that was noncommercial. Now whether that's leading to a reservoir nearby, that's what we're hoping.

Q. So you've been unable to try and map the Carlisle sand?

A. Yes, sir, at this particular time I think there's a lot of different interpretations as to how it was done. But without more than one well, it's hard to determine whether this is a channel system, a bar, how it was deposited.

Q. The primary objective, though, on the well is the Strawn formation?

A. Yes, sir.

Q. And this is in the area of all the Strawn algal mounds?

A. Yes, sir.

Q. I'm a little curious how it is that -- Most of those are spaced on 80 acres, but this pool is 40-acre spacing?

A. Yes, sir, and that's, I guess, kind of an enigma. This is an old field, the Northwest Shoe-Bar field, and it was just evidently setup on wildcat pool rules. You're quite correct in your assessment that most of them are spaced on 80-acre spacing, yes, sir.

Q. On Exhibit Number 1, you've got that thing

mapped. At the location of the Mayfly 14 well, how thick is that interval at that point?

A. Well, the entire carbonate interval should be 150, 200 feet thick, and that's from top to bottom. Now, we're hoping to have 75 feet of porosity, and the porosity in these mounds varies as to where you hit them. Obviously, you hit them on the edge, you're going to have a lesser porosity. If you hit them in the thickest part of the gross interval there, then you've got the opportunity for more porosity development, yes, sir.

Q. It appears that you could move maybe north and further east and actually get into a thicker section, but did you want to maintain a standard 330 location?

A. Yes, sir, I mean, that was it. I mean, I think what we're looking at there is -- and of course you're starting to get down to the resolution of the data. We could move to the north one or two -- you could even move a half a trace, and you'd get into a seven-foot difference, based on seismic, basically one millisecond.

And when you start saying, Well, is that worth the effort to go for an unorthodox location, I think we can adequately drain our portion of the reservoir if I get that bottomhole vertical right there.

Q. What is the plan as far as producing the well, if you do encounter some production in the Morrow? How is

that well going to be produced?

A. We're setting the well up currently to be drilled to run 5-1/2-inch casing. We're not setting it up to do a dual completion on it. Not having visited specifically with Mr. Arrington and our drilling engineer, I think a lot of it would depend on if we hit a Carlisle zone, obviously, and it is as big as Ocean's well, we will produce it immediately. Because we feel like at this particular time, even if we had the Strawn, it's not going to be depleted by anybody else. I mean, those reserves are there. So we would attempt probably a Carlisle completion.

If we hit the Atoka Brunson zone in there, and you have a good Strawn zone in there, then you're faced with whether to try to make a dual completion in 5 1/2, or you try to take your reserves out of the Atoka at this particular time. A lot of that would be based on bottomhole pressure information, of which we would probably run a drill stem test across the information to obtain what we think is the bottomhole to see if it's in communication with any of these other reservoirs.

Q. Have you got more seismic data than what you're showing on Exhibit Number 1 here?

A. Yes, sir.

Q. You've got this cutoff --

A. Yes, sir, we do. Yes, sir.

Q. And it appears that there may be another one of these pods just to the south and east of this one?

A. Yes, sir.

Q. Do you have any information to show, or do you have any belief that this may be in communication with that other pod?

A. Our interpretation right now indicates that it's not in communication with it. One of the things that we have found in regional studies of other producing algal mounds is that you can have mounds that are very close together in here and then through -- and in the intermound facies there you have some type of fracture system or something, and so there is pressure communication, although there is not fluid communication, meaning that fluids don't move between the two, but pressures do.

Our interpretation would say that the mounds are not connected until you get wells in them and see some from drill stem tests and pressure tests, you don't know whether or not that fracture system is in there to pressure-deplete them.

So what I'm saying is, by our interpretation I would say that these are stand-alone pods at this particular point.

Q. Does Arrington have plans to drill that second pod?

A. Well, sir, that's what I was just getting -- At this particular time, also, we'd have to see some very good results from the one up here to give us indicat- -- If you'll notice that this one down here, just from what I've shown, appears to be much smaller i size.

And part of the problem that reservoir engineers have out here is determining volumetrics on these pods. How small is too small? Because it's been very difficult sometimes to put back all the oil into these pods that have come out of that one. But you would have to watch the production history on one here and feel that that little pod down there would be commercial to go and drill.

EXAMINER CATANACH: I believe that's all I have of the witness.

Mr. Kellahin, as far as notice goes, notice was given to, I believe, all of the interest owners in the north half of Section 15 --

MR. KELLAHIN: As well as the southeast.

EXAMINER CATANACH: -- and the southeast quarter?

MR. KELLAHIN: Yes, sir.

EXAMINER CATANACH: Okay. And the east half of Section 10 and all of Section 11 is operated by Yates; is that correct?

MR. KELLAHIN: Yes.

EXAMINER CATANACH: And Ocean operates the west

half of Section 10?

MR. KELLAHIN: And they've entered their appearances.

EXAMINER CATANACH: Okay.

MR. KELLAHIN: One final comment. Mr. Baker referred to the inference of this permeability barrier --

THE WITNESS: Yes, sir.

MR. KELLAHIN: -- and pressure data. He was taking that information from Division Case 12,037. It was the case that Mr. Ashley heard for the simultaneous dedication of the two Yates wells in the east half of 10.

EXAMINER CATANACH: Okay, is there anything further in this case?

MR. KELLAHIN: No, sir.

EXAMINER CATANACH: There being nothing further, Case 12,181 will be taken under advisement.

(Thereupon, these proceedings were concluded at 9:16 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 12181, heard by me on 8/31 1995.

David H. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division 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 August 9th, 1999.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002