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:

ORIGINAL

APPLICATION OF CHESAPEAKE OPERATING, INC., FOR STATUTORY UNITIZATION OF THE CARTER-SHIPP STRAWN UNIT AREA, LEA COUNTY, NEW MEXICO — CASE NO. 14362

and

APPLICATION OF CHESAPEAKE OPERATING, INC., FOR APPROVAL OF A WATERFLOOD PROJECT AND QUALIFICATION OF THE PROJECT AREA OF THE CARTER-SHIPP STRAWN UNIT FOR THE RECOVERED OIL TAX RATE PURSUANT TO THE ENHANCED OIL RECOVERY ACT, LEA COUNTY, NEW MEXICO — CASE NO. 14363

REPORTER'S TRANSCRIPT OF PROCEEDINGS
EXAMINER HEARING

BEFORE: RICHARD EZEANYIM, Presiding Examiner
DAVID K. BROOKS, Legal Examiner
TERRY G. WARNELL, Technical Examiner

September 17, 2009

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, RICHARD EZEANYIM, Presiding Examiner; DAVID K. BROOKS, Legal Examiner; and TERRY G. WARNELL, Technical Examiner, on Thursday, September 17, 2009, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive, Room 102, Santa Fe, New Mexico.

REPORTED BY: Jacqueline R. Lujan, CCR #91
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A P P E A R A N C E S

FOR THE APPLICANT:

WILLIAM F. CARR, ESQ.
HOLLAND & HART
110 North Guadalupe, Suite 1
Santa Fe, New Mexico 87501

E X H I B I T S

MR. EZEANYIM: At this point, we'll call two cases. These two cases can be heard at the same time, so I'm going to call them. The first one is Case Number 14362, application of Chesapeake Operating, Inc., for statutory unification of the Carter-Shipp Strawn Unit area, Lea County, New Mexico, and Case Number 14363, application of Chesapeake Operating, Inc., for approval of waterflood project and qualification of the Project Area of the Carter-Shipp Strawn Unit for the Recovered Oil Tax Rate pursuant to the Enhanced Oil Recovery Act, Lea County, New Mexico. Call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the Santa Fe office of Holland & Hart. We represent Chesapeake Operating, Inc., in these cases, and I have three witnesses.

MR. EZEANYIM: Any other appearances, please? Okay. May the witnesses stand up, state your names and be sworn in.

MR. FROHNAPFEL: Terrence Alexander Frohnapfel.

MR. CARR: Would you spell your last name?

MR. FROHNAPFEL: F-r-o-h-n-a-p-f-e-l.

MR. MARTIN: Robert Martin, M-a-r-t-i-n.

MR. BRADLEY: Everett E. Bradley.

(The witnesses were sworn.)

MR. CARR: May it please the Examiner, at this time we call Terry Frohnapfel.

TERRENCE FROHNAPFEL

Having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

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

A. Terrence Alexander Frohnapfel.

Q. Mr. Frohnapfel, by whom are you employed?

A. Chesapeake Energy Corporation.

Q. What is your current position with Chesapeake Energy Corporation?

A. I'm a senior landman.

Q. What is the relationship between Chesapeake Energy Corporation and Chesapeake Operating, Inc? Are they affiliated companies?

A. Yes.

Q. And Chesapeake Operating, Inc., is the operating arm for Chesapeake Energy?

A. That's correct.

Q. Have you previously testified before the New Mexico Oil Conservation Division?

A. Yes, I have.

Q. Have you testified previously before Examiners

Warnell, Ezeanyim and Brooks?

A. No, I have not.

Q. Would you briefly summarize your educational background?

A. I'm a graduate of Oklahoma State University, 1979. I have a degree in business marketing.

Q. And since graduation, for whom have you worked?

A. I've got 24 years' experience as a petroleum landman working for various companies. The last four and a half were Chesapeake.

Q. Are you the land person at Chesapeake responsible for the unitization of the Carter-Shipp Strawn Unit?

A. Yes, I am.

Q. Are you familiar with the applications filed in each of these consolidated cases?

A. Yes.

Q. Are you familiar with the status of the lands involved in the Carter-Shipp Strawn Unit area?

A. Yes.

MR. CARR: We tender Mr. Frohnapfel as an expert in petroleum land matters.

MR. EZEANYIM: Mr. Frohnapfel, do you have a CPL, Certified Public Landman? Have you described

yourself as a certified public landman?

THE WITNESS: I do have a CPL.

Q. (By Mr. Carr) How many years have you worked as a petroleum landman?

A. Over 20. Probably 24, total.

MR. EZEANYIM: Mr. Frohnapfel is so qualified.

Q. Mr. Frohnapfel, would you briefly state what Chesapeake seeks with this application?

A. Statutory unitization of the proposed Carter-Shipp Strawn Unit, 360 acres, approval of a waterflood project in the unit area, and qualification for the incentive tax rate authorized by the New Mexico Enhanced Oil Recovery Act.

MR. EZEANYIM: Let me stop you right there. When I was reading the application, I saw 840 -- is that a typo -- the number of acres you are trying to unitize. That should be a typo. I saw it a couple of times, and then I read the other one, and I went and saw 360, but the application was saying 840, so I didn't know which one is correct. Is this 360?

THE WITNESS: It's 360.

MR. EZEANYIM: So, just for the record, that might be a typo?

MR. CARR: Yes. I think it probably was.

Q. (By Mr. Carr) Mr. Frohnapfel, the Strawn formation is the principal objective here, is it not?
A. Yes.
Q. That is in the Northeast Lovington Upper Penn Pool?
A. Yes.
Q. When was that created?
A. By Order Number R-3816 in September 1969.
Q. And what formations are basically included within the definition of this pool?
A. Cisco Canyon and Strawn.
Q. Is this the area in which we're proposing to unitize an old area?
A. Yes, it is. It's all old leases and it's all fee lands.
Q. These are old HBP leases?
A. Right.
Q. Could you identify what has been marked as Chesapeake Exhibit Number 1?
A. That's a map of the proposed unit area showing the outline, 360 acres, including the four wells that we'll be re-entering.
Q. This shows it's all fee acreage?
A. Yes.
Q. And it is 100 percent fee land?

A. Yes.
Q. Let's go to what has been marked Exhibit Number 2. Would you just identify that?
A. That's a unit agreement. It's the standard form that's used by the OCD, the state form.
Q. You have made changes only as necessary to reflect that it is just fee land?
A. Correct. That's right.
Q. Does this unit agreement provide for water flooding?
A. Yes, it does.
Q. Is that in Section 11?
A. Yes.
Q. Is the basis for participation of the interest owners in the unit area also set out in the unit agreement?
A. Yes. Section 12, page 7.
Q. Will Chesapeake call an engineering witness to review the participation formula?
A. Yes.
Q. Mr. Frohnapfel, would you just identify for me what has been marked as Exhibit Number 3?
A. Okay. That's the Exhibit B portion of the --
Q. We need to go to --
A. -- of the unit agreement. It just shows all

the interest owners on a spreadsheet, the working interest, royalty interest and overriding royalty interest owners.

Q. What is Exhibit 4?

A. That is a list of all the names of the wells that we're going to change once we get it unitized, all in the Carter-Shipp Strawn Unit 1, 2, 3 and 4.

Q. Is this, the re-designation of the wells in the unit area, required by the land office generally?

A. Yes.

Q. In this case, being fee lands, you're still making the same changes in the well designations?

A. That's correct.

Q. What is Exhibit Number 5?

A. The unit operating agreement. It contains many standard provisions. It outlines supervision of management with the unit, defines the rights and duties of the working interest owners, includes their interest breakdown, and there's -- COPAS are included.

Q. What is Exhibit Number 6?

A. That's a list of working interest owners; includes their addresses.

Q. And Exhibit 7?

A. The royalty interest owners; includes their addresses.

Q. Do you have some unleased mineral interest owners in the unit area?

A. Yes, we do.

Q. How are those interests treated for the purpose of unitization?

A. Seven-eighths working interest and one-eighth royalty.

Q. How were these interest owners identified?

A. By ownership checks by a broker that we used out of Norman, Oklahoma, Sam B. Rose Oil and Gas.

Q. Did they review the county records and deed records?

A. They did. They reviewed all the county and all the lease records. I just want to add that this isn't an active area, no new drilling on these tracts, and a lot of these leases are HBP'd back from the 1950s. We tried to provide notice to everybody that we could locate, and a lot of them have very old addresses and we got return notices. I mean, we didn't get any return notices from them.

Q. From a large number of them?

A. Undeliverable. Right.

Q. Would you refer to Chesapeake Exhibit 8, and just review your efforts to --

A. We sent out a letter to all the working

interest owners, just letting them know that we were going to have a meeting to go over the plans of development for the proposed unit. We had quite a few calls, just answering questions, and -- but nobody attended. We didn't have anybody protesting or anything against us. It was just a lot of small interest owners. I guess they were just going to go along with it and just wait until I mailed everything to them.

Q. Your first contact was May the 8th?

A. That's correct.

Q. And is the copy of the original letter to the working interest owners attached in Exhibit Number 8?

A. That's right.

Q. After that, when did you contact the royalty interest owners?

A. July 15th. We sent out a letter with the unit agreement included and ratification for the unit agreement.

Q. Did you actually receive any response from the royalty interest owners?

A. We did.

Q. And were those by telephone?

A. Telephone.

Q. And then on the 17th of July, what did you do on that date?

A. We sent out a packet that included -- this was still all the working interest owners. It included the unit agreement, unit operating agreement, feasibility study, a ballot and a ratification form for them to sign to get them to approve the unit.

Q. Mr. Frohnapfel, what is Exhibit Number 9?

A. Okay. That's a summary of the ratifications that we received back from all the interest owners.

Q. What percent of the working interest has committed to this unit agreement?

A. The working interest owners, we've got over 89 percent committed. And the mineral interest owners, we have almost 92 percent, and overriding royalty interest owners, we have 21 percent.

Q. There have been some owners that you've been unable to locate?

A. That's correct.

Q. As to any interest that's attributed to those interest owners, will they be escrowed in a bank in the county where the unit is located?

A. Yes, they will.

Q. Do you believe you've done all that you reasonably can do to find these people and obtain their voluntary commitment to this unit of land?

A. Yes.

Q. Will Chesapeake call additional witnesses to review the technical portions of this case?

A. Yes.

Q. Attached to Exhibit 9, at least in the set I've given to Mr. Ezeanyim, are copies of the ratifications; is that right?

A. Yes.

Q. There are copies in the official set of the exhibits.

A. Yes.

Q. The copies provided to Examiners Warnell and Brooks only have the summary sheet.

A. Yes.

Q. What are Chesapeake Exhibits 10 and 11?

A. Okay. That's the statutory unitization notice.

Q. That's Exhibit Number 10?

A. That's Number 10.

Q. To whom was notice provided?

A. All working interest owners, non-costbearing interest owners in the unit area, including the surface owner.

Q. Exhibit Number 11, what is that?

A. It was the notification for the injection well applications.

Q. Were the owners of the surface of the land on which the injection well was located notified?

A. Yes.

Q. Were all leasehold operators within a half mile of the proposed injection wells notified?

A. Yes.

Q. Were there really operators within that area?

A. No. In the absence of operators, we notified the offset leasee, and in the absence of an offset leasee, we notified the mineral owners. That's why there's such a large amount.

Q. You testified that following these mailings, we received a large number of envelopes returned that were undeliverable; is that correct?

A. That's correct.

Q. Did Chesapeake, when they received all of these letters back or so many back, also run a new ad in the newspaper in Lovington identifying each interest owner for whom we did not have a return receipt?

A. Yes.

Q. Is a copy of that letter and notice affidavit also included in your Exhibits 10 and 11?

A. Yes.

Q. Were Exhibits 1 through 11 prepared by you or compiled at your direction?

A. Yes.

MR. CARR: May it please the Examiner, at this time I'd move the admission into evidence of Exhibits 1 through 11.

MR. EZEANYIM: Exhibits 1 through 11 will be admitted.

(Exhibits 1 through 11 were admitted.)

MR. CARR: That concludes my direct examination.

MR. EZEANYIM: Thank you, Mr. Carr.

Mr. Brooks?

MR. BROOKS: Yeah. Thank you.

EXAMINATION

BY MR. BROOKS:

Q. On Exhibit 1, the numbers appearing in the upper left-hand corner of the rectangles, those are the tract numbers?

A. Yes.

Q. Now, each of these tracts, I'm assuming, is an area that has common ownership?

A. Yes.

Q. Both as to the working interest and as to the royalty interest; right?

A. Right.

Q. Okay. Is there anything else I need to ask

you? Oh, yeah. You said the unit agreement was a standard form -- and I think you may have misspoken -- or it was based on a form -- you said, "an OCD form," and we do not have a form of unit agreement. I assume you're meaning a state land office form; correct?

A. That's correct.

Q. This is actually fee acreage; correct?

A. Yes.

Q. There's no state land included in this unit?

A. That's right.

Q. But you used -- I presume you used the state land office's form, because it's the form that -- it's a reasonably efficient form, and it's one that people are familiar with; is that correct?

A. That's right.

MR. BROOKS: That's all I have.

MR. EZEANYIM: On that same Exhibit Number 1, how are you going to -- I know I haven't read your unit agreement or operating unit agreement. Look at Tract Number 1. There is no well in Tract Number 1. Why are you including this in this statutory unit?

MR. CARR: Mr. Examiner, I think our geologist will be able to answer that question for you.

MR. EZEANYIM: I thought this was a question of land. Looking at Number 1, I didn't see any

wells there. So anyway, I'll ask the question to the geologist.

MR. CARR: Yeah. Because I think we can show that the reservoir is present under the acreage, and he has maps that can do that.

MR. EZEANYIM: Okay. I'm not done yet. I just wanted to follow up on that. First, I know you have three witnesses. I don't know. Maybe I should even wait to ask these questions. Let me see what I can ask the landman.

EXAMINATION

BY MR. EZEANYIM:

Q. Why do you want to form this unit? Is that -- the landman can answer that question for me? Because the first question I wanted to know is why do you want to form this unit? Why is it necessary to do that?

A. We think the Strawn formation holds a lot of unproduced oil, and that flooding it would be a way to prevent waste. You could provide a new field out there. There's not a lot of -- I don't think there's any Strawn waterfloods presently in that area. We want to see if there is -- if it's getable, if it's recoverable.

Q. So you think by forming this unit, you are going to prevent waste and protect correlative rights? Is that why you formed the unit?

A. Yes.

Q. And, anyway, I'm going to ask the question of either the engineer or the geologist. But do you think you have made a good-faith effort to unitize this unit? Have you made every effort to make sure that you've contacted all the working interests and royalty interests and overriding royalty? You've done that?

A. Yeah. We've searched all the county records. We've talked to all the record holders, searched the Internet sites, phone books, spent a lot of brokerage time trying to track everybody down as much as we can, wanting to get as many leases as we could, for one thing, to increase our interest, and just looking to make sure everybody was satisfied that -- we found out some people wanted to participate, so we've got everything -- we've got answers for everybody that's listed.

Q. Let's go back to Exhibit Number 9. I can see your working interest, you have less than 5 percent. The mineral interest is 91 percent, but the overriding -- none of them want to participate. Even though you said they don't have any royalty, 14 percent -- so how does that work under the -- the overriding interest, how to get up to 75 percent, can anybody educate me on that?

MR. CARR: Mr. Examiner, the way the statute reads, you have to have ratification by 75

percent of the costbearing interest owners, the working interest. We have that. Then it says you have to have 75 percent of the non-costbearing interest. So, actually, you group both royalty, overriding royalty, production payments, all of those things, together.

So if you look at Exhibit Number 9, you'll see that of these overrides, 15 of the 19, we couldn't get to respond. But even though that's a 21 percent figure, you bring that and you average -- you work -- the number of the non-costbearing parties includes, not only this 21 percent, but the 91 percent of the royalty. So when you add them all together, they're comfortably over the 75 percent.

MR. EZEANYIM: If I add the mineral interest and the overriding --

MR. CARR: And I can provide to you, and should, a 1 percentage total. Because you can't just add, because their ownership percentages are different. But we will provide to you after the hearing a percentage number showing what percent of the non-costbearing interest is ratified, because this is confusing.

MR. EZEANYIM: Yeah. That's why -- because my legal advisor will advise me how this will work. I don't understand it fully, but I'm trying to determine whether the unitization is really appropriate,

under the circumstances.

MR. CARR: We can give you that number. I can tell you that it's significantly above 75 percent. But we need to give you that number, not two numbers that have to be added together, because that requires not only working out those percentages, the 21 and the 91, but it also requires factoring in how much they own. So we'll give you that number.

MR. EZEANYIM: Do you want to make a comment on that, David?

MR. BROOKS: Mr. Carr is quite correct that -- as I understand it, that all non-expensebearing interest switches -- basically, royalties and overrides. You may have some others in various different types of ownership, but generally you're talking about royalties and overrides. But you have to add the percentage of production to which the royalties -- you have to list all the royalties and override owners by the percentage of production to which they're entitled, add them all together, and then add up the percentages of production attributable to those that have consented, and divide by the percentage of production attributable to all of them, to get the percentage that have ratified.

MR. CARR: We will do that.

MR. EZEANYIM: Okay. I don't know who can

answer this. Are you asking for a non-consent penalty? Are you requesting for that in this order, for a non-consent penalty?

MR. CARR: Yes, we are.

MR. EZEANYIM: What should that be?

MR. CARR: Our engineering witness will request the 200 percent.

MR. EZEANYIM: Do you have a basis to request 200 percent? What is the basis for requesting 200 percent?

MR. CARR: That's what we believe is the standard penalty that the Division has gone to in non-consent cases for pooling, and that's what our engineering witness will request.

MR. EZEANYIM: I'll talk with the engineer later. Okay. Who is going to describe to me the participation formula, the criteria, the parameters? Who's going to do that?

THE WITNESS: The engineer.

Q. (By Mr. Ezeanyim) Okay. Good. Is this all fee land? Is there any state land?

A. All fee.

Q. Okay. Why did you use some of the state land office forms, then?

A. Why didn't we use a fee form?

Q. State land office forms, why did you use that? I was thinking that maybe state land is involved in this case.

A. We wanted to separate the operating agreement from the unit agreement, and that one was familiar with the Commission and a lot of the interest owners.

MR. EZEANYIM: I have a bunch of questions that I think are meant for the engineer.

MR. CARR: Mr. Frohnapfel will be here if you need to recall him.

MR. EZEANYIM: Okay. You may be excused.

MR. CARR: At this time we call Robert Martin, our geological witness.

ROBERT MARTIN

Having been first duly sworn, testified as follows:

DIRECT EXAMINATION

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

A. Robert Martin.

Q. Mr. Martin, where do you reside?

A. Chesapeake Energy is where I work, in Oklahoma City. Sorry about that.

Q. You reside at Chesapeake, and they let you out to testify?

A. Yes, they did, for this one time.

Q. What's your current poisition at Chesapeake?
A. Senior geologist with the Permian Group.
Q. Have you previously testified before the OCD?
A. Yes, I have.
Q. Have you ever testified before Mr. Ezeanyim?
A. I don't believe I have.
Q. Would you review educational background and your work experience?
A. Yes. I graduated from Texas Tech University in 1982 with a geology degree. I've been in the business since 1982 as a geologist, doing exploration and production geology. I've worked for a couple of independent companies and several major companies, Texaco and Chevron included in that.
Q. How long have you worked with Chesapeake?
A. Four years.
Q. When you previously testified, were you qualified before this agency as an expert in petroleum geology?
A. Yes.
Q. Have you made a study of the portion of the Northeast Lovington Pennsylvania Pool that's the subject of this case?
A. Yes.
Q. Have you worked on the team at Chesapeake, the

geologists, geophysicists, that prepared the geological portion of this case?

A. Yes.

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

A. Yes.

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

MR. EZEANYIM: Yes, they are.

Q. (By Mr. Carr) Mr. Martin, have you prepared exhibits for presentation here today?

A. Yes.

Q. Let's go to Exhibit Number 12, a composite exhibit. I'll ask you to start by referring to and reviewing the type log on this exhibit.

A. Everybody has it opened? The type log you'll find on the right. That is the Amerind Oil Company, Carter Number 2. You will find that also pointed out on the structure map to the left, where that well is located on the map.

If you look at the very top, the green line, that's the mapped interval for the Lovington Strawn. We'll refer back to that on the map in a minute. In the highlight in orange is what I was using to isopach with; that is the Strawn Mound, with cross-plot porosity

greater or equal to 4 percent. And the unitized interval that we'd like to unitize for the Carter-Shipp Strawn Unit, as you can see, goes from the top of the lower Strawn formation at 11,298 -- that's the orange line near the top -- down to what we call the top of the lower Strawn B, the purple line.

Q. And has the area that you're proposing to unitize been reasonably defined by development?

A. Yes.

Q. Let's look at the structure map and the isopach on this exhibit. Would you review that for the Examiners?

A. Yes. As I said earlier, the structure, as you can see from the type log on the green line, that was a very reasonable marker that we can find throughout this area. You can see that it dips down to the east and northeast and that there is no structural trapping.

Q. This area has been defined by development?

A. Yes, it has.

Q. Would you look at the isopach map on this composite exhibit. What does it show?

A. The isopach is the green infield lines. As you can see from the type log, as I said before, the orange highlight is what we isopached. We took anything within the limestone from the top of the lower Strawn

down to the top of the lower Strawn B. Anything that had greater than 4 percent cross-plot porosity, we mapped as isopached.

When compared to the unit boundary, as you-all talked about earlier in Exhibit 1, it shows that the entire unitized interval should contribute reserves to the unit. The area is suited for a secondary recovery project. We did use some 3-D seismic to help us somewhat define the limits of the reservoir. And then you can also see the light green line that goes from this Burton well down here, going this direction, up to the Freeman, that is the cross-section that we'll be referring to in just a minute.

Q. Do you have a copy of the feasibility study that is included in the exhibits as Exhibit 23?

A. No, I do not.

Q. Could we go out of order and go to -- it's the last exhibit. It's a bound volume. And if you go back in that volume to Attachment 4 --

MR. EZEANYIM: Mr. Carr, please let me understand on that. Go back to that type log. I can see your black lines are connected. What are you trying to show me there, from A to the A frame?

THE WITNESS: This green line here, sir?

MR. EZEANYIM: Yes.

THE WITNESS: That's a cross-section that I'll be showing in just a minute, structural cross-section.

MR. EZEANYIM: Okay.

MR. CARR: If you'd go to this last exhibit, Mr. Ezeanyim, it's a bound book, and Attachment 4 is what I'd like -- we're going to go out of order, because I think this answers the question that you raised a few minutes ago. And in that as Attachment 4, is a copy of this isopach map. It's back about halfway in it.

MR. EZEANYIM: Okay. Go ahead.

Q. (By Mr. Carr) Do you want to hold that up?

A. (Witness complies.)

Q. Could you explain why the portion of Section 21, the tract without a well on it, is being included within the unit boundary?

A. Yes. A portion of what we believe the isopach shows within the mound is -- goes up into that area, and we wanted to be sure that we included every bit of that mound.

MR. EZEANYIM: There is no well?

THE WITNESS: There is no well. That's correct.

MR. EZEANYIM: So what is Tract 1? There is no well from Tract 1.

THE WITNESS: There is no well from Tract 1.

MR. EZEANYIM: Okay. We are going to -- maybe when we go to your operating agreement, we'll see -- is that -- the approval in Tract 2, 3, 4 without Tract 1, how would that work?

THE WITNESS: That would be the engineer --

MR. CARR: That tract was included because to exclude it, there would be some production coming from that acreage. And unless you put that acreage in, those owners don't share.

MR. EZEANYIM: I see what you're doing, but I'm just trying to understand. There's no ownership there, no wells yet drilled, how that would work under the scenario we're considering. Anyway, maybe we can get more information from the engineer.

THE WITNESS: Yes, sir.

MR. CARR: Anyway, that was the geological reason for putting that land in.

MR. EZEANYIM: Okay.

Q. (By Mr. Carr) Mr. Martin, let's go to the cross-section. This is Exhibit Number 13. Would you review that for the Examiner?

A. This is a cross-section, as I stated earlier.

You can see the path of this cross-section going through these several wells, and the type log is included here. That's Well Number 2.

Once again, the orange highlights -- or these are more gold -- shows what we use for isopach porosity, anything that was greater than 4 percent -- 4 percent or greater. You can see the end wells. There is no porosity. The mound has completely disappeared. By the way, this is a structural cross-section.

Then Well Number 2, which is the Carter Number 2, and Well Number 5 on this cross-section, are the two wells that we want to convert to water injection. So we have the Carter Number 2 and the Shipp ZI Number 2 that will become water injection wells.

MR. EZEANYIM: Number 2 and Number 5?

THE WITNESS: Yes, sir. It's 5 on the cross-section, but beneath that you'll see the name of the well as it was drilled and by what company. You can see the continuity of the carbonate mound there with the gold highlights that we will be water flooding.

Q. (By Mr. Carr) From your geological study of this mound, what conclusions can you reach?

A. We can conclude that the reservoir has been adequately defined, that we do have a continuous reservoir that is interconnected, and we should have good

production.

Q. In your opinion from a geological point of view, can the portion of the pool that's included in the unit area be efficiently and effectively operated under a unit plan?

A. Yes.

Q. Does the boundary of the unit conform to the geological limits of this mound?

A. Yes, it does.

Q. Were Chesapeake Exhibits 12 and 13 prepared by you?

A. Yes.

MR. CARR: I move the admission of Chesapeake Exhibits 12 and 13.

MR. EZEANYIM: Exhibits 12 and 13 will be admitted.

(Exhibits 12 and 13 were admitted.)

MR. CARR: That concludes my direct examination of Mr. Martin.

MR. EZEANYIM: Thank you. Mr. Brooks?

MR. BROOKS: I don't believe I have any questions for this witness.

MR. EZEANYIM: Mr. Warnell?

MR. WARNELL: I have one question.

EXAMINATION

BY MR. WARNELL:

Q. You mentioned cross-plot porosity. Which model are you using when you do cross-plot porosity, or how do you calculate your cross-plot porosity?

A. A lot of the calculations that I use come from the companies themselves. So whatever company was used, we have the calculations that they used to get cross-plot.

Q. But your cutoff isn't any greater than 4 percent?

A. Correct. Our cutoff is 4 percent.

EXAMINATION

BY MR. EZEANYIM:

Q. Let me get the interval you are trying to unitize. Is that starting from the top of the lower Strawn to the top of the -- what is that?

A. Lower Strawn B.

Q. This is from A; right?

A. Yes.

Q. It's just called lower Strawn?

A. Yes.

Q. Then lower Strawn B?

A. Yes, sir.

Q. That's what you are trying to unitize?

A. Yes, sir.
Q. So about 300 feet?
A. That would be pretty close.
Q. Okay. You're a geologist?
A. Yes, sir.
Q. You say that's the reason why, it's been defined by development.
A. Yes, sir.
Q. How do you know that?
A. You can look at the wells that are to the south. In the cross-section you can see that the mound has completely disappeared. No cross-plot porosity over 4 percent. It's just straight down zero, the same to the north. We also incorporated in a little bit of 3-D seismic to help us define that. It's not always perfect, but it does help guide us.
Q. Are there some producing wells there right now?
A. I'm sorry?
Q. Are there some producing wells in there now? Are there wells producing?
A. Are they producing now?
Q. Yes.
A. No, sir. We'll have to re-enter all of the wells that are out here. Every one of them have been

plugged and abandoned.

Q. All the wells have been plugged and abandoned?

A. Yes.

Q. Are you going to re-enter them to convert into producers, and two of them to injectors?

A. Yes, sir.

Q. Do you know the discovery well for this Strawn?

A. I do not.

Q. Maybe the engineer will tell me that.

A. I want to say it's the Yates Shipp Z1, based on my cross-section, the dates that are on there.

MR. EZEANYIM: If there are still any geology questions that I do have, you might be called again. So you may step down now.

MR. CARR: Mr. Examiner, at this time we call our reservoir engineer, Everett Bradley.

MR. EZEANYIM: Okay. You've been previously sworn. You are still under oath. Go ahead.

MR. CARR: Thank you, Mr. Examiner.

EVERETT E. BRADLEY

Having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

Q. State your full name for the record, please.

A. Everett E. Bradley.
Q. Where do you reside?
A. Oklahoma City.
Q. By whom are you employed?
A. Chesapeake Operating Company.
Q. What is your position with Chesapeake?
A. Senior reservoir engineer.
Q. Have you previously testified as an expert engineering witness before the Oil Conservation Division?
A. Yes, sir.
Q. Have you previously testified before these Examiners?
A. No, sir. I don't believe so.
Q. Could you review your educational background and work experience?
A. I graduated from the University of Tulsa, Bachelor of Science degree in petroleum engineering in 1974. I've worked for a number of majors and large independents. Among those are Amoco, Williams Exploration, Mapco, PG&E, and Insearch. And I'm now with Chesapeake, and I've been there about five years. I've had assignments in production engineering, operations, evaluations, planning and reservoir engineering.
Q. Are you a registered petroleum engineer?
A. No, sir.

Q. Are you familiar with the applications filed in these cases?

A. Yes, I am.

Q. Have you made an engineering study of the area that is the subject of these cases?

A. Yes.

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

A. Yes, sir.

MR. CARR: We tender Mr. Bradley as an expert reservoir engineer.

MR. EZEANYIM: Mr. Bradley is so qualified.

Q. (By Mr. Carr) Mr. Bradley, are you familiar with the New Mexico Statutory Unitization Act?

A. Yes, sir.

Q. Have you prepared exhibits for presentation here today?

A. Yes, sir.

Q. Would you refer to what has been marked Chesapeake Exhibit Number 14?

A. Yes, sir. Exhibit 14, the purpose of this exhibit is to show the historic development of this field and what our future plans are. I've displayed that on the isopach map. Notice that there are -- five wells

have been drilled and completed in this mound, the Shipp 1, 2 and 3, and the Carter 1 and 2. All of these wells have been depleted and have been plugged and abandoned.

The Shipp 2 produced only a few months, and I don't remember the precise volume, but only a few hundred barrels. They went uphole. All of the other wells were in there for a number of years and depleted. Our intent is to use four of those five wells, two of them as injectors, two as producers. The two injectors are marked with triangles, Shipp Number 2 and the Carter Number 2. And then we would use producers, Shipp Number 2 and Carter Number 2.

Q. Mr. Bradley, are you planning to flood this area as a single-phase project?

A. Yes. This will be a single-phase waterflood.

Q. Mr. Ezeanyim asked Mr. Martin about the discovery well in the pool. Is the first well in the pool the Shipp Z Number 1?

A. It is. That was the first well drilled in this mound.

MR. EZEANYIM: Explain what you mean by single-phase.

THE WITNESS: The unitization factors in some instances for a variety of reasons, usually because there's a large value remaining on the primary, there

will be an ownership distribution and cost distribution during a certain phase, usually until a certain number of barrels have been recovered. And then at that time, the ownership -- the distributions of costs and revenues would switch to a second phase.

In this case that would have no relevance, so we're going with a single phase.

MR. EZEANYIM: You're going to be using line drive?

THE WITNESS: No, sir. Well, one could view this as a line drive. Because there are only four wells and the flow of fluids are limited by the surrounding impermeable lime mud, I don't know that I would consider this to have any particular designation as far as pattern is concerned.

Q. (By Mr. Carr) Let's talk for a minute about the participation formula. Would you go to Exhibit Number 15 and explain the parameters that you're proposing for this unit?

A. Yes, sir. There are three components that we're using here. We're using the primary recovery from each well. That's 40 percent. We're using the original oil in place per tract. That's 50 percent. And then we're using the wellbores that we intend to re-enter and utilize for recovery and flooding. That's a 10-percent

factor.

Q. Could you explain to the Examiner why these particular parameters were selected?

A. Yes. Since the area is depleted, there is no primary component of value. So we're placing 100 percent of the value on the future waterflood recovery and the wells necessary to achieve that. Since the largest component is the secondary oil, we have placed 90 percent of the component on the secondary recovery, and we're using two components to visualize what that secondary recovery is. That being the oil recovered under primary conditions and the original oil in place.

Q. So those two together give you the 90 percent?

A. That's correct. And we're doing that, we're using those two components because no one component is 100 percent accurate. We're giving the original oil in place somewhat a slightly larger component than the recovery, because recoveries are sometimes influenced by timing of drilling, timing of workovers, timing of equipment changes, oil prices that were present at the time, consequently, perhaps, early abandonment of certain wells.

Under secondary operations, all these wells will be put into play at one time. They'll all have a single operator with a single philosophy. That's the

reason we're leaning more heavily towards oil in place. Also, by using the oil in place, it recognizes that there are components of this reservoir that may not have had wells but that, nevertheless, are in-pressure communication. Secondary re-pressuring will cause movement of fluids in that area, so that will contribute to recoveries, but we want to recognize that for the benefit of the royalty owners under that tract.

MR. EZEANYIM: From my understanding of this, because I'm particular about this particular formula, do you vote on the parameter and the weights, or you just, as operator, develop this 1 percent 40, 50 and then bring it up to vote?

THE WITNESS: Absolutely. This was presented, this formula. And in addition to the formula on this page, I'd also shown what we showed to the working interest owners, and that's what each of their tracts hold of these various components, and, as a consequence, what their ownership would be in the unit. That was presented to each one of them. They reviewed it. In excess of 90 percent of those gave us written authorization to move forward with this formula.

MR. EZEANYIM: So the 40 percent or 50 percent were pretty close examinations. Maybe there's just no way in the industry that you assigned those

rates. You just assume that, oh, we give 50 percent to initial oil in place because we think that's the most important parameter. Is that how you come up with that?

THE WITNESS: There is no one formula that applies to all reservoirs. And, essentially, if the working interest owners and the royalty owners can agree upon it, and the Commission feels that it is fair and equitable, then it's an agreed formula and it's accepted. This is a fairly common formula to use.

Often -- I would say more often than not -- reservoirs are not completely depleted. There's still some production. So you usually will see that component used in some way. If it's almost depleted, it won't be very important. If it's fairly newly discovered and still has a lot of pressure and a lot of rate, that, of course, will be much more important. Does that answer the question?

MR. EZEANYIM: Yeah. I'm trying to -- if all the working interests, mineral interests, have agreed to this, then it's reasonable and equitable. It's only when there is a contest then I might start looking at this. Then I might go into detail and say, is the initial oil in place really going to get up to 50 percent, or something lower or something higher?

But if you all agreed that that is reasonable

and equitable, we can't comment there. Otherwise, we might change it for you. But in this case, you say you voted on it and it's okay.

Now, my last question on this, if I look at this Exhibit 1, if you look at usable wellbores, all the interests in Tract Number 1 will not get anything better.

THE WITNESS: For that 10 percent factor, they have 10 percent times zero, so their component for usable wellbores is zero. But they do have oil in place, and that's why we wanted to include them.

MR. EZEANYIM: Okay. I think that's important that I understand. Very good. Go ahead.

Q. (By Mr. Carr) Mr. Bradley, in your opinion, does this formula allocate production to the separately-owned tracts in the proposed unit on a fair, reasonable and equitable basis?

A. Yes.

Q. Will unitization and adoption of the proposed methods benefit working interest owners and royalty interest owners in the area affected by the application?

A. Yes, sir. All will benefit.

Q. I'd like to talk for a few minutes about the proposed waterflood project. Could you refer to and review what has been marked Chesapeake Exhibit 16, the primary performance curve?

A. Yes, sir. This curve shows the composite history of all the wells in this unit, that being the five previously mentioned. It shows that operations, production operations, started in 1984 and went through 2004, but for commercial purposes, production essentually ceased in 1999.

During that period of time, the ultimate primary oil recovery was 146,300 barrels of oil and 1,792 in mcf of gas.

MR. EZEANYIM: Is that listed here?

THE WITNESS: I believe that is in the upper right-hand corner of the graph. It shows EUR, oil and gas.

Another thing that's important to see on this, as we mentioned, on the map, is that all of the wells are depleted. There are no more -- there are no primary reserves. There is no cash flow. There is no primary value.

Q. (By Mr. Carr) The reservoir produced from approximately 1984 through 1999 and has not produced since then?

A. It has been -- selected wells have been turned on as late as 2004, but always for only very brief periods, and no commercial -- no oil production of significance.

Q. Let's go to Chesapeake Operating, Inc., Exhibit 17, your waterflood performance curve.

A. Yes, sir. This shows our anticipated start of injection. We show that November 15th through December 31. And as we sit here today, December 31, or the first quarter of 2010, is a more likely date. So you might visually adjust the events in this curve.

But it shows that for some period of time, we will be filling up the gas space. There will be little or no appreciable production. We will start a ramp of response peak fairly quickly in this small reservoir, hold that peak for a plateau there for a few months, 12 to 18 months, and then decline off to the depletion. We anticipate the ultimate recovery will be at least 355,000 barrels of oil and 378,000 cubic feet of gas.

Q. That's, again, shown in the upper right-hand portion of the exhibit?

A. Yes, it is.

MR. EZEANYIM: This is additional?

THE WITNESS: This is additional, and this is all secondary. And this is the -- at least this much oil would be wasted if this field isn't put under some kind of enhanced recovery.

MR. EZEANYIM: Okay.

Q. (By Mr. Carr) Mr. Bradley, let's now look at

the application for authorization to inject, the C-108 application.

A. Yes.

Q. Do you need a copy of that?

A. Yes. If you've got one handy. We have the C-108, the application --

Q. Did you prepare this?

A. Yes, I did, or under my supervision.

Q. Does this application contail all information required by the Division rule?

A. Yes.

Q. Is this application for a new project?

A. Yes, this is a new project.

Q. And you previously covered this, but how many wells are included in the application? How many injection --

A. For injection purposes, there are two wells included.

Q. How were these wells originally completed?

A. These wells were completed exclusively in the Strawn formation and stimulated with a moderate amount of acid.

Q. What is the exact stimulation program?

A. Historically or for our plans?

Q. For your plan.

A. For our plans, we plan to stimulate them with 5,000 gallons of 15 percent non-emulsifying iron sequestered HCl acid, and then we will stage that block with rock salt --

Q. Has --

A. -- displace that to the formation with water.

Q. Has appropriate logging and test data on the well previously been filed with the Division --

A. Yes.

Q. -- on each of these wells?

A. Yes.

Q. Has an injection data sheet been included in this C-108 application for each proposed injection well?

A. Yes, sir.

Q. Are those found at pages 4 through 7 of the application?

A. Yes, sir.

Q. Does this exhibit on pages 15 through 18 also include separate schematic diagrams, showing the current plug condition of the well, and how you propose to re-complete it for injection?

A. Yes, sir. We have those diagrams for each of the two wells.

Q. Does Chesapeake seek authorization to commit additional wells to injection at orthodox and unorthodox

locations through administrative procedure under Division rules, if that becomes necessary?

A. Yes, sir.

Q. Would you go to pages 27 and 28 of the C-108 application and identify those?

A. Yes. 27 and 28 -- Exhibit 27 is for the Carter Number 2, and it shows two circles centered around that well. The first circle, or the larger of the two circles, is a two-mile radius, and within that radius we've identified each well, its lease and its number. The smaller circle is a two-mile -- I'm sorry. It's a half-mile radius, and that is the area of the investigation, and we have provided more extensive information on those. Number 28 is the same type of information, but this is for the Shipp ZI Number 2.

MR. EZEANYIM: Number 1 is not very clear on page 27. I can't see the half-mile area review.

MR. BROOKS: It didn't come out on the copies.

MR. EZEANYIM: Did it come out on yours?

THE WITNESS: The copy did not come out. The original that was submitted to the Commission, I believe, is legible.

MR. CARR: Mr. Examiner, we will provide replacement copies for those that are illegible for each

of these area of review maps.

MR. EZEANYIM: Yeah, for those two wells. Okay. Go ahead.

Q. (By Mr. Carr) Does this C-108 contain all the information required for each of the wells in the area of review that penetrate the injection interval?

A. Yes, sir.

Q. Would you turn to page 19 of the C-108 application?

A. Yes, sir.

Q. Is this the tabulation that was originally filed on these wells when the C-108 was originally filed with the Division?

A. Yes, sir. That's correct.

Q. And since that time, have you supplemented this information?

A. Yes, we have.

Q. Is that information set forth on what has been marked Chesapeake Exhibit Number 19?

A. Yes, sir.

Q. Do you have that exhibit?

A. I do.

Q. Would you review this for the Examiners?

A. We built three tables to aid in making these legible. The first table, which is the one that was

included with the original application, shows the detail of the well construction for each well in that half-mile area. And then the second table for that same half-mile area shows the detail of the initial completion and subsequent work in that wellbore, if any. And then the third table, again, for the same half-mile area, shows those wells that are plugged and abandoned, and it shows the detailing of those plugging operations.

Q. Mr. Bradley, for the plugged and abandoned wells, have you included schematics in the C-108 application showing the plugging details?

A. Yes, sir. There's a schematic for each well.

Q. Those are found on pages 29 through 37 of the exhibit?

A. Yes, sir. That's correct.

Q. Since this application was filed, have you developed supplemental diagrams for five of these wells?

A. Yes, sir.

Q. Is that what has been marked as Chesapeake Exhibit Number 20?

A. Yes, sir.

Q. These are simply updated versions of the schematics that were previously filed?

A. These are considered somewhat more accurate and easier to read than some of the initial applications.

Q. Have you reviewed the data available on wells within the area of review for this waterflood project and satisfied yourself that there's no remedial work required on any of these wells to enable Chesapeake to safely operate the project?

A. Yes, sir.

Q. Are these wells properly plugged and abandoned?

A. Yes, they are.

Q. Are all fresh water zones protected?

A. All the fresh water zones are protected by these plugging operations.

Q. What injection volumes does Chesapeake propose to use?

A. We're proposing both the average and the maximum at 1,800 barrels of water per day per well.

Q. What is the source of the water you're proposing to inject?

A. Our initial and primary source of water will be the Wolfcamp zone. This will come from wells that Chesapeake operates. We are presently disposing of these waters in the Big Bertha Salt Water Disposal Well. We do have other Strawn wells in the area that if we need supplemental water, we can bring that Strawn water in. In addition, as the reservoir pressures and we get water

breakthrough at the producers in this project, we would re-inject that water into this reservoir.

Q. Is there a potential for any incompatibilities in the waters?

A. We've sampled the Strawn water and the Wolfcamp water, and we've done compatibility studies on those. Both the analysis and the compatibilities have been provided in this application, and they are compatible waters.

Q. Will you be, at any time, injecting fresh water in this waterflood?

A. No, sir. No fresh waters are being used.

Q. Are water analyses of the Strawn waters attached as part of Exhibit 18?

A. Yes, sir.

Q. Are those found at pages 23 through 25?

A. Yes, 23 through 25. That's correct.

Q. Will the system be open or closed?

A. The system is closed.

Q. What injection pressures are you proposing to utilize?

A. For the Carter Number 2, we propose 2,274 pounds, and for the Shipp ZI Number 2, we propose 2,292 psi.

Q. Will the surface injection pressure of

two-tenths pounds per foot of depth to the top of the injection interval be satisfactory for Chesapeake's purposes?

A. Yes, sir.

Q. In fact, these injection pressures that you just provided are two-tenths pound per foot of depth?

A. Yes, sir.

Q. If a higher pressure is needed, will Chesapeake justify the higher pressure with a Division witness, a separate test?

A. Yes, sir, we will.

Q. How will Chesapeake monitor these injection wells to ensure their integrity?

A. The annular space will have a packer fluid, inert fluid, in the annular space. We will install a pressure gauge to monitor the pressure that is on that annular space, and be alert to any changes that might occur during the operation of the wells.

Q. So you would be in compliance with the federal limits on injection --

A. Yes, sir, we will.

Q. Are there fresh water zones in the area?

A. Yes, sir, there is. There is the Ogalala, generally occurring between 34 feet and 84 feet in this vicinity.

Q. Will the proposed injection pose any threat to any source of underground drinking water?

A. No. All fresh water will be protected.

Q. Are there fresh water wells within a mile of either of the injection wells?

A. There are. We provided a list of those wells in the application with some detail on their depth, and we've sampled waters from those. We've analyzed that water. We included an analysis of that in the report -- in the application.

Q. Is that located on page 38 of the C-108 application?

A. Yes. This is the analysis of the fresh water.

Q. That, in fact, is the closest fresh water well to these injection wells?

A. Yes, sir.

Q. Now, the application, itself, contained geological information. Has that been reviewed previously by Mr. Martin?

A. Yes, sir, it has.

Q. Have you examined or caused to be examined available geologic and engineering data on this reservoir and, as a result of that examination, have you found any evidence of open faults or other hydrologic connections between the injection interval and any source of drinking

water?

A. I have examined that issue, as has Mr. Martin. We see no evidence of any sort of connection between this zone and the fresh water.

Q. Mr. Bradley, let's now talk about your application for qualification of the project under the Enhanced Oil Recovery Act. Would you refer to what has been marked Exhibit 21?

A. Yes, sir.

Q. Do you have that?

A. I do.

Q. And would you identify that, please?

A. This is an application for the enhanced oil recovery project qualification for the recovered oil tax rate for the Carter-Shipp Strawn Unit in Lea County, New Mexico.

Q. Does this application contain all information required by OCD rules?

A. Yes, sir.

Q. Could you tell us what the estimated additional capital costs to be incurred in this project will be?

A. We anticicpate that the capital portion of the cost would be $2.8 million.

Q. What are the total project costs?

A. When we consider operating costs and direct well head taxes, that's 6 million, bringing the total cost to approximately $9 million.

Q. How much additional production -- I think we've shown this earlier on one of our graphs. How much additional production does Chesapeake hope to obtain?

A. We did show this on our secondary recovery graph. And we anticipate at least 355,000 stock tank barrels of oil and 278,000 mcf gas.

Q. What do you estimate to be the total value of this additional production?

A. We see the value at $31.4 million. That's based on $75 oil, and it's assuming a conversion of gas to oil at 6 mcf per barrel. So that would be the gross income we would anticipate.

Q. What is Chesapeake Exhibit Number 22?

A. This curve depicts the production history of this mound, and it also shows the forecast of secondary recovery, showing oil, water and gas that we have produced under primary and that we anticipate to produce under secondary.

Q. Is this plat basically a composite of the exhibits that were previously presented?

A. That's correct.

Q. The rules for the qualification of a project

and for the incentive tax rate also require that a plat of the project area be included. That has been presented, has it not?

A. It has.

Q. It requires a table of well data, and that has been presented?

A. Yes, sir.

Q. It also required the type log?

A. Yes, sir.

Q. That's also presented?

A. Yes.

Q. This is the last of the attachments, this curve --

A. Yes, sir.

Q. -- required by that rule. Without unitized management operation and further development of this area, is it your opinion that the reserves you hope to recover will, in fact, be left in the ground and wasted?

A. Yes, sir, they will be wasted.

Q. Is unitized management necessary to effectively carry on secondary recovery operations?

A. Yes, that would be required.

Q. In your opinion, will the proposed methods prevent waste and result with reasonable probability in the recovery of substantially more oil from the reservoir

than otherwise would be recovered?

A. Yes, sir.

Q. Is Chesapeake Exhibit Number 23 a copy of the feasibility study for this proposed unit?

A. Yes, sir, it is.

Q. This is the study that was provided to the interest owners who are subject to unitization or committed to this unitization?

A. That's correct.

Q. Does this contain a narrative discussion of the geological and engineering considerations that support the proposed unitization of the Carter-Shipp Strawn Unit?

A. Yes, sir, it does.

Q. Will approval of this application be in the best interest conservation and prevention of waste and the protection of correlative rights?

A. Yes, sir.

Q. Does Chesapeake request that 200 percent charge for risk be assessed against those interest owners who do not voluntarily participate in the unitization?

A. Yes, we do.

Q. What is that based on?

A. We have a responsibility, as operator, to recognize that the working interest owners in this unit

who are paying the bills for those working interest owners who are choosing not to pay their bills need to recognize that they're putting capital at risk, and we would like to receive some consideration for that. That's why we are requesting -- making this request.

Q. Is it your understanding that 200 percent is a generally-accepted percentage that's utilized by the Oil Conservation Division as a risk penalty?

A. Yes. That's what I've been using.

Q. I believe you testified that you're hoping to commence enhanced recovery operations in the first quarter of 2010?

A. That's correct.

Q. Were Exhibits 14 through 23 compiled by you or compiled under your direction?

A. Yes, they were.

Q. Can you testify as to their accuracy?

A. They are accurate.

MR. CARR: I move admission of Chesapeake Exhibits 14 through 23. That concludes my direct examination of this witness.

MR. EZEANYIM: Which exhibits?

MR. CARR: 14 through 23.

MR. EZEANYIM: 14 through 23 will be admitted.

(Exhibits 14 through 23 were admitted.)

MR. CARR: Thank you. That concludes my direct.

MR. EZEANYIM: Mr. Brooks?

MR. BROOKS: No questions.

EXAMINATION

BY MR. WARNELL:

Q. Mr. Bradley, I think on the last exhibit, or the one just before the last exhibit, Exhibit 21, on that last page, when you were going through the numbers there for us, you mentioned 355 --

A. 355,000 barrels, yes.

Q. And the gas, there was a discrepancy there. I think you said 278.

A. I'm sorry. It should be 378. It rounds to 378,000 mcf.

MR. WARNELL: Thank you. I have no more questions.

EXAMINATION

BY MR. EZEANYIM:

Q. The estimated capital costs will be about $9 million; right? The capital costs.

A. The capital should be 2.8 million, I believe.

Q. Plus 6 million?

A. The 6 million is operating costs that will

incur during the life of the project, plus direct well head taxes that will be paid during the process that will be pulled out of the cash flow stream.

Q. Then you expect about 31 million for the life of the project; is that correct?

A. Yes. That's what we anticipate.

Q. What is injection interval here? Do you remember --

A. The injection --

Q. -- the injection interval?

A. The injection rate?

MR. CARR: Interval.

A. I think we have that on one of our exhibits. I don't recall off the top of my head. I can find that. It's in the exhibit that shows the before and after schematic. That's probably the easiest place to see it.

Q. Both of those injection wells are injecting into the same formation; right?

A. Yes, sir.

Q. They have slightly different injection pressures?

A. Because they're slightly different depths.

Q. I think I understand now.

A. To answer your first question, on page -- this is the application for authorization to inject --

MR. CARR: Exhibit 18.

A. -- on page 18 --

MR. CARR: Exhibit 18.

A. -- the Shipp ZI Number 2. On the diagram on the right-hand side at the bottom it shows the injection interval that we plan.

Q. Okay.

A. Then we have a similar exhibit for the other proposed injection well, and that's the Carter Number 2, and that's shown on page 16 of the application. And, again, on the right-hand diagram at the bottom is the interval shown that we intend to perforate.

Q. Okay. What is the discovery well for this --

A. For this particular mound?

Q. Yes.

A. For this mound it's the Shipp ZI Number 1. That was the first well drilled in this individual mound.

Q. This is the Strawn formation?

MR. CARR: I don't know if it discovered the formation from the whole pool.

A. It wasn't the first well drilled in the northeast Lovington Strawn pool. I have that information, as well. But it was the first well drilled in this individual mound. There's a distinction there.

Q. That is the Shipp ZI Number 1?

A. Yes.

Q. I think I may have information on that well in all these exhibits.

A. You do. And we also addressed the issue of the first well drilled in the area designated as the northeast Lovington Strawn Unit, and that date and that well is given in our feasibility study, and we have a little orientation map that shows where it is.

Q. Do you have any idea of the elevation in this area?

THE WITNESS: You know, Robert, do you show that on your cross-section heading?

MR. MARTIN: 3,800.

Q. (By Mr. Ezeanyim) I got 3,804. I don't know how. I think you stated -- I mean, the geologist stated that the cutoff porosity is 4 percent and above?

A. Yes, and above.

Q. Do you have any idea of permeability average?

A. You know, I think -- other than to say that I believe that it's high, I don't know what the permeability is. We don't have any core analysis that measured permeability in this mound, that I recall.

Q. Okay. That's okay. The well is shut in since three or four years ago. You won't have anything on the current pressure. Do you have anything on the initial

pressure?

A. We don't today know what the individual well pressures are on those wells. That was not provided when the wells were plugged.

Q. Okay. So as of the time the wells were shut in, do you have any information on the cumulative production up to that point, primary production up to that point?

A. Let me back up. When you asked about permeability, I didn't recall that. But in my study we have permeability data from drill stem tests, and that was 8.5. md ?

Q. 8.5 md?

A. Millidarcy. I'm sorry. Your last question was?

Q. The last question was if you have any information on the cumulative -- primary cumulative production from the wells before they were shut in.

A. Yes. We know what the cumulative production was primary to shut in on a composite basis. It is 1,462,892 barrels of oil, 1,792,022 mcf of gas.

MR. CARR: That's shown on the composite graph.

Q. (By Mr. Ezeanyim) I know I can get it. What is the original oil in place?

A. The original oil in place?

Q. I think four million something. I've forgotten.

A. 4,445,892 stock tank barrels.

Q. Okay. Thank you. And the estimated secondary recovery is 255,000?

A. The estimated secondary is 355,000 barrels.

Q. We have in this unit two injection wells, and there's going to be two injection wells and two producing wells, but all four have been plugged and abandoned. You're going to re-enter, convert two of them to injectors and two to producers?

A. Yes, sir.

Q. Okay. How many wells are in the area of review for those two wells, total?

A. Let me look that up. That would be nine. 9

Q. Okay. Nine for both injectors; right?

A. Yes, sir.

Q. Out of those nine, how many are plugged and abandoned?

A. All of those are plugged and abandoned.

Q. All nine are plugged and abandoned. And I have a schematic of the plugging details?

A. Yes, sir, you do.

Q. There are no producers at all in there?

A. No.

Q. And none of the wells are inactive, like not plugged and abandoned? They're all plugged and abandoned?

A. Yes.

Q. Let's go back to fresh water, fresh water depths. You said there are some water wells. What are the depths of those?

A. They range from -- the shallowest is 34 feet, and the deepest, I believe, was 84 feet, in that vicinity.

Q. From your casing programs, all those waters will be protected?

A. Yes. We have surface casing down to approximately 400 feet, and then we have intermediate and long stream.

Q. Okay. Let's go back to the water analysis. Is it the Strawn, you did a bunch of those water analyses and there are no compatibility issues?

A. No, sir.

Q. Why is that? You compared it with the Wolfcamp?

A. Yes. We mixed those waters at various strengths and analyzed for any kind of precipitation both visually and by chemical analysis.

Q. All the water is coming from the Strawn, producing wells; right?

A. Right. Those two zones.

Q. Do you expect to have any make-up water?

A. All the make-up water -- initially all the make-up water will be Wolfcamp. As we start to make water from the Strawn in this unit, that water will be re-injected.

Q. And I think you testified -- I think you said closed system?

A. It is a closed system.

Q. This fresh water you are talking about, fresh water wells, how many miles is it from these injection wells?

A. One mile or less. We investigated an area of a mile.

MR. EZEANYIM: No further questions.

MR. CARR: Mr. Examiner, thank you. We will provide you the percentage of the non-costbearing interest ratification and provide two area of review maps that are legible. That concludes our presentation in this case.

MR. EZEANYIM: Okay. At this point Case Number 14362 and 14363 will be taken under advisement.

Let's have a 10-minute break.

(A recess was taken.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 14362 & 14363 heard by me on 9/17/2015.

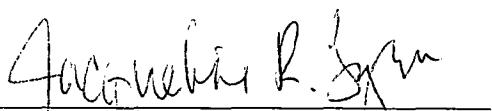
Examiner
Oil Conservation Division

REPORTER'S CERTIFICATE

I, JACQUELINE R. LUJAN, New Mexico CCR #91, DO HEREBY CERTIFY that on September 17, 2009, proceedings in the above captioned case were taken before me and that I did report in stenographic shorthand the proceedings set forth herein, and the foregoing pages are a true and correct transcription to the best of my ability.

I FURTHER CERTIFY that I am neither employed by nor related to nor contracted with any of the parties or attorneys in this case and that I have no interest whatsoever in the final disposition of this case in any court.

WITNESS MY HAND this 30th day of September, 2009.



Jacqueline R. Lujan, CCR #91
Expires: 12/31/2009