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. 13,064
APPLICATION OF PALADIN ENERGY CORP. TO ABOLISH SPECIAL POOL RULES AND REGULATIONS FOR THE BAGLEY SILURO-DEVONIAN POOL, LEA COUNTY, NEW MEXICO	)	

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

May 22nd, 2003

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, May 22nd, 2003, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

May 22nd, 2003
Examiner Hearing
CASE NO. 13,064

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* * *

WHEREUPON, the following proceedings were had at 10:54 a.m.:

EXAMINER CATANACH: All right, at this time we'll call Case 13,064, the Application of Paladin Energy Corp. to abolish special pool rules and regulations for the Bagley Siluro-Devonian Pool, Lea County, New Mexico.

I will call for appearances.

MR. FELDEWERT: May it please the Examiner, Michael Feldewert with the Santa Fe office of Holland and Hart, appearing on behalf of the Applicant, Paladin Energy Corporation.

Mr. Examiner, I have a very brief opening statement and then two witnesses today.

EXAMINER CATANACH: Okay, other appearances?

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm [*sic*]. I'm appearing today on behalf of Apache Corporation. Apache is a working interest owner of spacing units in this pool.

I have no witness.

EXAMINER CATANACH: Okay. Mr. Feldewert?

MR. FELDEWERT: Mr. Examiner, because of the nature of this case I just wanted to have a brief opening here.

Paladin in this Application seeks an order abolishing the special rules and regulations for the Bagley

Siluro-Devonian Oil Pool in favor of going back to the general statewide rules.

This is a very old and largely depleted oil pool. You will see that the Division adopted these special pool rules in 1954 under Order Number R-69-D.

In general, what these special pool rules require are 80-acre standup spacing units, with wells to be located either in the northwest quarter or the southeast quarter section.

You'll have before you in our packet of exhibits a map which has been marked as Exhibit Number 3. That is really the heart of the presentation here today.

You'll see from that map, and there will be testimony today, that this spacing pattern has essentially broken down and become obsolete, partly because the 1954 Order itself contained a large number of exceptions to the 80-acre spacing requirement and, indeed, the special pool rules and itself allowed a number of 40-acre units for whatever reason, and partly because over the last 50-plus years the operators have determined that wells are essentially necessary in each 40-acre tract in order to properly drain the field.

So there will be testimony today, and the map will demonstrate, that the pool has essentially been developed on 40-acre spacing.

We are going to present testimony from David Plaisance. He's the geologist with Paladin. He will testify about the advanced state of depletion in the pool, that presently there are only eight producing wells. There's only two operators, both of which agree that 40-acre spacing is now appropriate for this pool.

And he will testify that the remaining active wells in this pool present a unique ownership situation under which no interest owner will be cut off from a producing well by virtue of this Application, and no interest owner will receive less than what it has been receiving under the existing outdated pool rules if this Application is granted.

And finally, Mr. Plaisance will demonstrate or testify that downspacing to 40 acres will encourage efforts to produce the remaining reserves in this pool and allow the recovery of reserves that would otherwise not be recovered, and thereby provide additional royalties to the State of New Mexico, which is the only lessor in this producing area.

We're also going to call Craig Adams. He's an engineer with Netherland and Sewell in Dallas. He's going to testify about the nature of the pool. He's going to talk about the strong water drive in this pool and the fact that today it produces large amounts of fluids.

And he's going to testify that water coning is taking place in this pool, with the following relevant effects:

First, it limits, as I understand it, lateral drainage of the existing wells in the pool area.

And secondly, it has created thin oil columns that are only going to be produced with a well on each 40-acre tract.

He's going to review some -- the results of a recent drilling, as well as recompletions in the Bagley Siluro-Devonian Pool and testify that these examples demonstrate that today's wells only drain 40 acres and that from an engineering standpoint it makes sense that any remaining development on this field occur on 40 acres.

Now, I want to stress today that Paladin does not take lightly changes to existing spacing rules for oil pools in New Mexico. But what we have in this case, and what is unique about this case, is the ownership situation and, secondly, we have a unique situation with respect to development, and this particular case favors downspacing to 40 acres.

So with that, I'd like to call the first witness.

EXAMINER CATANACH: Thank you, Mr. Feldewert.

Will the witnesses please stand to be sworn?

(Thereupon, the witnesses were sworn.)

DAVID J. PLAISANCE,

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

DIRECT EXAMINATION

BY MR. FELDEWERT:

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

A. My name is David Joseph Plaisance. I reside in Dallas, Texas.

Q. Mr. Plaisance, by whom are you employed and in what capacity?

A. I'm employed by Paladin Energy Corporation. I'm vice president of exploration and production.

Q. Have you previously testified before this Division?

A. No, I haven't.

Q. Okay, why don't you turn to what's been marked as Paladin Exhibit Number 1. Is that your résumé?

A. Yes, it is.

Q. All right. With that in hand, would you just briefly summarize for the Examiner both your educational background and your work experience?

A. Yes, I received a bachelor's of science degree in geology in 1981 from Nicholls State University in Louisiana. I also received a master's of science degree in

environmental science from Louisiana State University, and that included 18 credit hours of petroleum engineering from Tulane University.

My work experience, after leaving school I took a job with Odeco Oil and Gas in New Orleans in the production department. I worked on -- or we worked on federal OCS waters. I was with Odeco for five years.

I then worked for Halliburton Energy Services as a log analyst and sales engineer, and then was a partner and president of Commerce Energy, Incorporated, in New Orleans where I was in charge of exploration and production and directed all phases of project developments there.

And for the last five years I've been with Paladin Energy Corporation as, again, VP of exploration and production, in charge of supervision of geology, exploration and production engineering.

Q. Has your work experience included southeast New Mexico?

A. Yes, for the last five years.

Q. Okay. Are you familiar with the Application that has been filed by Paladin in this case?

A. Yes, I am.

Q. And are you familiar with the geology and the status of the lands in the area of the Bagley Siluro-Devonian Pool?

A. Yes.

MR. FELDEWERT: Mr. Examiner, at this time I would offer Mr. David Plaisance as an expert witness in petroleum geology.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Feldewert) Would you please, Mr. Plaisance, would you briefly state what Paladin is seeking with this Application today?

A. What Paladin seeks is to abolish the special pool rules for the Bagley Siluro-Devonian Pool, adopted in 1951 by Division Order Number R-69-D. Paladin feels that these rules are outdated and should no longer be applicable to this largely depleted pool.

Q. Is Paladin Exhibit Number 2 -- does that identify the geographic area of the Bagley Siluro-Devonian Pool on the first page, and then does it have on the second page the pool rules that are presently in effect for this pool area?

A. That's correct.

Q. All right. Would you briefly summarize for the Examiner what the special pool rules require for this Bagley Siluro-Devonian Pool?

A. Well, first the pool rules allow for standup 80-acre spacing units, comprised of either the east half or the west half of a quarter section. Second, that well

locations are within 150 feet of the center of the northwest and the southeast quarter quarter sections so no wells are allowed on offset quarters. And third, an allowable equal to the top allowable for wells in the Bagley Siluro-Devonian depth range calculated by the use of the 80-acre proportional factor set forth in Rule 505.

Q. Okay. Now, these are the rules, then, that Paladin seeks to abolish in favor of the general statewide rules?

A. Yes, that's correct.

Q. All right. I want to focus first on the allowable provisions under the special pool rules. What is the current allowable, based on Rule 505 and the special pool rules for the Bagley Siluro-Devonian Pool?

A. Currently the allowable is 400 barrels of oil per day for the 10,000-foot to 10,999-foot depth range.

Q. And have you had the opportunity to examine the current production records from each of the existing active spacing units in the pool?

A. Yes, I have.

Q. Are there any spacing units that are producing the allowable provided for under the special rules today?

A. No, there are no spacing -- there are no spacing units currently. Largely, this is a depleted field, and there are only eight producing wells. All but one of the

producing wells is producing less than 125 barrels of oil per day.

Q. Let me return now to the well location and spacing requirements under the special pool rules. And perhaps at this time it would be helpful to identify and review for the Examiner what has been marked as Paladin Exhibit Number 3. Would you identify that map -- this exhibit for the Examiner, please?

A. Exhibit Number 3 is a structure map showing all the producing wells in the Bagley field and the dedicated spacing units.

If you look at the lower part, on the lower left-hand side of the map, you'll -- and we'll address the legend -- you'll see what the color-coding on the map refers to.

The blue, wells in blue, are current saltwater disposal wells. The dashed center line is plugged and abandoned wells. The yellow indicates inactive Siluro-Devonian producers, and the red are active Siluro-Devonian producers, which also have -- alongside, they'll have the date of initial completion and the cumulative production to date.

And then in the boxes you'll see -- that are attached to the active wells, you'll see the date that -- we have some current-production data -- the date of that

data, the average barrels of oil per day, the average barrels of fluid per day and the average oil cut in each well.

Going back to the legend, the outline in blue represents 40-acre exemptions per Order R-69-D in 1954, and the green outline indicates the 80-acre spacing pools.

Q. What is the --

A. One other thing, I'm sorry. The orange shows the fault line that defines the productive area of the pool.

Q. Now, the State of New Mexico is the only lessor in this area; is that correct?

A. That is correct.

Q. All right. Do the dotted lines identify what you understand to be the geographic area of each particular state lease?

A. That's correct.

Q. All right. What does this map tell you with respect to the development of this field over the last 50-plus years?

A. Well, if you look at the density of the well spacing you'll see that over time, that despite the pool rules calling for 80-acre spacing, there are pockets of 40-acre spacings to the north, west and south, because of the exceptions in the 1954 Order, and there are -- the provision providing for northwest and southeast well

patterns don't hold, as well as there are numerous infill wells in those 80s. So it would appear that the 80-acre spacing requirement has been rendered obsolete.

Q. As well as the offsetting northwest well in the southeast well location?

A. That's correct.

Q. Has Paladin recently completed a well in this area? Or drilled a well in this area, I should say?

A. Paladin has recently drilled a well in the area. We drilled the State BT "C" Number 5, and if you refer to the map it is the northeast of the southwest quarter of Section 35.

Q. And it would be in orange or red, right?

A. It would be in red.

Q. And is it the -- it's to the north, the well to the left with the 5 next to it, under "Paladin"?

A. That's it's exactly, the northeast of the southwest quarter.

Q. Okay.

A. This was a very successful well for us. It is averaging about 284 barrels of oil per day and about 1200 barrels of water per day.

Q. And how does this well compare to the surrounding wells in the area?

A. Well, this is -- As far as production?

Q. Yes.

A. This is the top producer in the field, in all the eight active producing wells, as far as barrels of oil per day.

Q. And was this a well that was drilled in a 40-acre pocket area that is surrounded by acreage that has largely been produced over the last -- well, it looks like 40, 50 years?

A. Yes, that's correct.

Q. Who owns the offsetting acreage to the north?

A. Apache does.

Q. If Apache desires to drill an offsetting well to the north of your BT "C" 5, what is the existing spacing for that area?

A. The existing spacing is 40-acre spacing under the exemptions set out in the 1954 Order.

Q. So if the Division grants this Application and there is further development spawned by the drilling of your BT "C" Number 5, will everybody be on the same playing field?

A. Yes, that's true.

Q. Okay. I want to focus now a little bit, using this map, on the effect that downspacing will have on the existing producing wells. Have you had the opportunity to examine the ownership for the spacing units that are

dedicated to the eight active wells in this pool?

A. Yes, I have.

Q. And before we get to that, let me ask you one question. I noted on the map here, there is a well that is shown in the southeast quarter of the northeast quarter of Section 2. It's got a red circle and then also a yellow circle, and it's underneath "Samson".

A. Yes.

Q. Can you explain what's going on there?

A. In the southeast of the northeast quarter, the Samson B "D" Number 1 was the original well drilled in 11-52 and produced a cumulative total of 1.9 million barrels of oil.

Samson recently twinned that well. They from that location drilled the Samson B "D" Number 4 well and took it down to the Devonian, so the Devonian completion, and I understand that they are testing it currently.

Q. Okay.

A. It was a recent completion.

Q. And again, this is a 40-acre area that is surrounded by previous -- to some extent, long-producing wells?

A. Yes, if you look at the wells around it, many of them have a cumulative -- substantial cumulative totals and were drilled in the early 1950s.

Q. Are there any -- I think I've alluded to this, I just want to make sure on the record. There are not any federal lands associated with this pool; is that correct?

A. No, there are no federal lands.

Q. Okay. And is it state lands that are devoted to the active wells in the Bagley Pool?

A. Yes, all the acreage in the Bagley Pool, all the acreage devoted to the eight active wells in the Bagley Pool, is state land.

Q. Okay. Of the eight active wells -- and we're including the one that was just drilled by Samson -- how many are on 80-acre spacing units?

A. Seven of the wells are on 80-acre spacing units, including one nonstandard laydown unit in Section 2, and one well is on 40-acre spacing.

Q. Are there any active 80-acre spacing units that have more than one state lease?

A. No.

Q. Okay. Is the working interest common through the eight active 80-acre spacing units? I'm sorry, I should say seven active 80-acre spacing units?

A. Yes, that's correct.

Q. All right. So to your knowledge, if the Division abolishes these special pool rules, will any interest owner be cut off from a producing well?

A. No.

Q. If the Division abolishes these special pool rules, would any interest owner receive less than what it has been receiving up till now?

A. No.

Q. How many operators are there in this pool?

A. There are two operators, Paladin Energy Corporation and Samson Resources.

Q. And Samson is the one that just drilled that well that was twinned --

A. That's correct.

Q. -- that we just referred to?

Have you discussed abolishing these special pool rules with the other operator, Samson?

A. Yes, we have.

Q. And is Paladin Exhibit Number 4 a waiver of objection from Samson indicating that they agree with your proposal to abolish the special pool rules in favor of 40-acre spacing and the statewide rules?

A. Yes, it is.

Q. Now I want to ask you, Mr. Plaisance, what prompted Paladin to come to the Division and seek an order abolishing these special pool rules?

A. Well first, we feel the special pool rules for the Bagley Pool are outdated and obsolete for this mature

and mostly depleted field. Although the pool rules call for 80-acre units, between the numerous exceptions for 40-acre spacing and the development of infill wells on the 80-acre units, the practical application in the Bagley field has been development by the operators on 40-acre spacing.

Second, the economics associated with any additional drilling prompted this Application.

Q. Can you explain -- Would you please explain to the Examiner what you mean by the economics associated with additional drilling, recompletion or development?

A. Well, Paladin believes that by downspacing the standard 40-acre spacing units the Division will encourage additional drilling or recompletions and extra recovery from the field.

A specific example where downspacing will encourage extra recovery from this, again, largely depleted field is our State BT "C" Number 3 well at the northwest of the southwest quarter of Section 35.

Q. Okay, so that would be to the north end of the map?

A. That's in -- Yes, again in Section 35.

Q. And is it a well that's marked in yellow?

A. It's marked in yellow.

Q. Under "Paladin", and then there's a 3 next to it, correct?

A. That's correct.

Q. And it looks like that well was initially drilled in 1963?

A. That's correct.

Q. All right, what is it about that well that you wanted to point out to the Examiner?

A. Well, prior to Paladin's ownership, the State BT "C" 3 well was owned and operated by Collins and Ware. They produced the BT "C" 3 from the Devonian until January of 1997, when production ceased because of casing problems and the well was shut in.

Like all the other Bagley Devonian wells, the BT "C" was mostly produced on secondary-recovery methods since the late 1950s, through either rod pump or electrical submersible pump operations.

Just prior to the casing failure of the BT "C" 3, it produced at a monthly average rate of 63 barrels of oil per day, with 1500 barrels of water per day. This average also included production rates as high as 150 barrels of oil per day and 2800 barrels of water.

At the time, Collins and Ware held 100 percent of the working interest in the entire 80-acre spacing unit. Since Collins and Ware has sold its properties, with Paladin owning the 40 acres and the wellbore in the northwest of the southwest quarter of Section 35 --

Q. Okay, now let me stop you there. I notice underneath this well you have -- in that southern 40 acres you have Paladin/Apache, and a question mark. Is there presently a debate with Apache over the ownership of this particular 40-acre tract?

A. Yes, there is.

Q. All right. Why don't you proceed, then, with your discussion of this well?

A. Well, Paladin is considering re-entering the BT "C" Number 3 well. We would abandon the original Devonian completion, sidetrack the well from the bottom of the intermediate casing and redrill the well for a Devonian completion.

However, this well has already produced over 2.2 million barrels of oil, and Paladin hope that after the redrill the initial production on electrical submersible pump could reach 150 barrels of oil per day with 3000-plus barrels of water per day, but this rate is also dependent on many formation and mechanical-design parameters.

Since Devonian oil production in this field is dependent upon high volume of fluid withdrawal, Paladin over time has necessarily developed saltwater disposal capacity to meet our disposal needs on a fieldwide basis. However, with the anticipated produced water volume from the BT "C" Number 3 well, Paladin's present water-handling

system will reach its capacity.

Q. Okay, so if I understand you, you have two concerns. One is your concern about whether the well can be brought back to a production rate that would make it economical to, in essence, redrill this well; is that right?

A. That's correct.

Q. Okay. And then secondly, you have an existing saltwater disposal system out there?

A. That's right.

Q. And is Paladin concerned about -- And has that capacity just about reached its limit?

A. Well, with the drilling of the BT "C" Number 3 and its producing water, we would be nearing the limits of that capacity.

Q. So you're at a point where Paladin is concerned about optimizing its existing saltwater disposal system?

A. That's correct.

Q. Okay. Under the current pool rules, if Apache indeed owns that acreage to the south, you would be in a position where you have to share the production from that well with Apache Corporation --

A. That's correct.

Q. -- under the existing pool rules; is that correct?

A. Yes.

Q. All right. What are the economic problems that are created by this circumstance and the potential that you may have to share this well with Apache?

A. Well, firstly, if Paladin has to share its remaining water disposal capacity with Apache, it would be very unlikely that we would proceed with this project. Paladin would prefer to use its remaining capacity for other projects in which we have a higher working interest.

And secondly, if Paladin has to share with Apache, the project would also have to include an additional saltwater disposal well dedicated to the State BT "C" Number 3, and the economics of this two-well project would then become marginal.

So consequently, Paladin is unlikely to re-enter the State BT "C" Number 3 well and dedicate its remaining water capacity to this project if the pool rules stay at 80-acre spacing.

Q. Will you instead look at other options where you have a greater ownership interest in the well?

A. That's correct.

Q. If you're going to maximize your saltwater disposal capacity, you're going to look at projects where you have a better ownership interest?

A. That's correct.

Q. Do you think, Mr. Plaisance, that there are remaining reserves that can be accessed by the BT "C" Well Number 3 if you can get to an economical situation?

A. Yes, we do.

Q. All right, and you're speaking on behalf of the company here today, correct?

A. Yes, I am.

Q. In Paladin's opinion, is it going to be economical for it to proceed with its recompletion efforts or redrilling efforts with the BT "C" Well Number 3 if it is forced by the existing spacing rules to give away half of its well to whoever owns that 40-acre tract?

A. No, again the economics change.

Q. Do you believe that abolishing the special pool rules for the Bagley Pool -- that by doing that, the Division will improve the economics associated with the additional development of this largely depleted field?

A. Yes, I do.

Q. And do you believe that the granting of this Application will prevent waste and allow the recovery of additional reserves for the State of New Mexico that would otherwise not be recovered?

A. Yes, that's correct.

Q. Has notice of this Application been provided to the New Mexico State Land Office?

A. Yes, it has.

Q. Has notice of this Application been provided to all of the operators and interest owners in the Bagley Siluro-Devonian Pool?

A. Yes, it has.

Q. And has notice been provided to all the operators of Devonian wells within one mile of the pool boundaries?

A. Yes.

Q. Is Paladin Exhibit Number 5 an affidavit with the attached notification list?

A. Yes, it is.

Q. Okay. Now, as I go through the green cards for this exhibit, I notice that there was a repeat done with respect to the notice provided to Apache, to Goodrich and to JPH; is that correct?

A. That's correct.

Q. Is that the reason why Paladin had to seek a continuance of the hearing in this matter, so that you could properly notify these parties?

A. Yes, that's correct.

Q. All right. There's also a return receipt missing for Saga Petroleum, LLC, within this package. The address that's listed for Saga Petroleum, is that the last known address for that company?

A. It's the last known address that we have.

Q. And is that an address that you've been able to use in the past and successfully provide notice to Saga?

A. Yes, I believe so.

Q. Okay. In your opinion, will the approval of this Application be in the best interest of conservation, the prevention of waste and the prevention of correlative rights?

A. Yes, I do.

Q. Were Paladin Exhibits 1 through 5 prepared by you or compiled under your direction and supervision?

A. Yes, they were.

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

EXAMINER CATANACH: Any objection?

MR. KELLAHIN: No objection.

EXAMINER CATANACH: Exhibits 1 through 5 will be admitted.

MR. FELDEWERT: And Mr. Examiner, that concludes my examination of this witness.

EXAMINER CATANACH: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Plaisance -- Did I say that right?

A. Plaisance.

Q. Plaisance. Mr. Plaisance, would you describe for me how Paladin is organized? You said you're the vice president of exploration and what else?

A. And production.

Q. Would there be geologists that work for you that you supervise?

A. No, I'm the only.

Q. How about an engineering staff?

A. No, I'm the only engineer.

Q. Do you have a degree in engineering?

A. No, I don't.

Q. So providing the engineering duties to Paladin you have to go to outside counsel -- I mean outside consultants?

A. We periodically do, yes.

Q. And have you done that in this case with Mr. Craig Adams?

A. Yes, we've consulted with Mr. Adams.

Q. Let's look at Exhibit 3. When I look at the structure map, may I discuss with you the fact that this is your interpretation? Did you make this interpretation?

A. Yes.

Q. When I look at Section 35, there are some blocks shaded in blue, and there's some others over in Section 3,

some down in Section 2. If I understood you correctly, you have told us that the Division has granted 40-acre nonstandard proration units for those areas outlined in blue?

A. That's correct.

Q. The order that established the pool rules is referenced at the bottom of the display. It says Order Number R-69-D of 1954?

A. Yes.

Q. Were any of these nonstandard proration units that you've identified on your display created after those rules were adopted?

A. I don't know.

Q. You do not know?

A. No.

Q. Let's look over in Section 3, in the northwest quarter. Paladin operates that property that's identified by wells that used to produce out of that pool?

A. That's correct.

Q. Are the dates associated with that well the dates of first production or the dates the wells were completed?

A. Yes.

Q. Which one is it?

A. The Paladin Caudle Number 2?

Q. Yes, sir.

A. 1-51 --

Q. Yes, sir.

A. -- was the date of completion in the Devonian.

Q. Oh, that's completion, all right.

A. Right.

Q. Those dates appear to predate the issuance by the Commission of the pool rules.

A. I believe the 1954 pool rule is the final ruling.

Q. Yeah. Were these carved out as exceptions from that pool, do you know?

A. Yes, I believe they were carved out, exceptions from the previous rulings and the final ruling.

Q. Yeah. When we look at Section 35, let's look at the southeast quarter and then look at the west half of the southeast quarter. I see two Paladin -- It looks like it's Paladin wells? Am I right?

A. I'm sorry, would you repeat that again? In the --

Q. Paladin Well Number 2 in the northwest of the southeast --

A. Paladin Number 2, yes.

Q. Yeah, it's February of this year. Is that an operated well by Paladin?

A. This is an operated well by Paladin, and February 2 in the box --

Q. Uh-huh.

A. -- refers to production data. If you look at the -- next to the circle on the well, 3-50 is the completion date.

Q. Got you. When I go down south of that and I get to the Paladin 1-A well --

A. Yes.

Q. -- that's a Paladin-operated well?

A. That's correct.

Q. When did Paladin start producing these as Devonian wells?

A. Paladin acquired the acreage and our position in this field from Collins and Ware in September of 1999.

Q. Were these wells producing at the time that you acquired them?

A. Yes, most of them were.

Q. Those wells are in a single spacing unit, are they not? It's an 80-acre spacing unit?

A. Presently.

Q. How under the Division Rules do you handle the allowable for that spacing unit?

A. We presently -- It's a cumulative production for both wells in the spacing unit, which is still under the allowable.

Q. The allowable for 80-acre spacing is 400 barrels

a day?

A. Yes.

Q. And if the spacing is reduced to 40, then the allowable drops to 320? Do you know?

A. I believe that's the reference on that particular depth.

Q. Well, the rule will speak for itself, Mr. Plaisance.

A. Yes.

Q. Let's look at Section 2 for a moment. Have you researched the Division records so that you can tell us why in Section 2 the southwest of the southeast has been added to a spacing unit that consists of the northwest of the southeast? Do you see what I'm looking at?

A. Would you repeat that, please?

Q. Yeah, in Section 2 --

A. Section 2 --

Q. -- look at the number 2. Immediately to the right of that is a standup spacing unit.

A. That's correct.

Q. Do you see that?

A. Yes, the Number 3.

Q. Yeah. It appears to cross a quarter-section line.

A. Yes, I see what you're referring to.

Q. It takes 40 out of two different 160s?

A. The BT "A" 1 and 3.

Q. Do you know why that happened?

A. I do not.

Q. When you go north of the Paladin Number 3, there is a laydown spacing unit for the Samson 5 and the 1-C. Do you see that?

A. Yes.

Q. Do you know why that's that way?

A. I do not.

Q. You made reference a while ago to the Paladin Number 3 well, which is over in Section 35. It's in Unit Letter L.

A. Yes.

Q. This is the well you described as a possible re-entry to kick off and directionally drill to a new bottomhole location?

A. Yes, that's correct.

Q. And your concern was, if you re-entered that well and had to share production and costs with the existing 80-acre spacing unit, that you would not have the capacity to do so within the limits of your disposal system?

MR. FELDEWERT: I'll object, I think it's -- Well, go ahead.

Q. (By Mr. Kellahin) What's your plans for the

Number 3 well?

A. Our plan is to re-enter, sidetrack and drill the Number 3 well to the Devonian and complete it as a Devonian producer.

Q. How does the dedication of an 80-acre spacing unit, as opposed to a 40, for that well, change anything?

A. Well, it's the sharing of the disposal capacity, as I pointed out before. We've, at substantial cost to us, have developed fieldwide disposal capacity. We would be nearing that capacity's limits with the completion of this well if we had to share that capacity. We feel that that capacity would be better served to Paladin if we dedicated it to other projects that had -- where we had higher working interest.

Q. All right, I'm not understanding you. If the Number 3 well is added as a producer, then you will generate additional water to be disposed of, right?

A. That's correct.

Q. How will that single well in its water production differ between a 40-acre spacing unit and an 80-acre spacing unit?

A. Well, our ownership would differ.

Q. Just halves the ownership?

A. Yes.

Q. It doesn't change the volume of water that has to

be disposed?

A. It doesn't change the volume of water, but it changes the economics of the project.

Q. Okay. When we look at the operation of the wells in here, you've indicated that the active wells are those in this light red color?

A. That's correct.

Q. Where are the remaining opportunities for additional wells at this point in the life of the pool? Recompletions or new wells?

A. Recompletions, primarily.

Q. Okay.

A. If you look at the -- again, the well density, it would indicate that recompletions would be the primary development potential in the pool.

Q. What are the drive mechanics of the reservoir?

MR. FELDEWERT: We're going to have a -- Our engineer is going to testify to that.

Q. (By Mr. Kellahin) Well, do you know what the drive mechanics are of the reservoir?

A. It's a water drive.

Q. Is this a bottom water drive or an edge water drive?

A. Well again, I think Mr. Adams can address that a little more clearly.

Q. Is there a structural component to the reservoir that affects the water-drive mechanism?

A. A structural component in what sense? In the depth of the structure, of the total thickness, thickness of the structure?

Q. Well, as a geologist you would appreciate the fact that if it's a bottom water drive, as that water migrates higher in the reservoir, the remaining oil opportunities in that reservoir are confined above the oil-water contact?

A. Well, the production from the majority of -- all of the active wells are again through high-volume withdrawal, submersible electrical -- submersible pump. So we're pulling quite a volume of water throughout the field presently, through the eight active wells. Not all of the volumes are identical. In general, they range from 800, 900 barrels a day to 6000 barrels of total fluid a day.

Q. Is there a point on the structure map below which you're unable to produce oil?

A. Again, the -- well, in the -- The downdip wells that are inactive generally went off production still making oil, but the total withdrawal of -- or the total economics for that particular well was possibly in question. These were prior to when we took over the field. Most of these were either on rod pump or, in the later

years, on electrical submersible pump.

Q. When we look at the structure map, can you estimate for me what the current oil-water contact is?

A. Oh, I think the oil-water contact is presently at the top of the structure.

Q. Okay. If you produce the Paladin Number 3 well in Unit Letter L of 35, you're going to have to do it with high-capacity lift pumps --

A. That's correct.

Q. -- that will move substantial volumes of water in order to produce the oil?

A. That's correct.

Q. How much water do you have to move for every barrel of oil?

A. Well, the oil cuts vary. And again, Mr. Adams has tables that he can address this to, he can show you the actual fluid withdrawal rates on a number of wells, specific wells, and the oil cuts. Again, they vary. And then he will be able to present those, on those statistics.

Q. If the spacing unit is divided for this spacing unit and we now have two 40-acre spacing units in the west half of the southwest quarter of 35 --

A. Yes.

Q. -- then whoever the owner is, whether it's Paladin or Apache, could drill a well on that 40?

A. Yes.

Q. How critical is it for that well to have the ability to dispose of the produced water?

A. Well, any well in the field is subject to disposal water handling capacity. Since all of the active wells -- and I would assume this would be the same -- subject to the same parameters -- disposal of produced water, high volume of fluid is essential.

Q. When we look at the map, show me the saltwater disposal wells.

A. The wells that are in blue and some of them -- well, they're blue and half blue, half yellow, which indicates that they were active well -- Devonian wells, in the past, the Number -- the BT "C" Number 4, which is in the southeast of the southwest quarter of Section 35 --

Q. I see that.

A. -- is a Devonian disposal well.

Q. Is that operated by Paladin?

A. Yes.

Q. Go north of that, the Number 3 well. It's split in the color code.

A. North of that?

Q. We're in Section 2.

A. No, I was referring to Section 35. I was starting from Section 35.

Q. I'm sorry.
A. I'm sorry.
Q. Okay.
A. The Number 4, the BT "C" 4 --
Q. Okay, that's a disposal well?
A. -- that's a disposal well.
Q. And we go south into Section 2, and there's the State "C" Number 2. That's a producer?
A. Yes.
Q. And we go southwest of that, there's the Number 3 well?
A. Right.
Q. And that's color-coded so it's split in half?
A. That's a saltwater disposal well.
Q. Okay, and then south of that the Number 4 --
A. South of that is a saltwater disposal well.
Q. Who operates those two?
A. Samson.
Q. And then I guess the remaining disposal well is over there in Section 2, and it would be in the northeast of the southeast?
A. That's correct, the B "D" Number 3.
Q. The Number 3. Who operates that?
A. That's Samson.
Q. Okay. So you only have one disposal well?

A. Well, we have another disposal well that isn't on this map. It's a little further west. Well, it wasn't a Devonian, though.

Q. Mr. Plaisance, I remember from December of last year on the Examiner docket for December 5th, Paladin had two applications before the Examiner. Do you remember those cases?

A. Yes.

Q. The first case was an application by Paladin to increase the depth bracket oil allowable in the pool to 1000 barrels for an 80-acre spacing unit. Do you remember that?

A. Yes, I do.

Q. Why was that filed by Paladin?

A. Well, the initial completion of the BT "C" Number 3 -- Number 5, excuse me --

Q. Uh-huh.

A. -- we felt we might additional -- while were testing it, but the production rates have since declined, and it's -- we withdrew it.

Q. Was there any other technical reason to support the request for the change in allowable from the 400 a day to 1000 barrels a day?

A. We felt at the time that we may exceed that rate with that well. But again it has since declined, and we

withdrew it.

Q. Also on that docket there was another case filed by Paladin to create a 40-acre spacing unit for the Paladin Number 3 well in Unit Letter L of Section 35. You're aware of that?

A. Yes.

Q. Why was that request made?

A. Well, it was a similar request as to what we are presently requesting, the economics, we felt we wanted to -- we needed a 40-acre spacing unit.

Q. What was the outcome of those cases?

A. We withdrew the -- both.

Q. Summarize for me again, Mr. Plaisance, why you believe we need to have downspacing in the pool, as opposed to continuing the current method of allowing a second well to be drilled on an infill basis?

A. Well, again, if you consult the map and look at the well spacing and the density, we feel that the current rules have been rendered obsolete by the development over the years, practical development in the field, that in -- through the numerous exemptions of the spacing rule, and the fact that so many infill wells were also allowed and drilled within the 80-acre spacing that the remaining reserves could -- or should -- would be recovered on 40-acre spacing, and it would also allow for more development

-- further development in the field.

Q. Are there any spacing units that Paladin operates in the pool that do not yet have an infill well, other than the one we've described for the Paladin Number 3, the one with Apache and Paladin?

A. There is in the north -- or rather the west half of the northwest of Section 2, the BT "I" Number 1.

Q. Is that the only other one?

A. That's --

Q. I can't see any others.

A. That's correct.

Q. Does Paladin have plans for an infill well in that opposite 40 acres from the parent well?

A. We don't have current plans.

Q. Is that a 100-percent working interest unit that Paladin controls?

A. Paladin, et al.

Q. Yeah.

A. Paladin as operator.

Q. Right. Who are the other working interest owners with Paladin in that spacing unit?

A. Our working interest owners are Cordillera Energy in Denver and Lynx Oil and Gas in Dallas.

Q. Have you made an assessment, a geologic assessment, with the assistance of an engineer, to try to

calculate the original oil in place in the pool?

A. No, we haven't.

Q. Have you done any volumetric calculations for the pool?

A. No, I haven't.

Q. Have you conducted any material balance calculations for the pool?

A. No, I haven't.

Q. Do you have any estimates of the remaining oil to be recovered from the pool?

A. Well, again, I think Mr. Adams may be able to address that a little --

Q. So your information in response to that question will have to come from him?

A. Yes.

Q. Okay. How thick a reservoir are we dealing with here?

A. The BT "A" Number 1 in the -- let's see, this is in the northwest of the southeast of Section 2, was the discovery well. And it found the Devonian section to be about 530 feet thick.

Q. Have you attempted to construct a gross isopach of the reservoir?

A. No, I haven't.

Q. Have you studied the logs for any of the wells of

the pool?

A. Yes, I have.

Q. Do you -- When you calculate the porosity off the log, do you use a cutoff point for determining porosity values?

A. All of the logs were original -- Most of them were micrologs, and it's very difficult to calculate the actual porosity. But in general, in the Devonian we have intervals that may range from 7- to 12-percent porosity that we find productive.

And all of the intervals are acidized on completion, and even some of the lower porosity intervals, I believe, are giving up some oil as well and contributing to the overall production rate.

Q. Have you had prepared decline curves for your producing wells?

A. Yes, we have.

Q. Is that something that Mr. Adams is going to be available for?

A. We haven't intended to submit them.

Q. So you don't propose to show what the estimated ultimate recovery is for each of the producing wells?

A. Each of the present active producing wells?

Q. Yes.

A. Well, we don't have -- We're not privy to

Samson's information, of course.

Q. As to your wells?

A. We hadn't discussed it.

Q. Do you have a sense of what you believe will be the recovery factor for the pool?

A. Well, again, we -- since -- For the total pool?

Q. Yes, sir.

A. Recovery factor? Well, in general, again, these wells are producing on average 2- or 3-percent oil cut, withdrawing anywhere from 1200 to 6000 barrels of total fluid a day, and much of the longevity of these wells really also depend on mechanical integrity and the economics of producing on high-volume electrical submersible pumps.

Q. At what economic point does it become uneconomic to produce the wells?

A. Well, again, it's subject to the variability in price, the cost for electricity and the overall cost for the mechanical equipment and how often they break down.

Q. Could you do it if the oil cut was less than 3 percent?

A. Again, it would depend on how much volume you're withdrawing.

Q. That's -- In a general way, that's about where you are now, right? You have 3-percent water cut?

A. In general, 2- to 3-percent oil cut.

MR. KELLAHIN: Thank you, Mr. Catanach.

MR. FELDEWERT: Mr. Catanach, I just need to clear up one thing for the record.

EXAMINER CATANACH: Go ahead.

REDIRECT EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Plaisance, who's the president of Paladin Energy Corp?

A. George Fenton.

Q. Is George Fenton an engineer?

A. Yes, he is.

Q. Does he have a PhD?

A. Yes, he does.

Q. And does he work with you on these --

A. Yes, he does.

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Okay, Mr. Plaisance --

A. Yes, sir.

Q. -- do you know why originally the Division would have granted exceptions to the 80-acre spacing for certain areas within this pool?

A. I don't know why, precisely, they did so.

Q. And it appears that some of these 40-acre spacing units have not even been developed, say in Section 35 --

A. That's correct.

Q. -- the northwest quarter?

A. That's correct.

Q. But those were all done as per 69-D, R-69-D; is that your understanding?

A. Yes, that is.

Q. The allowable situation, again, it's currently 400 a day, and going down to 40-acre spacing would not affect you adversely with the allowable going down?

A. No, sir.

Q. Okay. Now, does the State BT "C" Number 3, the well that you propose to -- I guess it's currently what, temporarily abandoned?

A. It is currently shut in.

Q. Okay, and you propose to re-enter that and directionally drill to a different bottomhole location?

A. We would abandon the current bottomhole location, we'd sidetrack the well out of the intermediate casing, we would kick it a certain distance, within 100 feet, to get away from the original wellbore and take it down through the Devonian -- to the Devonian.

Q. Now, was there mechanical problems with that well

that made it --

A. Yes, there were some casing problems in that well.

Q. Okay. Now that well -- From your understanding, that well has been producing or was drilled in 1963, it looks like?

A. Yes.

Q. And during the whole time that it produced, did it share in that -- was it dedicated to that spacing unit, the west half of the southwest quarter? Do you know?

A. I don't know the complete history of that spacing unit. It does appear to have been a little confused. I really can't say, again, through the complete history what the spacing unit really looked like.

Q. Okay. Relatively speaking, that looks like one of the better wells, cumulative-productionwise, in the pool. Is that your --

A. It is one of the highest producing wells to date.

Q. Okay, have you guys done any drainage data on that well, to ascertain maybe what that well has drained or what it is capable of draining?

MR. FELDEWERT: I'm sorry, I think we have a chart, Mr. Examiner -- I'm going to go through it with Mr. Adams -- that shows the cumulative production from that particular well.

EXAMINER CATANACH: Okay, so that's the next witness?

MR. FELDEWERT: Yes.

Q. (By Examiner Catanach) Okay. In terms of the -- It looks like there are some big differences between some of these wells in terms of producing capabilities. Can you explain that geologically? Is there a difference in the reservoir characteristics of this well?

A. Some of the wells, particularly the wells like the BT "C" 3, the BT "A" Number 1, the "C" 2 in Section 2 where they produced more than 2 million barrels of oil, even though they seem to be fairly closely spaced, some of them were completed with large open-hole intervals, as opposed to some of the others that were just completed with either perforations at the very top of the Devonian or small open-hole intervals. The original water level was somewhere around 330 feet, into the Devonian.

And it also is a component of how long it produced.

But in general it was -- again, some of them had large, very large overall intervals. And some of them did not go to submersible pumps till later in their productive lives.

Q. Just going through this exhibit, I've noticed -- and there may be an explanation -- that it looks like the

parent well on some of these spacing units a lot of times produced a significant amount of oil, and the infill well, drilled much later, doesn't have as good a recoveries. Could that be due to the fact that the parent well may have drained some of that acreage?

A. Well, some of the production histories that we saw also indicate that the operators at the time were adverse to producing large volumes of fluid. The original wells produced for longer periods of time. The first seven or eight years was on natural flow.

Then they went to rod pumps and then eventually to submersible pumps. Many of the infill wells went to submersible pumps later, and they also were perforated higher up in the structure. They were trying to avoid abundant water production, but by that time the water level had reached the top of the Devonian.

Q. Okay. How many wells does Paladin operate? Of the eight active wells, Paladin operates how many?

A. We operate, of the eight active, five.

Q. And Samson operates the other three?

A. The other three.

Q. Now, of the five wells you operate, you've examined the -- all your wells are on -- You've examined the ownership of all of those wells in the spacing units, and you found that it will be no change going from 80 to

40?

A. That's correct.

Q. And you've also examined Samson's spacing units?

A. Yes, as far as we could.

Q. But you don't know for sure; is that correct?

A. We have assurance from Samson that that is correct.

Q. Okay. So the only unit that's really going to be affected is the one for the State BT "C" Number 3, which in fact you -- if your Application is approved, it will change the ownership inasmuch as Apache will be cut out of production from that 3 well; is that correct?

A. Yes.

Q. The well in the southeast quarter, southeast quarter of Section 35, again, that looks like Paladin State BT "D" Number 3?

A. Yes.

Q. Is that a candidate for recompletion of any kind or --

A. We would like to convert that well to saltwater disposal.

Q. Okay. Now, you say that the economics are pretty well affected by production and water disposal and things like that. In your opinion, if we were to cut that spacing unit in half, would it be economic for Apache to drill an

additional well in that southwest southwest quarter?

A. Well, Apache would have to consider saltwater disposal handling, much as -- the same as we would.

Q. Well, in terms of obtaining production from the well, do you figure it would be economic? Do you think they'd get an economic producer in terms of oil production?

A. Well, we think that the production rate would probably be as good a rate as some of these -- let's say as good a cut as we're seeing exhibited in other wells. I don't know how -- The economics would depend on their cost for drilling, their cost for conversion of a saltwater disposal well, their overall cost, as opposed to that particular oil-cut production.

Q. If I'm not mistaken, you guys do have a pending application for a disposal well; is that correct?

A. Yes, we do.

Q. Is that for that Number 3?

A. That's for the Number 3.

EXAMINER CATANACH: Okay. In terms of notice, you guys provided notice to all the operators in the pool, which is just two currently?

MR. FELDEWERT: Correct.

EXAMINER CATANACH: All of the interest owners --

THE WITNESS: Yes.

MR. FELDEWERT: Yes.

EXAMINER CATANACH: -- in the pool. Anybody outside the pool?

MR. FELDEWERT: Within a mile of the Devonian producers, within a mile of the pool boundary here.

EXAMINER CATANACH: Okay, anybody that owns an interest in that Devonian formation within a mile --

MR. FELDEWERT: Correct.

EXAMINER CATANACH: -- correct? And the only one that you didn't get actual notice received was Saga?

MR. FELDEWERT: Was Saga.

THE WITNESS: Saga.

Q. (By Examiner Catanach) Has any other operator expressed any concern about your proposal, Mr. Plaisance?

A. No.

EXAMINER CATANACH: Okay, I think that's all I have.

MR. FELDEWERT: I just have a couple.

FURTHER EXAMINATION

BY MR. FELDEWERT:

Q. Where is Saga's interest, Mr. Plaisance?

A. Saga's interest is -- they have -- I believe it's the -- It's in Section 34, the west half of the southwest quarter of Section 34.

Q. So they are pretty far removed from any producing area --

A. That's correct.

Q. -- at this point? Okay.

There was -- Mr. Catanach asked you about the BT "C" Number 3 and what would happen in the event that they downspaced to 40 acres. There's presently no production in the BT "C" Number 3; is that correct?

A. That's correct.

Q. Okay. And indeed, there hasn't been any production from that well since when, 19- --

A. January, 1997.

Q. Okay. And Apache not only has that 40 acres to the south, but then they also have the acreage to the north of that well; is that correct?

A. That's correct.

Q. And that acreage up there is subject to 40-acre spacing?

A. That's correct.

Q. All right. So they would have the ability, if they desired, to drill a number of wells that are potentially productive in this pool; is that correct?

A. That's correct.

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

EXAMINER CATANACH: Okay.

MR. FELDEWERT: We then call our next witness, Mr. Examiner.

CRAIG H. ADAMS,

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

DIRECT EXAMINATION

BY MR. FELDEWERT:

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

A. Craig Adams, from Dallas, Texas.

Q. Mr. Adams, by whom are you employed and in what capacity?

A. I'm employed by Netherland, Sewell and Associates as a consulting engineer.

Q. Now, have you previously testified before this Division?

A. No.

Q. I want you to turn to what's been marked as Paladin Exhibit Number 6. Is that your résumé?

A. Yes.

Q. Okay. Using that, could you just briefly summarize for the Examiner both your educational background and your work experience?

A. I received a BS in petroleum engineering from Texas Tech in 1985. I worked ten years for Exxon, seven years in Corpus Christi, Texas, as a reservoir engineer and production engineer in south Texas. I worked three years

for Exxon in New Orleans, Gulf of Mexico, southeastern United States, as a reservoir engineer and drilling engineer.

I spent a year and a half in Tulsa working with Vintage Petroleum as an acquisitions engineer. We looked at acquisitions all over the United States and internationally, but particularly we looked at some in southeastern New Mexico.

And for the last six years I've been with Netherland Sewell as a consulting engineer, looking at projects internationally and domestically, which include projects in southeastern New Mexico. Specifically, I've been looking at Paladin's properties for the last three years.

Q. So your experience has included the Permian Basin area?

A. Yes.

Q. Okay. Are you familiar -- You said you've been working with Paladin's properties for the last three years. Where are Paladin's properties located?

A. In Lea County, New Mexico.

Q. Are you familiar with the Application filed by Paladin in this case?

A. Yes.

Q. Have you reviewed the production history of the

Bagley Siluro-Devonian Pool and conducted a technical study of the area?

A. Yes.

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

A. Yes.

MR. FELDEWERT: Mr. Examiner, at this time I would offer Mr. Adams as an expert witness in petroleum engineering.

EXAMINER CATANACH: Any objection?

MR. KELLAHIN: No objection.

EXAMINER CATANACH: Mr. Adams is so qualified.

Q. (By Mr. Feldewert) Mr. Adams, when did the development of this pool essentially take place?

A. The majority of the development took place in the 1950s. It's produced about 30 million barrels of oil from 27 wells over a three-section area. Today there's eight producing wells, really located right at the crest of the structure. One of the wells is a new well by Samson I don't have data on. Of the other seven wells, they average about a hundred barrels of oil per day, and they range from about 30 barrels of oil a day all the way up to 280 barrels of oil per day.

The BT "C" Number 5, which David has pointed out in the northeast of the southwest quarter of Section 35,

the red well that we've mentioned, that well is producing at a 19-percent oil cut. All the other wells in the field are producing between 1- and 3-percent oil cut.

Q. Is that particular well the one that's producing at present 284 barrels of oil?

A. Yes.

Q. Okay. The remaining production -- the production from the remaining wells, did they even come close to that level?

A. No, there's -- 100 barrels a day, in that range, would be more typical.

Q. Okay. Would you -- Let me ask you this: Is there any other producing well in the area that has a 19-percent oil cut?

A. No, all the other wells are in the 1- to 3-percent oil-cut range.

Q. Would you please describe for the Examiner the nature of the reservoir in this pool and its production characteristics today?

A. It's a thick fractured dolomite, it has a strong bottom water drive, and the wells produce large amounts of fluid with very little gas.

Q. From an engineering standpoint, do you believe it makes sense to continue with 80-acre spacing for this pool under the pool rules that were adopted over 50 years ago?

A. No, in my opinion, at the current state of depletion in this very mature field, the wells are not going to drain beyond 40 acres. So it would make more sense to go back to statewide rules.

Q. Why don't you explain the basis for your opinion?

A. Well, it's been demonstrated historically by the operators who have essentially developed this field on 40-acre spacing. The reason I think this has been necessary, there's a very strong bottom water drive. It's a thin oil column -- now it's a very thin oil column -- underlain by a thick aquifer with a strong bottom water drive. As the wells produce, they cone this water up into the wellbores. And at this point in its life what has occurred is, there's thin bypassed oil columns that this coning of water from beneath is not going to allow wells to laterally drain. The only way you're going to get to that oil is to put another well on that 40-acre location.

Q. So with respect to the production characteristics of the existing wells today and any future drilling or recompletion, do you have an opinion as to what existing wells -- what drainage area the existing wells have today?

A. I don't believe any of the existing wells will drain beyond 40 acres, and I don't believe any future wells drilled into this field are going to drain beyond 40 acres.

Q. And that would include any recompletions?

A. Yes.

Q. Why don't you turn to Paladin Exhibit Number 7, identify that and review that for the Examiner, please?

A. The purpose of Exhibit 7, that I'll describe in a minute, is just to show the results of the two most recent wells we have data on. There is a more recent well, the Samson well, that was just drilled, that we don't have data on.

But prior to that, the two most recent wells have been drilled for the most -- effectively as 40-acre offsets with multiple direct and diagonal offsets on 40-acre spacing. Those direct and diagonal offsets have been producing 30 to 50 years prior to when the new well was drilled, and it produced many millions of barrels of oil.

The wells that it's offsetting, the wells that the new wells are offsetting, were at very low oil cuts, 1- to 3-percent, and at low oil rates, as you'll see, 50 to 100 barrels of oil per day.

I think what the success of these infill wells demonstrate is that there is bypassed oil in these locations that you'll never produce unless you actually put a well on those 40-acre locations.

If you'll look at that Exhibit Number 7 -- and you should probably have the map handy too -- we'll kind of walk through what that shows.

Q. And you're going to focus first on the BT "C" Unit Number 5, which is what we discussed here this morning?

A. Correct. The top of the table, the first table on this page, is the BT "C" Number 5 and its direct 40-acre -- direct and diagonal 40-acre offsetting wells. And in a field that is this mature, really the empirical data is the best way to try to describe what's going to happen in the future. The data is very old, it's very poor quality. Trying to estimate original oil in place at this point would not give you a valuable answer. The empirical data is going to definitely tell you the most likely occurrence. And that's what we've done here, we've looked at the empirical data.

If you look on the table, the first column is the well. And it lists the -- The highlighted well is the BT "C" 5 that was just drilled last October.

The second column is the initial --

Q. Now let me stop you there.

A. Okay.

Q. Is that a recompletion, or was that a drilling?

A. It was a drilling -- It was deepened. It's a drill well.

Q. Okay, go ahead.

A. The second column is the initial completion date.

The third column is the cumulative oil produced by that well.

The next column is the last production date. You can see the State BT "C" 5 is active, as are two of its offsets. The other two ceased production in the 1970s and 1990s.

And the next column is the last production volume and the percent oil cut at its last production date.

So if you refer to your map, if you see the State BT "C" 5 there in the northeast of the southwest quarter of Section 35, that well was drilled last October. It's currently 284 barrels of oil a day, 19-percent oil cut. It's cum'd 27,000 barrels of oil.

If you look due south, you'll see the next well in the table, the BT "C" Number 4. Completed in 1949, cum'd 1.7 million barrels of oil, went off production in 1974, producing 14 barrels of oil at a 1-percent oil cut.

If you look due to west you'll see the BT "C" 3, which is the next well in the table. Initially completed in 1963, cum'd 2.3 million barrels of oil, went off production in January, 1997, due to mechanical problems. It was producing 63 barrels of oil per day at a 6-percent oil cut.

The next well in the table, the BT "D" Number 1, is the southeast diagonal offset to the BT "C" 5. Initial

production 8 -- August of 1974. It's cum'd almost a half a million barrels of oil. It's currently active at 59 barrels of oil and 2-percent oil cut.

And then the last well is due east, the State BT "D" 2. Initially completed in 1950, cum'd 1.5 million barrels of oil. It's actively producing 41 barrels of oil per day at a 3-percent oil cut.

And what I believe that the success of the BT "C" 5 states is that you can look at four wells that are either direct or diagonal 40-acre offsets that were essentially at their last stages of depletion, and they were able to make a well with a high oil rate and high oil cut. And that is oil that would never have been produced without that 40-acre location.

So I believe what that is access to some of these thin, bypassed oil columns that are created by this water-coning up into the producing wells, and that oil will not be recovered without an additional well on the 40-acre location.

Q. Okay, now, I want to make sure I understand here. In your opinion do you believe that this is additional recovery that would otherwise not be recovered, or is it just accelerating the recovery that you would expect from the offsetting well?

A. That is additional recovery that you would not

have recovered. You can see those other wells are at a very low rate, very high -- very low oil cut. They're very near depletion. They would have never produced this oil.

Q. Okay. Then you have another example of --

A. Yeah, another example is the well drilled previous to that, the State BT "A" 3, which if you'll look in Section 2 it is the southwest of the northeast quarter, Well Number 3. Do you see that well?

Its initial completion was in January of 1992. However, it was a very poor completion, just produced a very short time and was shut in. It really never produced until 2001 when Paladin reworked the well, stimulated the well and was able to bring it on production in 2001. So most of that 94,000 barrels of oil that it has produced has all happened since 2001. When Paladin stimulated it and brought it on, they brought it on at 160 barrels of oil per day, with the 5-percent oil cut.

And it's basically the exact same argument again. If you look at all the wells that are either direct 40-acre or diagonal 40-acre offsets, they've been producing for 30 to 50 years prior to the drilling of this well. They've produced many million barrels of oil and were at the very last stages of depletion, had very low oil cuts. However, they were able to drill this well and make a significant amount of oil. And that's oil that you would not produce

unless you put an additional well on that 40-acre location.

One well that I probably should point out because it really stands out, it's the -- first, second, third, fourth -- fifth well down in this table on the BT "A" 3, State BD Number 3. If you see that and look in the far right column, it had a 52-percent oil cut. That well is located on the map just southeast of the Number 3. This data is really not very --

Q. Let me catch up with you.

A. Okay.

Q. That's in a 40-acre spacing unit, down towards the bottom of the map, it's --

A. Yes.

Q. -- got a 10 next to it?

A. Yeah, it would be the northeast of the southeast quarter of Section 2, if you see that.

Q. And there's a 10/86 next to it?

A. Yes, exactly.

Q. All right.

A. That well was essentially a dry hole. It was -- first production in October of 1986, last production was three months later in January of 1987. That last production reported was 17 barrels of oil per day at a 52-percent oil cut. It's the 52-percent oil cut that I thought you probably would see stands out. That was

essentially a dry hole. A 52-percent oil cut with 17 barrels, it was only making about 30 barrels of fluid a day, as opposed to 3000. I don't know why it was such a poor well, but it was a very poor well. It was drilled in a very poor price time, maybe why they didn't continue to work with it. But that well does stand out, I want to point that out.

Of the wells surrounding the 3, only two are still active, as you'll -- well, three counting the Samson well are active. But again, the point of this was just to show that in the last few years they've come in, drilled a 40-acre location that was offset by numerous wells that had been on production for 30 to 50 years, and we're at the later stages of their depletion, and they're able to recover significant additional amounts of oil, which I think demonstrates empirically that you need a 40-acre well at this stage to get that last bit of the oil column that's been bypassed.

Q. In your opinion, will any future wells or recompletions in this depleted pool effectively drain 40 acres or 80 acres?

A. I don't believe that any future well will drain beyond 40 acres.

Q. And in your opinion, do the existing wells in this depleted field effectively drain 40 acres or 80 acres?

A. No, as demonstrated by these two infill wells I don't believe that they can drain beyond 40 acres.

Q. In your opinion, will abolishing special pool rules and reverting back to the statewide 40-acre spacing be consistent with the production characteristics that you now see in this field today?

A. Yes.

Q. And will that -- in your opinion will the -- any additional recompletions or drilling in this field, will that recover additional reserves that would otherwise not be recovered?

A. Yes, future completions on these 40-acre locations will be additional reserves that won't be recovered without that completion.

Q. Okay. And 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.

Q. Were Exhibits 6 and 7 prepared by you or compiled under your direction and supervision?

A. Exhibit 3 and 7?

Q. I'm sorry, 6 and 7.

A. Oh, 6 and 7, okay, yes, they were.

MR. FELDEWERT: Okay. Mr. Examiner, at this time

I would move the admission into evidence of Exhibits 6 and 7.

EXAMINER CATANACH: Any objection?

MR. KELLAHIN: No objection.

EXAMINER CATANACH: Exhibits 6 and 7 will be admitted.

MR. FELDEWERT: That concludes my examination of this witness.

EXAMINER CATANACH: Mr. Feldewert.

Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Adams, have you worked this type of Devonian reservoir, other than this pool?

A. Yes.

Q. You testified that you believe it's a strong water drive reservoir?

A. Yes.

Q. That water drive is coming from the bottom of the reservoir?

A. Yes, it's a 500-foot thick Devonian interval with a very thin oil column on the top.

Q. Describe for me as an engineer what you propose to accomplish with one well per 40 acres that you cannot

now achieve under the current 80-acre spacing rules?

A. As an engineer what I can say is that you need a straw in each 40-acre location.

Q. And you can have that under the 80-acre spacing rules, can you not?

MR. FELDEWERT: Objection, I think it calls for speculation and depends upon the circumstances associated with this particular spacing unit.

Q. (By Mr. Kellahin) Mr. Adams, do you know how many wells you can have in an 80-acre oil spacing unit in New Mexico?

A. This provision would allow for your first well and then an offset, as far as I'm aware.

Q. Do you know if two wells is the maximum?

A. No, I don't.

Q. You've talked about drainage areas. Let's see your drainage calculation.

A. This field does not really lend itself to a drainage calculation. Initially, when you had a several-hundred-foot oil column, you could drain oil from a long ways away from the well. Today what you have is essentially a watered-out reservoir. Even a well at the very crest is only a few percent oil.

What you have now is water all the way to the top of the Devonian. And because this water has come up from

the bottom, there are thin bypassed oil columns, and that's demonstrated by the success of the last two infill wells, that show that that oil cannot be produced out of the existing wells.

Q. Before any water or oil was withdrawn from the pool, could you have gone back and calculated the original oil in place for the pool?

A. You could have with the proper data. Most of these wells didn't really penetrate the whole Devonian. The data is from the 1950s and is very poor quality, so -- You also have fractures that play a big part in it. It would have been a difficult -- but you could have estimated the oil in place. I didn't see value in that at this point.

Q. When you gave me the existing wells, we have what? Eight existing wells?

A. There's eight producing wells.

Q. Eight producing wells. You've testified that they'll all drain less than 40 acres?

A. Any future production from any well in this field should drain less than 40 acres, as demonstrated by the success of these two wells that drilled right in the middle of those wells and found an existing oil column.

Q. How do you know it's not more than 40?

A. How do I know it's not more than 40?

Q. Uh-huh.

A. I don't know if it's -- I know it has not affected the location of these wells, that's all I can say. Where these wells were drilled there was a bypassed oil column. They were drilled on a 40-acre location.

Q. Have you attempted to do any volumetric calculations of the reservoir?

A. No, as I said, the data is very poor, very old, and at this mature state of depletion really the empirical data is really the best way to decide what the performance of the field is going to be.

Q. Have you estimated additional oil recovery remaining, an EUR for the wells?

A. As part of the year-end reserve report we estimate the remaining reserves for wells, although that's not for all future locations. That was really just for existing wells.

Q. When we talk about the existing wells, we're looking at the existing producing wells?

A. Exactly.

Q. And out of that population I think we were told that Paladin has five of those?

A. Yes.

Q. Of the five wells, do you have estimated ultimate recoveries for each of the five?

A. Yes, we did that as part of the reserve evaluation.

Q. As a reservoir engineer, Mr. Adams, how would you calculate a drainage area in this pool?

A. In this pool it would be very difficult because of the -- you have to look at the situation you have today versus the situation initially. If you could estimate the original oil in place, you could estimate where oil may have come from at that time. But what you would need to look at is, at the current stage of depletion, where are we going to be able to drain oil today? And as demonstrated by the fact that we put two more straws in the field and found bypassed oil, there are -- you won't get the oil that's bypassed without putting another straw in the --

Q. Have you attempted to construct decline curves for any of the wells?

A. Yes, that's essentially how the producing reserves were estimated.

Q. Have you constructed production decline curves for each of the wells?

A. Yes.

Q. Have you looked at that production to see if production in one well was affecting production in an offsetting well?

A. You can see no interference.

Q. Do you have an opinion as to where the current oil-water contact is in the reservoir?

A. The true oil-water contact would probably be at the very top. It would be very difficult to -- There is not what you would call a classic oil-water contact anymore. A well at the very top of the reservoir is making 99-percent water. So there is some bypassed oil, but there's not a true contact in the way you typically think of that.

Q. Let's look in Section 2. Do you have the locator map?

A. Yes.

Q. Look in Section 2. You've given us the Number 3 well over in the southwest of the northeast?

A. Yes.

Q. And that's one of the wells shown on your Exhibit 7 --

A. Yes.

Q. -- right? Go up to the northwest and see the Number 5 well. It's the Samson Number 5.

A. Yes.

Q. Let's walk around that well.

A. Okay.

Q. If we go downstructure to the west, we get a Paladin well that's a producer?

A. Downstructure to the -- Okay, Paladin 1, yes.
Q. Do you see that?
A. Uh-huh.
Q. Why is the Paladin 1 a producer and the Samson 5 not?
A. Well, the Samson 5 was producing up until February of 2002.
Q. Uh-huh.
A. And even at that point it was still 124 barrels of oil per day on its last recorded production.
Q. Yeah.
A. I suspect they have some kind of mechanical problem --
Q. Yeah.
A. -- because that looks like it was a nice well up to that point. I don't know why they've ceased to produce it, but its last reported production looked like it was economic.
Q. Well, the map would lead you to that conclusion, that there must be something wrong with the wellbore?
A. I assume that there's a mechanical reason that they're not.
Q. So as we move south of that, the well in the southeast of the northwest, the Number 2 well --
A. Yes.

Q. -- State "C" 2, is that a Paladin well?

A. That is a Samson well.

Q. That's a Samson well. So those two wells are able to produce oil and be at a downstructure position to the Number 5 Samson well?

A. Yes.

Q. Have you studied the relationship of the Paladin Number 3 well in the southeast southeast of 35? I think we were told a while ago that's a potential saltwater disposal well?

A. Let's see, the -- Okay, the southeast southeast of 35.

Q. Yeah.

A. I have not studied that in detail, no, I have not.

Q. Have you drawn any engineering conclusions about the remaining opportunity in that well as a producer?

A. No, we have not looked at remaining reserves in that well.

Q. Its structural position seems to be relative and maybe slightly better than the Paladin Number 2 well up to the northwest?

A. Yeah, there's a possibility you could redrill the well there and achieve something similar to what the Paladin 2 is making.

Q. When you look at the northwest quarter of 35, do you see opportunities as an engineer for new wells to be drilled in any of those 40-acre units?

A. Yes, the one just due north that was recently drilled is essentially on strike or updip to producers within the field, and it's offsetting a very successful Well Number 5.

Q. You have concluded as an engineer that you believe that we could have one well per 40-acre area?

A. What I conclude is that wells that were drilled or completed on undrained or previously unpenetrated 40-acre completions are recovering additional oil that you never would have received. I can't tell you whether that would be duplicated if you took the spacing down farther, I don't know. But certainly at 40 acres they've drilled locations that had bypassed oil.

Q. I don't want to misunderstand your testimony. On 80-acre spacing, if we have a parent and an optional infill well, that is the same density we would have if we downspaced the pool to 40 acres per well?

A. Yes.

Q. So other than the fact that you believe an additional well is justified in an 80-acre spacing unit, or that one well in a 40-acre spacing unit is appropriate, there's no other difference between 80-acre spacing and 40-

acre spacing?

A. There's no difference from a reservoir-performance standpoint, it's just whether the well would actually be economic to drill or not, exactly.

Q. As a reservoir engineer, can you describe for us any methodology that we should examine to determine a drainage area for any of these existing producing wells?

A. I would recommend not trying to calculate a drainage area. What I would recommend is looking at performance of wells and using analogy. At this point I think it's going to give you a much better answer than trying to work from a drainage area standpoint.

Q. Is there any way to do any type of material balance calculations in the pool?

A. I mean, you could perform material balance calculations. I'm not -- I don't believe that they would give you any valuable information.

Q. Why not?

A. There would be a great deal of unknown data because of the old -- the vintage of the data, quality of the data, it didn't penetrate many wells. And I believe at this point in life the reservoir performance and well performance is going to give you -- If your material balance doesn't agree with that, I would say there's something wrong with your material balance, then, not with

the empirical data.

Q. Have you assisted Paladin as a consulting engineer for any of the other projects they may have had in this pool, other than this particular case?

A. I have done the reserve work for Paladin for the last three years in all of their fields.

MR. KELLAHIN: I have no further questions.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Adams, if I'm looking at this from the point view of maybe protecting the correlative rights of Apache down in that southwest southwest quarter of Section 35, what can you point to that you've presented today that would help me to say that you guys are not going to drain their acreage by that Number 3 recompletion?

A. If you look at the performance of the Well 3 and 5 that we've shown, what it says is that at this current stage of depletion with these thin bypassed oil columns is that we're not impacting the oil on these undrilled 40-acre locations. Based on that, I would say that if you produce any additional oil out of Number 3, it's going to have no effect on the oil in the southern part of that 80-acre location. I mean, you can see that well has already produced 2.3 million barrels of oil. That's the vast majority of the oil that that well will ever produce, even

if it's re-entered.

At this point in its depletion, I don't believe that you can affect wells beyond 40 acres, and I think that's been demonstrated by those two 40-acre wells that were recently drilled and found bypassed oil.

Q. Do you guys have an estimate on what will be recovered through that recompletion?

A. I have not -- I don't know if that was part of our year-end reserve evaluation or not. I can't remember if we were looking at that workover at that time or not. I don't have anything with me on the reserves for that.

Just -- what you would say is, you can feel fairly confident that you can achieve what they had before when it was mechanically lost, which was a well that was capable of 63 barrels of oil per day at a 6-percent oil cut.

MR. KELLAHIN: I'm sorry, what was that oil cut?

THE WITNESS: Well, at the time it was abandoned, the rate was 63 barrels of oil per day at a 6-percent oil cut. Now, it has potential to be much better than that because they could move more fluid now. But I would say you're going to go back and find a well very similar to the well that was left when it was junked.

Q. (By Examiner Catanach) Uh-huh. Now, did you in fact look at -- When the Number 5 well was recompleted back

in October of 2002, did you in fact look at the offset wells to see if there was in fact no interference from the well?

A. Yeah, what you see in these wells, 3000 to 5000 barrels of fluid being produced a day with a 1- to 3-percent oil cut, there's really no distinct -- you can't really see anything happening as other wells are brought on or off. They're still high-fluid, low-oil-cut producers with very little gas. You don't see any type of interference.

Q. You didn't see any drop off at all?

A. No, not at all.

EXAMINER CATANACH: I don't think I have any further questions.

MR. FELDEWERT: I don't have any.

MR. KELLAHIN: I have a follow-up here.

EXAMINER CATANACH: Go ahead, Mr. Kellahin.

EXAMINATION

BY MR. KELLAHIN:

Q. Let's come back to -- Mr. Adams, to the Paladin Number 3 well --

A. Okay.

Q. -- in Unit Letter L, in the south half of that spacing unit, the Paladin-Apache acreage --

A. Yes.

Q. -- that 40-acre tract. In your opinion, is there remaining oil that can be recovered in that 40-acre tract?

A. Yes, in my opinion you have a high likelihood of being able to bring on a high-volume well that could produce 3 to 5 percent oil.

You have an outside chance -- Well, there's a possibility you could actually make a much better well with the bypassed oil. But certainly you could move a lot of fluid, and it should still have the typical 1- to 3-percent oil cut.

Q. If the well is not drilled in that 40-acre tract, where does the oil go?

A. That oil will be sitting there until another straw is placed there.

Q. The water component of the reservoir is not going to displace the oil?

A. No, at this point what I believe has happened over the last 50 years -- and this can be demonstrated by the last two wells drilled -- is that so much of the energy right now is coming from underneath the wells that they're just not able to move out effectively, laterally from the wellbore.

Maybe in a thousand years you might be able to impact that, but in no real time frame could you impact that.

That to me explains why you can come in and drill the Number 5 on an undrilled location, surrounded by depleted wells that have made millions of barrels of oil, and still make a nice completion.

Q. Do I understand you to tell me that you can get the remaining oil if you have the capacity to produce and dispose of the water?

A. I do not believe, regardless of your capacity, that you will get the oil out of the south half of that 80-acre location without putting a straw there.

Q. So if the straw is placed there, the biggest problem is not the oil, it's what to do with the water?

A. Exactly. Can you economically drill a well and economically put in a saltwater disposal system to handle what's going to be 3000 to 5000 barrels of water a day?

Q. On economics, do you have an estimate of what a new-drilled well in the Devonian would cost?

A. No, I have not -- I don't have -- I have not looked at that, no.

MR. KELLAHIN: Nothing further.

EXAMINER CATANACH: Anything further, Mr. Feldewert?

FURTHER EXAMINATION

BY MR. FELDEWERT:

Q. Mr. Adams, will the acreage to the north of the

BT "C" Number 3, will it have the same production characteristics and the same economics associated with any well drilled on those 40-acre tracts as you would find in -- to the south of the BT "C" Number 3? Are you going to have the same water issues?

A. Oh, you would have the -- you would have the exact same water issues. It would be a little bit downstructure, which would -- which, you like structure, although at this point I think the water is all the way to the top.

It would be a little downstructure, but it would probably still be, at worst, a very high-rate -- a very high-volume, low-oil-cut producer.

And because there hasn't been a straw in that place before, you also have a chance of finding a bypassed oil column.

MR. FELDEWERT: Okay, thanks. That's all I have.

EXAMINER CATANACH: Okay. Would you gents like to take a shot at a draft order? Mr. Kellahin?

MR. KELLAHIN: Yes, sir.

EXAMINER CATANACH: Mr. Feldewert?

MR. FELDEWERT: What's that?

EXAMINER CATANACH: Would you like to take a shot at a draft order in this case?

MR. FELDEWERT: Sure, be happy to. Thank you.

EXAMINER CATANACH: Okay. There being nothing further in this case, then, Case 13,064 will be taken under advisement.

MR. FELDEWERT: Thank you, Mr. Examiner.

(Thereupon, these proceedings were concluded at 12:33 p.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 13064, heard by me on May 22 2003.

David K. 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 May 26th, 2003.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006