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:	
APPLICATION OF APACHE CORPORATION FOR APPROVAL OF A WATERFLOOD PROJECT AND QUALIFICATION OF THE PROJECT AREA FOR THE RECOVERED OIL TAX RATE PURSUANT TO THE ENHANCED OIL RECOVERY ACT, LEA COUNTY, NEW MEXICO	CASE NOS. 13,503
APPLICATION OF APACHE CORPORATION FOR STATUTORY UNITIZATION, LEA COUNTY, NEW MEXICO	and 13,504
	(Consolidated)

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

ORIGINAL

BEFORE: DAVID R. CATANACH, Hearing Examiner

June 16th, 2005

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, June 16th, 2005, 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

June 16th, 2005
Examiner Hearing
CASE NOS. 13,503 and 13,504 (Consolidated)

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E X H I B I T S

(Continued...)

E X H I B I T S (Continued)

Applicant's	Identified	Admitted
Exhibit 31	61	75
Exhibit 32	62	75
Exhibit 33	71	75

* * *

Additional submission by Apache Corporation, not offered or admitted:

	Identified
Statutory Unitization Act	16

* * *

A P P E A R A N C E S

FOR THE APPLICANT:

KELLAHIN & KELLAHIN
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Santa Fe, New Mexico 87504-2265
By: W. THOMAS KELLAHIN

FOR BP AMERICA CORPORATION:

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110 N. Guadalupe, Suite 1
P.O. Box 2208
Santa Fe, New Mexico 87504-2208
By: WILLIAM F. CARR

* * *

WHEREUPON, the following proceedings were had at 10:15 a.m.:

EXAMINER CATANACH: Call the hearing back to order, and at this time I'll call Case 13,503, the Application of Apache Corporation for approval of a waterflood project and qualification of the project area for the recovered oil tax rate pursuant to the Enhanced Oil Recovery Act, Lea County, New Mexico.

And at the request of the Applicant I will also at this time call Case 13,504, which is the Application of Apache Corporation for statutory unitization, Lea County, New Mexico.

Call for appearances in these cases.

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

EXAMINER CATANACH: Call for additional appearances?

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe office of Holland and Hart, L.L.P. We represent BP America Corporation in this matter. I do not intend to call a witness.

EXAMINER CATANACH: Okay, will the -- Swear in the witnesses.

(Thereupon, the witnesses were sworn.)

MR. KELLAHIN: Mr. Examiner, we have distributed for you a complete set of the documents in both these cases, and I have provided for reference a copy of the Statutory Unitization Act that the witnesses will discuss in a moment.

With your permission, we'll proceed, then, by calling our first witness, Mr. Mario Moreno.

EXAMINER CATANACH: Okay.

MARIO R. MORENO, JR.,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A. My name is Mario Moreno. I'm a senior staff landman for Apache Corporation.

Q. And where do you reside, sir?

A. In Tulsa, Oklahoma.

Q. On prior occasions, have you testified as a petroleum landman before the Oil Conservation Division?

A. Yes, I have.

Q. And pursuant to your employment with Apache, have you been the primary landman responsible for determining the ownership and contacting the owners concerning participation in this unit?

A. Yes, I have.

Q. As part of your duties and responsibilities, have you prepared certain exhibits for presentation to Mr. Catanach this morning?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Moreno as an expert petroleum landman.

EXAMINER CATANACH: Any objection?

MR. CARR: No objection.

EXAMINER CATANACH: Mr. Moreno is so qualified.

Q. (By Mr. Kellahin) Mr. Moreno, if you'll take the exhibit package and start with what we've marked as Exhibit 1, let's start by identifying this display and indicating to Examiner Catanach what is portrayed by the red outline.

A. Well, Exhibit 1, which is our Exhibit "A", basically covers our unit boundary outline, encompassing 2080 acres. Of this, 12 tracts are operated by Apache Corporation and six tracts are operated by T.H. McElvain Oil and Gas Company.

Q. When we look at Exhibit 1, does it correctly reflect the acreage associated with federal lands in relationship to patented or fee lands?

A. Yes, it does.

Q. Within the outline shown in red, there is a difference of character in the shading and the color associated with various subdivisions. What does all that mean?

A. The hachured sections that are indicated by these tracts represent federal leases, federal tracts. The non-hachured tracts are fee, fee-ownership tracts.

Q. Within the context of Exhibit "A", there are some tract numbers and letters associated with the tracts within the unit. What do those represent?

A. Those represent the tracts that were identified by our reservoir engineer, Mr. Mayes, which basically breaks out the ownership as to the Blinebry -- the Tubb, the Blinebry and the Drinkard formations.

Q. Has all that been done in a matter that's consistent with the requirements of the Bureau of Land Management?

A. Yes, it has.

Q. Are we looking at what you understand to be the final configuration of the tracts for purposes of unitization?

A. Yes, we are. As it stands today, the boundary outline referred to on Exhibit 1 is the current outline as it stands today.

Q. Having described the areal extent of the proposed unit that you're asking Mr. Catanach to approve, can you identify for us by some documentation the vertical limits that we're dealing with?

A. Yes, under Exhibit 2, which is our Exhibit "C" to our unit operating -- unit agreement, basically identifies the vertical limits of our -- of the unitized interval, being the Blinebry, the Tubb and the Drinkard formations, which are found at an interval between 5615 feet and 6795 feet, which is further defined in the unit agreement under Section 2.(v).

Q. Let's turn now, Mr. Moreno, to what is marked as Exhibit Number 3. Would you identify what we're seeing when we turn to Exhibit Number 3?

A. Exhibit Number 3 is basically the unit agreement which basically sets out the development and operation for the East Blinebry-Drinkard Unit.

Q. Is this a form of unit agreement that is consistent with the forms utilized and required by the Bureau of Land Management?

A. Yes, it is.

Q. We'll come back to the unit agreement and talk about how it's organized in a moment, but turn now with me to what is marked as Exhibit Number 4. When we look at Exhibit 4, there are two separate documents associated with that exhibit. The first one is dated January 13th of this year. What is your understanding of that first document?

A. The first document represents the letter from the Bureau of Land Management, basically agreeing and giving us the authorization for our plan of operations and agreeing to our unit agreement that was submitted to them.

Q. So pursuant to BLM requirements, you on behalf of Apache have submitted to the Bureau of Land Management the documentations, including the technical support, and obtained their preliminary approval of the unit?

A. That is correct.

Q. When we turn to the second item, which is March 22nd of this year, what does this represent?

A. That is the letter from the BLM basically approving the unit agreement, and they have basically assigned a -- I guess a unit number for the unit agreement that has been approved by them.

Q. Let's describe in general detail your understanding of what the concept is here. The purpose of the unit and the unit operating agreement is to do what, Mr. Moreno?

A. The unit area basically is within the boundaries of the Blinebry Oil and gas Pool and the Drinkard Oil Pool and the Tubb Gas Pool. Apache Corporation proposes to initiate a waterflood project by the injection of water produced from the San Andres formation into the Blinebry and Drinkard portions of the Blinebry Oil and Gas Pool and the Drinkard Oil Pool without affecting the Tubb Gas Pool, pursuant to a plan of operations that has been completely forth in our Application for approval of this project.

Q. When we go back to Exhibit Number 3, Mr. Moreno, and look at the unit operating agreement, is it organized in such a way that you can help Mr. Catanach find the provisions that contain language concerning tract participation?

A. Yes, it is.

Q. And where would he find those?

A. Tract participation would be found under Section 13 of the unit agreement.

Q. And if he's looking for language to determine how a tract qualifies for that participation, where in this document would he find that information?

A. He would find that under Section 14 of the unit agreement.

Q. To the best of your knowledge, this agreement is organized in the conventional way for a unit agreement for waterflood purposes?

A. Yes, it is.

Q. If Mr. Catanach wants to look at the additional attachments to the operating agreement, is there a tabulation, should he choose to do so, by which he can break out the working interest, the royalty and the overriding royalty interest per tract within the unit?

A. Yes, he can go to Exhibit "B-1". Exhibit "B-1" will break out in detail lease, working interest owner, royalty interest owner, overriding royalty interest owner, record title owner and -- by tract.

Q. To your best knowledge and information, Mr. Moreno, have you and members of the staff of Apache made their best effort to obtain a correct and accurate tabulation of the names, interest and addresses of all those interest owners?

A. Yes, we have.

Q. How did you go about doing that?

A. We started out by having -- once we decided what our boundary outline was going to be and the operators and the owners, we went to each owner and we had them furnish us with their ownership dex, because most of these leases are HBP and they're all federal leases, and we've only got two operators within this unit. Apache being majority operator, we had most of the ownership dex already set up for title. T.H. McElvain had the other tracts, which basically they had furnished us their ownership title dex.

So from that we were able to piece together total working interest, overriding royalty interest and royalty interest owners, under the boundaries of the unit.

Q. Can you give Mr. Catanach an approximation of what you anticipate to be the range of commitment of working interest ownership that you have available to you in the unit?

A. Yes. As it stands right now, we have 82.078 percent of actual working interest owners who have signed and ratified the unit agreement and the unit operating agreement.

We also have letters from BP and Chevron, who have elected to participate subject to certain modifications to the agreement, which we have agreed to.

Given that, those two letters received by BP and Chevron, that takes us up to 99.48 percent of the unit.

Q. Direct your attention now to the royalty and the overrides as a component of the percentage commitment to the unit. What is your approximate estimate of that percentage for that group?

A. Of the 440 fee lands, basically, which represents 21.15 percent of the unit, we have 19 percent of the royalty and overriding royalty interest owners -- 19 of that 21 percent who have ratified. The federal government represents 78.85 percent of the royalty. The two combined together, we have approximately 97.866 percent of the royalty and overriding royalty interest owners who have ratified the unit and unit operating agreement.

Q. Let me now direct your attention, Mr. Moreno, to what is marked as Exhibit Number 5. Would you identify this document for us?

A. Yeah, Exhibit Number 5 is our unit operating agreement, which basically will govern the operations of the unit.

Q. Take a moment, Mr. Moreno, and run through the type of exhibits that are incorporated into the operating agreement. So what's attached to this?

A. Okay, we've got Exhibits "A", "B-1", "B-2" and "B-3". "A" basically is the exhibit that covers the unit -- unit boundary.

Okay, Exhibit "B-1" identifies the acreage comprising each tract percentage and kind of ownership of the oil and gas lease interests in and all the lands that are within the unit area.

Exhibit "B-2" is a schedule showing the tract participation of each tract during unit operations.

Exhibit "B-3" shows summary of tract participation of each tract for the proper -- basically we've done this for the proper BLM office.

And Exhibit "C", once again, is our type log which identifies the unitized interval underlying the unit area.

The other exhibits, we've got -- Exhibit "D" is the accounting procedure that will be applicable to the unit operations.

Exhibit "E" attached to the unit operating agreement contains insurance provisions applicable to unit operations.

Exhibit "F" is our gas-balancing agreement which will be applicable to the unit operations.

Exhibit "G" is a form of indemnity agreement that's under Section 14 of the unit agreement.

And Exhibit "H" is our nondiscrimination agreement, which is provided for in Section 22.2 of the unit operating agreement.

And the last exhibit we've got is our Exhibit "I", which is a list of the wells committed to the unit operations that will be delivered to the unit operator on the effective date for use in such unit operations.

Q. Mr. Moreno, let me direct your attention to the copy of the Statutory Unitization Act that I have circulated, and I'm turning over to page 65, and I want to show you the section 70-7-7.

A. Okay.

Q. Prior to this morning, have you reviewed all of those individual subsections set forth in the Statutory Unitization Act under 70-7-7?

A. Yes, I have.

Q. Can you answer to the affirmative as to all the components set forth under that subdivision, under that statutory section?

A. Yes, I can.

Q. To the best of your knowledge, have you made a good faith, diligent effort to consolidate all the interest owners on a voluntary basis?

A. Yes, I have.

Q. Let's turn to some of that action now, setting aside the statute for a moment. Let's look at the series of correspondence that you have provided, and let's start, then, with Exhibit Number 6.

A. Okay.

Q. Identify for Mr. Catanach what you had intended to accomplish by sending this letter and to whom you sent this letter.

A. Okay, Exhibit Number 6 represents our letter to all of the working interest owners, basically proposing to the working interest owners our formation of the East Blinebry-Tubb-Drinkard Waterflood Unit. And as you can see, we've got an attachment that shows the list of all the working interest owners that this was sent to, along -- well...

Q. As part of sending this notice letter to the working interest owner, did the letter include estimates by

Apache as to what they anticipated might be the total benefit in terms of additional oil to be produced under waterflood operations?

A. Yes, it did.

Q. And did you have an estimate that was provided by your technical people as to a range of costs for this project?

A. Yes, it did.

Q. And to the best of your knowledge, utilizing this information, can these costs be spent at an amount that will realize a profit plus paying for the costs of operation and the facilities?

A. To the best of our ability, yes.

Q. Let's turn now to Exhibit Number 7 and have you identify what you were doing with this letter.

A. Okay, in -- when we also sent out the letter -- or notice to the working interest owners for the formation of the unit, we also sent out a letter to the royalty and the overriding royalty interest owners, basically saying the same thing we said to our working interest owners. And that's what Exhibit Number 7 basically identifies.

Q. As part of each of those mailings, did you send them copies of the unit agreement and the unit operating agreement with the associated exhibits at that time?

A. Yes, I did.

Q. Let's turn now to Exhibit Number 8. What is this letter, and what was its purpose?

A. This letter is a letter which was a follow-up to our first letter of March 17, basically notifying all parties that we had received our preliminary approval from the BLM. And those parties that had not responded to our first letter, this was just a follow-up basically letting them know that we were going forward with our project.

Q. Let's turn now to Exhibit Number 9. Describe the purpose of this letter and what you were trying to accomplish.

A. This also is the same letter that we sent out to our working interest owners, basically notifying the royalty and overriding royalty interest owners that we had received preliminary approval to go forward from the BLM on this project and just advising our royalty and overriding royalty interest owners that we were moving forward and that we needed a response from them.

Q. The next letter, Mr. Moreno, is out of chronological order but it's marked as Exhibit 10.

A. Okay.

Q. Identify this for us and tell us the purpose.

A. Exhibit Number 10 is a letter which was sent out to all the working interest owners in accordance with the letter we received from the BLM of March 22nd, 2005, basically approving our unit agreement, and we were basically sending this letter, the BLM letter, out to all our working interest owners, advising them that we had received the preliminary approval from the -- actually sending them the letter from the BLM, notifying them that we have now a letter stating we've got the preliminary approval from the BLM.

Q. Mr. Moreno, let's turn now to the tabulation of information and the notices for purposes of today's hearing, and let's start with the working interest ownership list, and that is marked as Apache Exhibit Number 11.

A. Okay, what we've done here is basically broken out a schedule, if you may, of all of our working interest owners, their unit interest, and whether they have ratified or not ratified and signed the unit agreement and the unit operating agreement, plus comments basically stating when we made calls, when we sent letters out, and basically whether we could or we couldn't find them.

Q. In addition to the working interest ownership, Mr. Moreno, does this tabulation in subsequent pages include unleased mineral owners?

A. Yes, it does.

Q. And how do we find that information?

A. How do we find that?

Q. Yeah, where is it?

A. Oh, it's on the second page of the -- first page is identified as working interest owners, and the second page is identified as unleased mineral owners.

Same thing here, we basically have broken out their unit royalty interest, and the number of calls that we've made, and the comments we received back from them.

Q. As part of this mailing, then, you've attached to this exhibit copies of the return receipt cards?

A. That is correct.

Q. And if there wasn't a green card returned, then you've attached a copy of that portion of the --

A. Of the portion of the --

Q. -- mailing that shows that you sent it?

A. Right.

Q. As part of that mailing, then, what did these people receive? What was sent to them?

A. These people received unit agreement, unit operating agreement, in the first mail-out that we sent in the letter of March 17th. They received all correspondence of -- covering the unit agreement and the unit operating agreement.

Q. As part of this mailing, then, did they receive a copy of the applications that were filed with the Division?

A. This mailing here, yes.

Q. And that would have also included the notice of hearing letter --

A. Yes.

Q. -- that explains to them what they needed to do if they chose to object?

A. Right. Basically, this Exhibit 11 covers all notices, all follow-up letters, BLM letters and letters covering hearing notices.

Q. Let's turn now to Exhibit Number 12 and see what you did concerning the category of royalty and overrides.

A. Okay, once again we prepared another schedule and broke it out by royalty interest owners and overriding royalty interest owners and had a column -- several columns which basically showed whether they executed or not executed the ratification, and their unit royalty interest and comments as to when we sent all the letters and when we followed up with telephone conversations and responses from the people we were able to find.

Q. In addition, was there further information supplied to all these potential parties with regards to this hearing? I ask you to turn to Exhibit Number 13. Are these copies of the notice letters for the waterflood in the statutory unitization --

A. Yes.

Q. -- case that were sent?

A. Yes, these are copies of the notice letters that were sent out along with everything else.
Q. And attached to that, to the best of your knowledge, is a correct list of the additional parties that were sent notice --
A. That is correct.
Q. -- this format?
A. That is correct.
Q. Now let's turn to Exhibit 14 and talk about the waterflood portion of the Application that deals with providing notices pursuant to the C-108 filings where you send notice to the surface owners of the injection well locations and to operators within a half-mile radius. Is that what you're intending to do with Exhibit 14?
A. That is correct.
Q. So when we turn back behind the certificate, there's the letter, and then followed by that there is a tabulation that has well names associated with it, and then there's a column on the far right that says "Surface Owners"?
A. That is correct.
Q. To the best of your knowledge and information, is this an accurate list of those surface owners associated with injection wells?
A. Yes, it is.

Q. And the following page, then, is a list of the operators within a half-mile radius?

A. That is correct.

Q. With regards to any of these notifications, Mr. Moreno, have you received any objections from any of these parties being notified?

A. No.

Q. Let's turn now to Exhibit 15. This is a copy of the newspaper advertisement that was placed in the *Lovington Daily Leader* notifying by publication in the newspaper of the cases associated with this Application?

A. That is correct.

MR. KELLAHIN: Mr. Catanach, I notice that in photocopying the ad, at least this copy only has the one case. Both cases were published, and with your permission after the hearing I will give you the correct publication that has both cases associated with this exhibit.

EXAMINER CATANACH: Okay.

Q. (By Mr. Kellahin) At this point, Mr. Moreno, let's turn to the chronology that you prepared, Exhibit 16, and let's give Mr. Catanach a general summary of the chronology of activity that you and Apache have undertaken to put this project together.

A. Okay, basically this is a chronological order of contacts that we made, and beginning back in April of 2001 we first conducted our first working interest owners' meeting. BP, Chevron and some of the other larger interest owners at the time attended our meeting. And basically, this has been an ongoing project since this date.

We've had numerous meetings with Chevron and BP and T.H. McElvain, which basically -- once we met with T.H. McElvain, we got them on board with our idea. They were the partners that basically took us over the 75 percent, which basically moved us forward into pushing this project forward, because we then had our 75 percent required by the statute to further try to make this project go forward and work.

And basically, I've got other -- it just sets out numerous dates of telephone calls with certain parties, either royalty, overriding royalty owners or working interest owners.

Q. As part of this process, Mr. Moreno, did you have suggestions made to you by Chevron and by BP America for alterations in some of the language --

A. Yes, I did.

Q. -- that you were proposing under these agreements?

A. Yes, I did.

Q. Do you now have an agreement, as you understand it, with BP America, as well as Chevron and anyone else with regards to any modifications of the agreements, or any alteration of language?

A. Yes, we do have an agreement.

Q. Let's turn to what is marked as Exhibit 17, and let's have you explain to Mr. Catanach what you are intending to accomplish with Exhibit 17.

A. Exhibit 17 basically outlines changes that we will be making to our Exhibits "A", "B-1", "B-2", "B-3" and "C".

There are certain alterations that have to be made because of ownership that was just brought to our attention by Chevron, that has required us to add Tract 5D, and we have agreed to this. Exxon is claiming a 5-percent override, McElvain an override. It's under one of McElvain's tracts, so they're trying to sort through this thing to see whether Exxon actually does own the override.

There's an article -- Under Article 12.2, BP had requested that we have certain modifications to the Article 12.2 and Article 11.4 of the unit operating agreement, which Apache, *et al.*, had agreed to, and this basically sums up what we are deleting out of Article 12.2 and substituting therefor, and also basically sets out what we will be deleting under Section 11.4 of the unit operating agreement.

Q. Before we leave that section, Mr. Moreno, let's focus Mr. Catanach's attention on what you and BP were trying to achieve. If you go back to a copy of the Statutory Unitization Act and if you look under 70-7-7 and find Subsection F --

A. F.

Q. -- what you are trying to achieve here is some agreement upon the language, with both parties' intended purpose to allow you to have the opportunity, as provided under this statute, to recover costs plus interest in addition to the risk factor penalty of 200 percent?

A. That is correct.

Q. That was the objective?

A. That was the objective, that is correct.

Q. With the assistance of your attorneys within Apache, did you propose to BP America language that your counsel believed accomplished the purposes and the intent of the statute?

A. Yes, we did.

Q. Did you receive proposed changes back from BP America as to their construction of that intent and what language that they suggested?

A. Yes, we did.

Q. As a result of that back and forth, now, are both companies satisfied that you have language in place that will allow you to achieve the objectives set forth in the statute?

A. That is correct, we do.

Q. When we turn past that issue, on the second page of Exhibit 17, describe for Mr. Catanach the additional changes that have been agreed to.

A. Okay, the additional changes are, apparently on the signature page for Chevron U.S.A. we didn't have the dots -- basically it was USA, without the dots in between, so we've changed that.

We've changed and added under the Exhibit "D" COPAS, we inadvertently left off the word "Chase" for Chase Manhattan Bank, so we inserted "Chase".

Under Section III.2 and III.3, the "Overhead" and "Major Construction, Catastrophe" we inserted a threshold limit of $25,000, which was also inadvertently left off.

And on Sections IV.2.A and 2.b, under "Pricing of Joint Account Material Purchases, Transfers and Dispositions [of] Line Pipe", Chevron had requested that we delete the words "plus 20%", which we agreed to go ahead and do.

Q. At this point, to the best of your knowledge, have all the parties that have participated in the negotiations and discussions come to a mutual understanding and agreement about the various language changes?

A. Yes.

Q. At this point, do you believe that Apache as the operator of the unit will have effective and efficient control of unit operations?

A. Yes.

Q. And when we come back, then, to Exhibit 18, which is a copy of the portion of the Statutory Unitization Act that we talked about earlier, can you again tell us that you are satisfied that you can answer all these subsections in the affirmative?

A. Yes, I am.

MR. KELLAHIN: That concludes my examination of Mr. Moreno. We move the introduction of his Exhibits 1 through 18.

EXAMINER CATANACH: Any objection?

MR. CARR: No objection.

EXAMINER CATANACH: Exhibits 1 through 18 will be admitted.

Mr. Carr, do you have any questions?

MR. CARR: No, I do not.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Moreno, how many working interest owners are there in this unit?

A. There are 114 working interest owners -- no, I'm sorry, there are -- that's the royalty interest owners.

We've got 13 working interest owners.
Q. And 114 royalty interest owners?
A. 114 royalty interest owners, seven overriding royalty interest owners, and 10 unleased mineral owners.
Q. Okay, and I just want to go over your numbers again. At this point, working interest ownership that are committed to the unit is 82.078 --
A. That is correct.
Q. -- percent?
A. That is correct.
Q. And royalty interest, which includes the BLM, would be 97.866?
A. That is correct.
Q. And the BLM has ratified?
A. They have approved -- given preliminary approval and have ratified, yes, sir.
Q. Okay. Do you know which working interest owners have not approved?
A. So far, we have Exxon, which has a .0962 unit percent. They have agreed to give us a term assignment, and they're running that through their channels right now, so they're not going to be an issue.
And we've got two other small -- Frank Glispin, J.L. and Jessie Reynolds are the only other working interest owners that have not ratified the agreement.

Q. Do you anticipate those two interests joining?

A. We've had a lot of problems trying to -- we've made numerous contacts and efforts to try to contact each one of these parties, Glispin and Jessie Reynolds, and we have had no success in getting them to respond.

Q. Okay, all the interests you have been able to locate; is that right?

A. That is -- yes, the majority -- I would say 99 percent of them, yes.

Q. So there are some interest owners that you cannot locate?

A. There are some that we have undeliverable addresses. There's a couple that have been deceased, and we're trying to follow through with the ownership on that, and their ownership is -- I mean, it's -- unit ownership, when you break it down to the unit, it's less than a quarter percent, or even less than that.

Q. And that's royalty interest?

A. Those are the unleased mineral owners.

Q. Unleased mineral owners.

A. Right.

Q. And you've gone through all the normal channels to try and find their --

A. Yes, sir.

Q. -- find these interest owners?

A. Yes, sir.

Q. Now, the changes that you cited on your Exhibit 17 --

A. Uh-huh.

Q. -- those have already been incorporated into the unit operating agreement and unit agreement?

A. With the exception of item number 4, those -- item number 4 has not been yet. But everything else has.

Q. Do you now have to go back and have the parties re-ratify it with the changes, or how does that work?

A. I have talked to most of the working interest owners that have ratified, and they have no problem with these changes. So basically I think what we do is, we go and we send them -- because I've sent most of the working interest owners copies of the suggested changes, so they know this is going to happen and they had no problems with it.

So we will go back and just substitute, just substitute the pages, I guess, and have them submit it to all the parties that have ratified, with the pages that have been changed, and just have them substitute those pages.

Q. Now, these changes -- that did include changing the unit outline; is that correct?

A. No, we did not change the unit outline.

Q. You didn't change the unit outline?
A. No, no.
Q. You just revised the tracts?
A. We had to revise a tract under -- if you look at your -- if you look at your Exhibit 1 --
Q. If I can find it. Okay.
A. -- under 5D --
Q. Uh-huh.
A. -- that used to be -- covering the east half, the east half of Section 14, that used to be under 5C because we thought Chevron had an interest in the Tubb and the Drinkard.

They've subsequently informed me that they had sold that to Apache, and consequently we had to go and create and make that east half, east half, into an additional tract as 5D because Apache now owns it 100 percent as to those three horizons, and Chevron has been taken out of it.
Q. Okay.
A. So what that did is, it affected Apache's and Chevron's working interest only.
Q. Have all the parties, or at least all the working interest owners, or all the parties -- they've expressed no concern over the allocation formula, the tract allocation?
A. To my knowledge, they have not.

Q. Okay, and that's basically based -- 95 percent on cumulative production from the tract?

A. I believe that's right.

Q. You mentioned that this unit area, I believe, takes in a portion of the Blinebry Oil and Gas Pool --

A. Yes.

Q. -- Drinkard Oil Pool --

A. Drinkard Oil Pool.

Q. -- and Tubb Oil Pool?

A. And it's the Tubb Gas Pool only; is that right?

MR. KELLAHIN: I thought so.

THE WITNESS: Yeah, I think it's the Tubb Gas Pool.

Q. (By Examiner Catanach) Mr. Moreno, are you familiar with a waterflood unit that we approved -- I'm not sure how long ago; it was a Shell unit, it was approved for Shell --

A. Back in 1987, Northeast Drinkard Unit?

Q. Yeah, I believe that's the one.

A. Yes, Apache operates that.

Q. Okay. As I recall, when we did that unit we also -- there was also an application to consolidate the pools into one pool, I think, is what we did.

A. I believe that's correct.

Q. Is Apache taking a different approach in this case than we did in that case?

A. I'll have to defer that to our reservoir engineer.

EXAMINER CATANACH: Okay. I believe we did consolidate the Blinebry, Tubb and Drinkard and make it one pool. I don't know if you put that case on or not, Tom.

MR. KELLAHIN: I represented the Cones in that case, so if there's a mistake I probably did it.

(Laughter)

MR. KELLAHIN: I'm happy to help you.

Mr. Kevin Mayes, the petroleum engineer that's going to testify in a minute, can help us put that together.

Our intent was to -- our intent is not to flood the gas zone in the Tubb. And maybe our nomenclature is a little wrong, but when I looked at those rules for the NEBU unit that you're talking about, I wasn't sure to what extent they overlapped it into this new area, and so -- There may be a glitch that we'll have to research, but our intent is to do nothing different than they were doing over there. Got the same operator now.

EXAMINER CATANACH: But your intent at this time is not to consolidate the pools?

MR. KELLAHIN: I don't think that's necessary.

EXAMINER CATANACH: Okay.

MR. KELLAHIN: But then we'll have to look at the nomenclature to see how far you extended that consolidation in the other case.

EXAMINER CATANACH: I believe that it only went within the unit boundary.

MR. KELLAHIN: That's my recollection.

EXAMINER CATANACH: And I don't know if this unit is adjacent to that unit --

MR. KELLAHIN: Yeah, they match up, we're going to show you the map in a minute.

Q. (By Examiner Catanach) And Mr. Moreno, you've gone over 70-7-17, and you can attest that all those requirements will be met by this Application?

A. Yes, sir.

EXAMINER CATANACH: Okay. All right, I think that's all I have. I may think of something else, but that's I have right now.

MR. KELLAHIN: Thank you.

THE WITNESS: Thank you.

MR. KELLAHIN: At this time, Mr. Examiner, we'd call Mr. Bob Curtis. Mr. Curtis is a petroleum geologist.

Mr. Catanach, we are going to start with Mr. Curtis's testimony, and we're going to start with Exhibit 19, and this is the map that helps you see the relationship of these projects to the one before you this morning.

ROBERT E. CURTIS,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. For the record, Mr. Curtis, would you please state your name and occupation?

A. My name is Robert E. Curtis, I'm a petroleum geologist employed by Apache Corporation in Tulsa, Oklahoma.

Q. Mr. Curtis, on prior occasions have you testified as a petroleum geologist before the Division?

A. Yes, I have.

Q. Has it been your responsibility as a geologist for Apache to do the geology studies for this project?

A. Yes.

Q. And for presentation to Mr. Catanach this morning, do you have a series of geologic displays?

A. Yes.

Q. And this represents your work product?

A. Yes.

Q. And the opinions that you're about to express are your opinions about this project?

A. Yes.

MR. KELLAHIN: We tender Mr. Curtis as an expert petroleum geologist.

EXAMINER CATANACH: Mr. Curtis is so qualified.

Q. (By Mr. Kellahin) Mr. Curtis, let's start with Exhibit 19. Set the stage for Mr. Catanach, and let's come back to the question he had of Mr. Moreno. Where does the East Blinebry-Drinkard Unit fit in relation to the other waterfloods in this area?

A. Exhibit 19 is a locator map showing our proposed East Blinebry-Drinkard Unit in relationship to some other nearby Blinebry, Tubb and/or Drinkard units. It's basically centered on Township 21 South, Range 37 East, in Lea County.

This area also represents most of the area that I have mapped. The succeeding geologic exhibits you see are abstracted from this larger area map. East Blinebry-Drinkard Unit is bounded to the west by Northeast Drinkard Unit, which was unitized by Shell in 1987, subsequently purchased by Apache.

Q. Are you familiar with the geology for that unit?

A. Yes, yes. That unit has unitized the Tubb, the Blinebry-Tubb and Drinkard, and injects water into the Blinebry and Drinkard formations.

Q. When we compare that knowledge that you have on the geology for the northeast Drinkard with the geologic analysis that you've done for the East Blinebry-Drinkard

Pool, are there any geologic differences that matter?

A. No.

Q. Are you going to be able to conclude that there is a reasonable geologic basis for the boundary of the proposed Blinebry-Drinkard Unit?

A. Yes.

Q. Within the context of that areal extent, describe for us then what is the floodable interval that you're seeking to flood?

A. We are seeking to flood a portion of the Blinebry formation and a portion of the Drinkard formation, which we will depict on a succeeding cross-section.

Q. Is it Apache's intent not to inject water into the Tubb gas interval?

A. Yes.

Q. Is that the kind of physical operation that's being utilized in the Northeast Drinkard Unit?

A. Yes.

Q. When we look at the reservoir continuity issue, in looking at the Blinebry portion of that vertical extent, is that a reservoir formation that has reasonable geologic continuity to it so that it's subject to being floodable in a successful way?

A. Yes, it is. The Blinebry-Tubb and Drinkard formations extend over a very large part of the east

Central Basin Platform in Lea County, New Mexico.

Q. So in terms of floodability, then both the Blinebry and the Drinkard within this geographic area are subject to successful waterflood?

A. Yes, and in fact they have been successfully waterflooded in at least the three other waterflood units depicted on Exhibit 19.

Q. Let's continue, then, Mr. Curtis. If we save Exhibit 19 as our locator map, let's look at the vertical intervals. And if you'll turn to Exhibit 20, before you start describing in detail what your conclusions are, identify for Mr. Catanach what it is that we're looking at.

A. Exhibit 20 is a structural cross-section running essentially through the north-south center of the proposed East Blinebry-Drinkard Unit. It begins with a couple wells in the Northeast Drinkard Unit, highlighted in yellow on the locator map.

Q. For reference here, on Exhibit 20, I don't have a line of cross-section through the unit. Is there another display --

A. Yes, it's --

Q. -- I can look at to show me the line of cross-section?

A. -- 21 through 24 will show that line of cross-section.

Q. Well, let's just do that for a moment. Turn to Exhibit 21, let's unfold that one. And the red line that appears on Exhibit 21 is the line of wells associated with Exhibit Number 20?

A. Yes.

Q. Let's start, then, on the far western side of the cross-section, Exhibit 20, and have you walk us through the conclusions that you perceive to be applicable as a geologist to the waterflood.

A. Exhibit 20 demonstrates the formation tops of the Blinebry, Tubb and Drinkard formations. They are tied back into the type log used in the unit agreements.

The two wells on the far left-hand side of the cross-section, the Northeast Drinkard Unit, or NEDU Numbers 516 and 517, are actually outside the boundaries of the proposed East Blinebry-Drinkard Unit, demonstrating that the formations being unitized and waterflooded in the Northeast Drinkard Unit do extend over our proposed East Blinebry-Drinkard Unit.

The Bunin Estate 1-X on the far right-hand side of the cross-section, then, is outside the eastern boundary of our proposed unit, demonstrating that that well does not have commercial Blinebry or Drinkard reservoir, or commercially floodable reservoir, in that location.

Formation tops, you will see on the cross-section, the upper line is the -- I informally call it the top of the Blinebry, but the OCD would call it the Blinebry marker.

The red area on the very top of the two far-hand left wells are what is called the Blinebry gas cap. When Shell unitized Northeast Drinkard Unit, they identified a subsea level of minus 2255 feet as the oil-water contact. Anything above that level would be in the gas cap. It would also be our intent not to put water, not to flood that gas cap. That would be not in the best interests of producing those gas reservoirs.

The blue highlighted area is what we term the Blinebry oil leg. It extends from either the top of the Blinebry marker or the oil-water contact, whichever is lower, to a subsea depth of minus 2450 feet, below which Blinebry production is sporadic at best.

The gray highlighted formation is the Tubb, which we have mentioned as being primarily gas reservoir. We will prevent water from going into that formation.

Below the Tubb is the Drinkard. It's broken into two subdivisions on the cross-section. The green part is what we would call the oil leg. We will put water into that part of the Drinkard formation. The blue interval is below a subsea depth of minus 3225 feet, which was identified by Shell in 1987 as the Drinkard oil-water contact, and we will not put water into that interval either. It would not behoove us to do that.

The base of the unit is defined as the top of the Abo, then, which is the lowest formation boundary identified.

At the very bottom of the cross-section I do show decline curves as to both -- or all three, oil, gas and water production from those wells.

Q. When we look at Exhibit 20, as we move from west to east, as we get to the eastern portion or the right-hand side of this cross-section, it appears that you're losing both of these floodable reservoirs.

A. That is correct. That's the reason we have placed the eastern unit boundary where it is.

Our strategy informing or proposing this unit, kind of looking at all three of the last exhibits together, was, we wanted to unitize the largest possible area, keeping in mind that, number one, Apache wanted to have the largest working interest to be the unit operator.

Number two, we wanted to include sufficient outside operators who agreed with our proposal to get the proposal ratified and approved so we could proceed forward with a hearing and then unitization and waterflooding.

And number three, include all the Blinebry and Drinkard oil reservoirs, if you will, that we thought could be commercially waterflooded.

Q. Let's turn now specifically to Exhibit 21 and have you make the transition in from Exhibit 20 to 21, and show us on this structure map what it is that you're seeing that causes you to draw the eastern boundary of the proposed unit in the fashion that you've chosen.

A. Exhibit 21 is a structure map on the top of the Blinebry marker, as exhibited on the cross-section, a 50-foot contour interval. Production from the Blinebry, Tubb and Drinkard is basically a stratigraphic trap, however there are some important structural levels.

As I mentioned previously, Shell has identified a subsea level of minus 2255 feet as being the top of the Blinebry oil leg. Unfortunately, it looks as though my mapping software cut off part of those digits, but if you look at the extreme western half of Section 24 on the south edge of the map, the line labeled minus-22-blank-blank is actually minus 2250. So the defined Blinebry gas cap would be higher than or to the west left of that, so we include just a little bit of that gas-cap interval.

Also, moving to the east, a subsea depth of minus 2450 feet is defined as the commercial limit for Blinebry oil production. It is very near our eastern extent. Just coincidentally, the Drinkard subsea depth of minus 3225 falls between that contour line and the Blinebry and the minus-2400-foot contour line in the Blinebry, so again is coincident with that proposed eastern boundary.

Q. Let's build on the last two displays and now integrate your isopach on the Blinebry into this to see how that fits together. If you'll turn to Exhibit 22, let's take a moment and unfold that.

A. Oh, Exhibit 22.

Q. 22, right?

A. I went the wrong direction, Mr. Kellahin, excuse me.

Exhibit 22 is a net-pay map of the Blinebry oil leg, if you will. We have a 25-foot contour interval in this case. The key on the bottom right-hand side of the map, in addition to other things, shows the general thresholds I used when mapping.

To qualify as pay the Blinebry interval, first of all, had to be above minus 2450 feet. Gamma-ray had to be less than 45 -- excuse me, 40 API units. Crossplot porosity between 5 percent and 20 percent. And we chose crossplot porosity because the Blinebry, Tubb and Drinkard are mixed siliciclastic limestone and dolomite formations. The lithology has become rather complex, and without being able to calculate a crossplot porosity, the porosities, and therefore the pays you pick, become increasingly erroneous, and the map loses a lot of continuity, and therefore a lot of utility to us.

This is also the map, and as identified back on the cross-section in Exhibit 20, the green interval in the Blinebry is the interval that Mr. Mayes has used for his volumetric calculations.

Q. At this point, then, I want you to integrate the Drinkard map. Let's turn to the Drinkard isopach, Exhibit 23.

A. The Drinkard, again, oil-pay, if you will, map, I used the same threshold criteria: gamma-ray less than 40 API units, crossplot porosity from 5 to 20 percent. It demonstrates the existence of Drinkard pay over essentially all of the unit. Again, the zero isopach line coincides very nicely with the eastern unit boundary. And this is the interval identified on Exhibit 20. The cross-section is the green band through the Drinkard formation and is also the unit -- the unit and the map that Mr. Mayes used in calculating volumetrics for the project.

Q. Based upon all this data and information, Mr. Curtis, are you able to ultimately conclude that there is a reasonable geologic basis for the configuration of the unit boundary for purposes of waterflood?

A. Yes.

MR. KELLAHIN: That concludes my examination of Mr. Curtis.

We move the introduction of Exhibits 19 through 23.

MR. CARR: No objection.

EXAMINER CATANACH: Exhibits 19 through 23 will be admitted.

EXAMINATION

BY EXAMINER CATANACH:

Q. Is it predominantly the Blinebry that's dictating that eastern boundary, or is both the Blinebry and the Drinkard?

A. I would say probably, Mr. Examiner, that it's the Drinkard. Looking at the Blinebry, some pay does exist east of that boundary line, but it is so thin that we don't see it as, number one, being commercially attractive to put water in. Also when looking at production from the wells east of the boundary, they have been such poor producers that any tracts included over there would essentially receive no credit, at least from the cumulative production standpoint, would be heavily overweighted as to the surface area in the participation formula.

Q. Is there anything geologically that helps define the north and south boundaries of the unit?

A. Let me refer back to Exhibit 19 for just a moment.

Q. Nineteen.

A. That's the locator map.

Not particularly, however to the north, half a mile away from us, is ConocoPhillips' Blinebry-Tubb Unit. Again, Blinebry production in the general area between our proposed unit and Conoco's unit has not been good. To the south part of the -- our proposed unit is abutted to the currently existing Northeast Drinkard Unit, so we for sure could not extend any farther south there. And once again, production south of our unit has not been particularly good, at least through the little bit of Section 24 there you see there on the map.

Q. There is a tract that is excluded from both the Northeast Drinkard Unit and the East Blinebry-Drinkard Unit down in Section -- I can't read that section.

A. Section 14.

Q. Fourteen, yeah. Do you know why that has been excluded?

A. Perhaps you should refer that question to Mr. Kellahin, he represented that party. No, actually, your Honor -- Mr. Examiner, that's a 240-acre parcel. The western 160 acres is owned by Mr. Cone. Mr. Cone has resisted unitization attempts since the mid-1980s when the Northeast Drinkard Unit was proposed. We have discussed East Blinebry-Drinkard with him. Again, he does not desire to participate, so he was excluded.

Also there's a Chevron tract there that they prefer to be excluded, so we agreed -- you know, yielded to their wishes.

Geologically, there's no reason to exclude those tracts. However, for purposes of having our project ratified and proceeding forward, we had to exclude them.

Q. Okay. Now, within the Blinebry formation, that is fairly continuous through your proposed unit. It thins to the east. Are there selective intervals in the Blinebry that you've targeted for flooding? It's not the whole interval, right?

A. In general, Blinebry porosity and permeability seem to be -- especially permeability, seem to be contained within rather thin intervals separated by thick non-permeable intervals.

Obviously -- you know, wells, however are fracture-stimulated, so some of those intervals are connected. Also, you know, we will fracture through some tight intervals.

One of the -- essentially, no, we -- well, we probably will not concentrate much water in the area below minus 2450, however Mr. Mayes would be better suited to answer this question. We also intend to do infill drilling to connect zones of permeability that are rather discontinuous.

Q. Is the Drinkard kind of the same way, or is that -- is there kind of selective intervals in there?

A. It's the same type formation, permeability is in thin zones, separated by thick zones of impermeable rock. Again, I would assume that we would concentrate our water injection into the oil leg, but would defer specific answers to that question to Mr. Mayes.

Q. Okay. Now, you're unitizing from the -- I'm looking at Exhibit Number 2, from the NMOCD top of the Blinebry; is that what you're --

A. Yes, sir.

Q. Okay. That's what we're calling the top of the Blinebry?

A. I would assume that's correct. The Division identifies the Blinebry marker and then allows -- and then stipulates that the top of the Blinebry, if you will, reservoir is 75 feet above that marker.

Q. Okay. So that's the interval that you're unitizing from that top?

A. Yes, sir.

EXAMINER CATANACH: Okay, I don't think I have anything else. No.

MR. KELLAHIN: Mr. Catanach, with your permission we'll call Mr. Kevin Mayes. Mr. Mayes is a petroleum engineer with the Applicant.

KEVIN MAYES,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A. Yeah, my name is Kevin Mayes. I'm a petroleum engineer with Apache Corporation in Tulsa, Oklahoma.

Q. On prior occasions, Mr. Mayes, have you testified as an expert petroleum engineer?

A. Yes, I have.

Q. Pursuant to your employment as an engineer with Apache, has it been your primary responsibility to do the engineering aspects for this project area?

A. Yes, it has.

Q. As part of your work, have you made yourself knowledgeable about the engineering matters concerning the Chesapeake -- I'm sorry, the Apache-operated Northeast Drinkard Unit that's adjacent to the current project?

A. Yes,I have.

Q. And are the exhibits we're about to see exhibits that you have prepared?

A. Yes, they are.

Q. And have you been the principal employee of

Apache that's been responsible for negotiating the technical aspects of this case, including the participation formula?

A. Yes, I have.

Q. And when there's discussions between Apache and McElvain, they've been discussions conducted by you on behalf of Apache?

A. That's correct.

Q. And when there are technical discussions with other working interest owners about this project, it's been with you?

A. That's correct.

MR. KELLAHIN: We tender Mr. Mayes as an expert petroleum engineer.

EXAMINER CATANACH: Mr. Mayes is so qualified.

Q. (By Mr. Kellahin) Let's start with some background, Mr. Mayes. If you'll start with what we've marked as Exhibit Number 24, when you analyze the production that's historically gone on, let's use this display to show Mr. Catanach the points that are important to you.

A. Okay, yeah, Exhibit 24 is a production plot of the -- a summary of all the production that's come out from under the unitized area. Of course the red curve is gas production, the green curve is oil production, blue curve is water production.

And there's two black curves on the exhibit. The first or the lower of the two black curves, running about the 10 line, is a GOR line. That's actually in MCFs per barrel of oil. More recognized term is SCFs per barrel, which would be 10,000 GOR.

As you can see in the recent years, that GOR has slightly declined below 10,000. We believe that is due to some slight energy coming across the border from the northeast Drinkard unit and slightly affecting the production in the to-be-formed East Blinebry-Drinkard Unit.

EXAMINER CATANACH: Do you all have colored exhibits? Because I have a black-and-white -- or I'm color blind.

MR. KELLAHIN: No, it was to see if you're paying attention.

(Laughter)

EXAMINER CATANACH: Thank you.

THE WITNESS: Care for me to repeat all that?

Anyway, point of emphasis is, the GOR line has dipped below 10,000 in recent years, and again we attribute that to some slight energy coming across the boundary from the northeast Drinkard waterflood, which has been running for 20 years.

Another point to be made, there's another black line that's running about 50 there, kind of running through the blue water-production line. That is the active well count. As you can see, as of right now there's 47 active wells in the unitized area. Current oil production rate for the unit is 78 barrels of oil a day.

Q. What was the total wells?

A. Total wells, active wells, is 47 wells.

Q. And you're deriving what on a daily basis now?

A. Yeah, the cumulative production, 78 barrels of oil a day, so that's 1.6 barrels of oil a day per well. Very depleted reservoir, approaching its economic limit.

The vintage of the wellbores is 1950, 1960 vintage wellbores for the most part, and it is developed on a 40-acre spacing right now.

Q. Let's turn now to Exhibit 22 and have you summarize for Mr. Catanach some of the reservoir parameters that you've used to make your analysis.

A. I believe it's Exhibit 25 we're up to.

Q. I'm sorry, 25.

A. Again, this exhibit is just a summary of the reservoir parameters. The first set of information there deals with the average pay over both the Blinebry oil band and the Drinkard oil band, the average porosity, average water saturation, et cetera. The point to be made is that the original oil in place is 53.7 million barrels of oil.

I might add at this point that the participation formulas, indeed, a production formula, has no geologic or petrophysics parameters in it. And as has been stated earlier, it's based on 95-percent cumulative production and 5-percent surface acres.

The next batch of information there deals with the primary recoveries. Cumulative primary recovery to date is 8.3 million barrels of oil, we have 190,000 barrels of remaining oil, making for an ultimate primary recovery of just under 8.5 million barrels of oil.

Going on the next batch of information, that 8.5 million barrels of oil represents a 15-percent current -- or ultimate recovery factor, which is fairly standard for these reservoirs.

Going on, you can see that we are calculating a 23-percent gas saturation in the reservoir right now. Again, very depleted.

The next batch of information down deals with our anticipated injection rates and our fill-up time, and the fill-up time calculates out to be 8.5 years, a fairly lengthy fill-up time on this project.

And then the last two pieces of information are our estimated incremental secondary recoveries we expect from this project, which we're estimating at 3.4 million barrels of oil, which is a secondary-to-primary ratio of

.41, secondary barrels of oil to primary barrel of oil, which again is a very reasonable number.

Q. When we look at the reservoir values you've used for the East Blinebry-Drinkard Unit, how do they compare to the values that were used in the Northeast Drinkard Unit?

A. Very comparable.

Q. When we talk about the operational aspects of the new unit, is there any material difference in how you propose to operate the East Blinebry-Drinkard from what you're currently using to operate the Northeast Drinkard Unit?

A. No, operations will be very similar.

Q. Let's turn to some of the analogies. I think you have an Exhibit 26 that makes some comparisons about the performance of the waterfloods in the area?

A. Yeah, that's correct. What's represented on Exhibit 26 is the oil-production curve for the three analogous offset waterflood units. A red arrow indicates when injection was started at each of those various units.

I scrutinized the response and production performance of these three offset units under waterflood conditions with the larger working interest owners participating in this unit. I might note at this time that all of the working interest owners were balloted to form a technical committee or an engineering committee. All the parties declined, did not want to participate in that, left it to our work through meetings and correspondence to generate the technical aspects of this project.

All three of the offset waterfloods have performed nicely, have gained incremental reserves. And again, the average secondary-to-primary of those three offset analogies was .41 barrels of secondary reserves to barrels of primary reserves.

Q. Let's turn now to Exhibit 27 and look at what you forecast to be the performance of the current project.

A. Yes, Exhibit 27 shows the performance of this unit, a primary oil curve and a primary-plus-secondary oil curve, where the difference in those two curves represents the incremental recovery we expect from this project.

You can see initially we will lose 15 barrels of oil a day as we convert 17 producers to water injection. We'll catch up with the primary curve after one year and we will reach peak production out at eight point years [*sic*] after the reservoir is fully filled up.

The peak rate that's dictated on there represents 11.6 barrels of oil per day per producing well, which again comes directly off the average of the three analogies.

The incremental oil we project recovering from this project is 3.4 million barrels of oil.

Q. Mr. Mayes, let me direct your attention to

Exhibit 28, and let's talk about the relationship of the injection wells.

Do you have a color -- you have a copy?

EXAMINER CATANACH: (Nods)

THE WITNESS: Exhibit 28 is a plat again, showing the unit boundary, that starts addressing the issues of our infrastructure and our capital expenditures.

First of all, the black -- small black box off to the west of the plat, represents the location of our water source well. We will be -- It is completed in and has already been tested for water production out of the San Andres formation. It will supply all of our needs for water injection, so our water source will be 100-percent produced San Andres water.

The green lines represent injection lines, then, running from the water source well to the various injection wells.

And the blue diamonds represent the injection wells with a blue number associated with those blue triangles that represents what we anticipate to be the injection volume at each injection well.

Q. (By Mr. Kellahin) When we get to it in a minute, you are the engineer that prepared and was responsible for completing the Division Form C-108?

A. That's correct.

Q. Are the proposed injection wells that we're seeing on Exhibit 28 the same ones that you're seeking approval for injection when we get to the C-108?

A. Yes, they are.

Q. Are you ultimately able to conclude as an engineer, Mr. Mayes, that in your opinion the unitized management, operation and development of this unit is feasible?

A. Yes, I do.

Q. Are you satisfied that this can be accomplished at a reasonable profit?

A. Absolutely.

Q. Let's look at the cost components. If you'll turn to Exhibit 29, let's have you go through that summary.

A. Yeah, Exhibit 29 represents just a summary of the economics of the project. You can see initial capital investment is going to be $2.4 million, and then we have broken out the economic summary as to the working interest owner benefit, the mineral owner benefit, and the State of New Mexico benefit.

The working interest owners as a group will realize an after-income-tax present value, above and beyond the investment, of $5.8 million, which generates a 28-percent rate of return.

And the benefit to the mineral owners as a group is an after-income-tax present value of $1.5 million.

And of course benefit to the State of New Mexico in tax revenues is a present value of $900,000.

Q. Without approval and implementation of the waterflood project, are there recoverable oil reserves that would be left in the ground?

A. Absolutely.

Q. Let's turn now, Mr. Mayes, to modifications in the documents so that Mr. Catanach has a clear understanding of the wells that you're going to utilize for production and those wells that you're going to utilize for injection, at least those that you're seeking approval for at this time --

A. Correct.

Q. -- starting first with Exhibit 30.

A. Yeah, Exhibit 30 is an amendment to the unit operating agreement. It is Exhibit "I" of the unit operating agreement.

Unfortunately, my operations guys out in the field went and recompleted a Smith Number 1 well, which is in the last group of wells on page 1, recompleted it from the Abo formation up into the Tubb formation on me last week. As a result, I had to consider that that is an appropriate wellbore to include in the unitization, so we did make this amendment to Exhibit "I" which we will send out to all the pertinent parties after this hearing.

Q. So when Mr. Catanach is looking for a current, accurate count of wells that will be producing wells within the unit, this would be it?

A. Yes, this is all the wellbores that will be brought into the unit and inventoried at the effective date, yes.

Q. Let's turn to the tabulation of the wellbores that you're seeking to have approval for injection, if you'll turn to Exhibit 31, please.

A. Yes, Exhibit 31 is a list of our 17 wells that we anticipate converting from production into injection.

There is one difference between this list and the Exhibit 30 list, that being the second well down, which is the Elliott-Monterey Number 5. This is a wellbore that McElvain operates, and it is currently completed in the Abo formation. It is the intent of McElvain and all the parties to the unit that that wellbore -- it is uneconomic in the Abo formation. They are going to transfer that wellbore to us at the effective date, and the unit will spend the capital to abandon the Abo per regulations and complete it in the Blinebry and Drinkard oil legs and use it for an injector.

Q. Let's turn now to the underground injection control topic, and start with what we've marked as Exhibit

Number 32, which is the Division Form C-108. Is this the document you've prepared?

A. Yes, it is.

Q. And are these attachments your attachments?

A. Yes, they are.

Q. Let's go through in a summary fashion the general high points of this process, and then we can come back to more specific things.

A. Okay.

Q. If you'll turn past the Application portion, and let's continue turning until we get to what you call the well map, it's the cloud map that's got the half-mile-radius circles drawn around each of the injection wells. If you'll start at that point.

A. Yeah, what that page represents is a compilation of all the half-mile radiuses around all the injectors that we're applying for with this C-108 form.

Q. Having taken that area, then, have you then made a tabulation, using the Division-accepted form of tabulation, of all the wellbore data with regard to those wells that have penetrated to or through the injection intervals?

A. Yes, I have.

Q. Let's flip past the map and look at what is marked in this as page 1 of -- I believe this indicates five pages to the display?

A. Correct.

Q. Now, starting with the first part of the spreadsheet, describe for Mr. Catanach how you have organized the spreadsheet.

A. Yeah, just going across the headers at the top of that spreadsheet, the first column is the current operator of the well, second column is the lease name, third column being the well number, then going into the location, both the section and the footage location within that section, the API number -- or, I'm sorry, the type of well that it is, the API number assigned to that wellbore, spud date, total depth, designated with "TD", and then a construction of the wellbore, being all strings of casing that have been set in the wellbore, as well as the volume of cement in terms of sacks of cement circulated around that casing.

Next column is the top of cement, and what I did for top of cement is based on a calculation using 25 percent excess of the hole volume to account for washouts and non-gauge hole. And the cement slurry that I used, I assumed a 1.00 cubic feet per sack of cement, which is a very conservative yield on the cement.

And then the last column is just completion and comments, which is all the perforations that have been shot in any casing interval, squeezes that have been performed, P-and-A treatments, et cetera.

Back to the top-of-cement calculation, there were two or three wellbores where the calculation did not cover the top of the Blinebry within 200 feet, and fortunately those wells were all wells that Apache operates and I was able to go to our well files and secure either temperature logs or cement-bond logs and made a more accurate estimate of the top of cement, and those are the top-of-cements that will be reflected in this spreadsheet.

Q. Go back and ask you now, if there is a measured top, is it noted on the spreadsheet so Mr. Catanach can find that information?

A. It is not, I just plugged that number in. I can certainly provide that --

Q. Let's do that subsequent to the hearing, let's give him another spreadsheet that shows him those entries that are a measured top --

A. Okay.

Q. -- and if you'll further annotate it to note if you're used a cement-bond log or a temperature survey in that analysis so he'll know where you got the number. And when we look at the calculated tops, go ahead and put on the revised spreadsheet the calculation that you've used. And you've used the same calculation every time?

A. Yes, I have.

Q. Having done that, can you give us the range of cement cover above and below the injection interval? How would we know that?

A. Yeah, I mean, the closest calculated -- and I haven't committed it to memory, but is not within 200 feet of the top of the Blinebry formation, and the range runs all the way up to circulated to surface.

Q. Within that as your standard, do you as an engineer see anything that you would call a problem wellbore --

A. No, I do not.

Q. -- where you somehow would have inadequate cement?

A. No, I think all wellbores are constructed mechanically to not allow our injection water to escape our target formations.

Q. When we look at any plugged-and-abandoned wells within the area of review, do you have schematics in the C-108 that include every plugged and abandoned well?

A. Yes, I do, either a schematic or a sundry notice that documents exactly how the well was plugged. All the wells were plugged per NMOCD regulations and should not allow water to escape our target formations.

Q. So even using current technology on a plugged and abandoned well, you're satisfied that they meet the current standard?

A. Yes, I -- Yes, sir.

Q. You don't think you should go back and re-plug any of those wells?

A. No, I do not.

Q. Are there any producing wells that are producing below your waterflood areas for which there may be inadequate cement across the injection interval?

A. There's wells that produce below it, but none with inadequate cement, no.

Q. So your waterflood is not pressuring up unprotected casing in any well that's deeper?

A. No, not to my knowledge.

Q. When we look at the other components of the C-108, are you seeking any exception to the current pressure limitation of .2 p.s.i. per foot of depth?

A. No, we'll accept the .2 p.s.i. per foot of depth initially and run step-rate tests if we -- for any justification for higher pressure.

Q. You recognize the Division practice is to provide a procedure in your order that will allow you to submit for their approval of step-rate tests and therefore increase your pressure?

A. Yes, I do. And as a matter of fact, we've done that on the Northeast Drinkard Unit and gotten that pressure raised.

Q. When you look at how you're going to handle the operational components of the East Blinebry-Drinkard flood with what you're currently doing in Northeast Drinkard Unit, you have a common boundary. Is there any need for any kind of lease-line boundary injection agreements?

A. No, no, don't believe so, no.

Q. So what are you doing that causes you not to have to have those kind of agreements?

A. Over on the Northeast Drinkard Unit right now, we are drilling a -- producing wells 330 feet off the line in order to protect against this energy escaping the Northeast Drinkard Unit to any surrounding areas.

Q. So as operator of both units, you are protecting the owners in both units from migration of product across the common boundary?

A. Absolutely.

Q. When we look at the window Mr. Catanach was identifying back on Exhibit 19 --

A. Nineteen, yes, sir.

Q. -- he was looking at the white window --

A. Uh-huh.

Q. -- which is 160 acres of the Cone tract --

A. Correct.

Q. -- and there's an 80-acre tract that is a property operated by Chevron?

A. That's correct.

Q. Have both those entities been afforded the opportunity to participate in the current unit?

A. Absolutely.

Q. And have they chosen not to do that?

A. They have chosen not to do that.

Q. Describe for us what you intend to do operationally to keep injection fluids out of any gas production associated with the Tubb Gas Pool.

A. Yeah, any -- all 17 of the injectors we currently propose to convert to injection and any injection well we would apply for down the road is not currently completed in the Tubb formation, we will not complete in the Tubb formation.

Q. That is a circumstance that exists in the Northeast Drinkard Unit, does it not?

A. In some instances it did. I believe all the Tubb has been squeezed off in any injector in the Northeast Drinkard Unit at this time.

Q. I guess that was my point.

A. Yeah.

Q. The protection of the Tubb gas interval in that unit --

A. Correct.

Q. -- is accomplished in the same fashion that you propose to do so in this new unit?

A. Absolutely.

Q. Mr. Catanach had a question of pool nomenclature a while ago.

A. Yes, sir.

Q. Can you help us understand what it is that you're trying to do?

A. Yeah, I think so. In the Northeast Drinkard Unit, Mr. Catanach, that was formed back in 1987, they did create a common pool out of the three separate pools. At that time, though, I believe it took administrative application to downhole commingle the three different pools, and at this time it's my understanding that that is not required of these three pools. All that's required is to submit an allocation to the Hobbs District Office. As a result, we did not pursue creating one pool for the East Blinebry-Drinkard Unit. We respectfully entertain the idea if we think that will make things easier, but at this time we hadn't pursued that.

Q. Does your C-108 include a schematic or data concerning how you propose to recomplete these wells for injection purposes?

A. Yes, sir, there are schematics on every well we propose to convert from production to injection, yes.

Q. One of the principal reasons of that process, under that form, is to protect shallow freshwater sources?

A. Correct.

Q. Have you made a literature search with the State Engineer's Office as well as had field personnel go out and look for windmills and water sources in the area?

A. Yes, I have. Those are represented by the last four pages of the C-108, Exhibit 32. That is the location from the State Engineer's Office as to all the freshwater wells, their depth, et cetera.

Q. Are you satisfied that the method of setting surface-protection casing in this area is deep enough to protect all shallow freshwater sands?

A. Yes, I do.

Q. Is there any evidence in your experience, or in the files of Chesapeake, there's any open geologic faulting that would hydrologically connect the injection intervals to shallow freshwater sands?

A. No, there appears to be no hydrologic connection outside of the target zones.

Q. Is there anything contained in the C-108 that you want to specifically direct Mr. Catanach's attention to, as to being something that you perceive to be a difficulty?

A. No, I don't see any problems.

Q. Let's turn, finally, then, back to one of the earlier topics, and that's this question of the participation formula. We've specifically included an Exhibit 33, which is taken out of the agreement, and it sets forth the formula. As an engineer, Mr. Mayes, you had some choices to make about a proposed formula to recommend not only to your company, to McElvain and to others?

A. Yes.

Q. And one of the things you could have chosen to do was to use the complicated two-phase formula that currently exists and is in place for the Northeast Drinkard Unit?

A. Could have, yes.

Q. That formula for that other unit generally provides what?

A. Phase 1 of that formula involves the remaining -- estimated remaining primary reserves. Phase 2 uses, I believe -- it's a convoluted deal -- 75-percent ultimate primary and 25-percent current rate, I believe.

Q. Why have you chosen not to use something like that for the East Blinebry-Drinkard Unit?

A. The East Blinebry-Drinkard Unit, again, is very depleted. All the wells are approaching their economic limit, so there didn't seem to be a need for a remaining-reserve component to the formula. I discussed the formula at length with the five major working interest owners becoming part of this agreement and, you know, the vast majority was in agreement with that assessment.

Q. How long have you worked on trying to put this together, Mr. Mayes?

A. Over three years.

Q. When we look at the components of what you've done, this formula is going to provide equity to the tracts, independent of what you calculate to be the oil in place?

A. That's correct.

Q. So we don't have to use some kind of engineering -- I mean, some geologic-based component to try to approximate what is the waterflood reserves associated with an individual --

A. That's correct, yeah.

Q. So you're using production?

A. That's correct.

Q. And then you've got an acreage factor, factored into the formula?

A. Yeah, what happened was, due to some horizontal severs there would have been some very minor tracts that would have received no participation. As a result, the BLM recommended to us to use 5-percent surface acres as a way to give those parties some participation, and all the major parties agreed to that.

Q. Are you satisfied that the utilization of this participation formula is fair and reasonable?

A. Yes, I do.

Q. And it provides reasonable value for all the tracts within the unit that are going to be affected?

A. Yes, I do.

Q. If you had an interest in this unit, would you be pleased to receive your share of proceeds using this formula?

A. Absolutely.

Q. Is Apache experiencing any water flows or any surface problems associated with the injection of fluids in the Northeast Drinkard Unit?

A. No, we are not.

Q. And you said all of your source water for injection into the new project is going to be produced water?

A. Going to be produced water from the San Andres, which is the same source as the Northeast Drinkard Unit.

Q. So there's no makeup fresh water?

A. That's correct.

Q. Mr. Mayes, let's make sure we've covered the testimony points concerning the tax credit. We're talking about the enhanced oil recovery tax credit associated with this Application?

A. Yeah.

Q. Attached to the waterflood Application is an engineering affidavit that sets forth your affidavit with regards to all the components that the Division requires testimony concerning qualification for the enhanced oil recovery tax credit?

A. Yes, I believe it does.

Q. And is that your affidavit that's associated with that Application?

A. Yes, it is.

Q. Let me show that to you, Mr. Mayes. Here's the Application, here's your signature.

A. Correct.

Q. And with regards to the values associated with the capital expenditures and the other items set forth in that affidavit, those are your numbers, right?

A. That's correct.

Q. Are there any changes or alterations that you desire to make to the information set forth in the affidavit associated with the Application that qualifies this project pursuant to the Division Rules for the enhanced oil recovery tax credit?

A. No, I do not.

MR. KELLAHIN: That concludes my examination of Mr. Mayes. We'd move the introduction of his Exhibits 24 through 33.

EXAMINER CATANACH: Exhibits 24 through 33 will be admitted.

And I just have a few questions.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Mayes, I was looking at Exhibit Number 28 with regards to the injection wells.

A. Okay.

Q. How did you arrive at that particular injection pattern within the unit?

A. Yeah, that's a -- it is a fivespot pattern, which is essentially brought over from the Northeast Drinkard Unit, so it follows the trend of their pattern.

There are, let's see, three areas where there are two wells stacked on top of each other. What that represents is, there are twin wellbores. One wellbore is completed in the Blinebry, the other wellbore would be completed in the Drinkard, and it's desired to ensure that water injection makes it down to the Drinkard, and that's why we're utilizing those twin wellbores.

Q. So some of the wells are not completed -- Are they drilled down to the Drinkard?

A. Some of them over on the east side are not drilled down to the Drinkard, they are just Blinebry. But what one has to realize is, from the top perf of the

Blinebry to the bottom perf of the Drinkard is almost 1000 feet of gross interval, and we've experienced over at Northeast Drinkard Unit, when you start injection you don't get an even profile of injection across that much of a range.

So over on this East Blinebry we're kind of learning from the issues over at Northeast Drinkard and trying to force more water down to the Drinkard, and that's what we have those twin wellbores. But essentially it is a fivespot waterflood pattern we're installing.

Q. Now, do you plan on drilling any additional injection wells on the eastern portion of the unit?

A. Yes, sir, what the plan of operation is, is to inject for -- I've recommended three or four years to allow this reservoir to start pressuring up and then start drilling 20-acre infill wells. And we will probably work our way from west to east, as the west had more pay in it as you're -- and of course pinching out as you go east.

Q. Okay. From the information I've seen, it appears that the Drinkard and the Blinebry are pretty much fully developed within the unit.

A. That's correct.

Q. You did mention, however, that there was a recent recompletion to the Tubb.

A. That's correct.

Q. What is the status of the Tubb completions in the unit? Is it --

A. Very few. Actually, within the unit area I think there was one existing Tubb completion, then our new completion made two.

The interesting thing about the Tubb under this area is that it might have an oil component to it, and as we develop -- as we drill some new wells, get some modern logs, we as a unit -- all the participants are kind of anxious to see if that is a well over there, and we might be able to flood it also. But at this time we're treating it as a gas zone.

Q. Uh-huh. Well, are you concerned, then, about the participation formula, being that it's based on cumulative production and the fact that the Tubb is not very well developed in the unit? Is that a concern?

A. Well, it's not developed now, so the unit participants will be participating in the capital to develop the Tubb, so I think that the formula is still equitable in that aspect. All the people that are going to get the majority of the production revenue out of the Tubb will be paying the capital to develop the Tubb.

Q. In the Northeast Drinkard Unit, have you had any problems with any water getting into the Tubb formation?

A. No, no.

Q. And as I understand your plan of operations for the injection wells, you would simply perforate the zones in the Blinebry and the Drinkard that you plan to flood, just up and down the hole, and just not perforate any Tubb interval?

A. That's correct. I mean, the way all the wells that we're going to convert to injection exist right now is, they are only completed in the Blinebry and the Drinkard.

Q. Is that basically the same way that they've been doing it in the other units?

A. Northeast Drinkard Unit?

Q. Uh-huh.

A. Well, the Warren Unit is downstructure to the Northeast Drinkard Unit, and the Tubb does turn into oil, and they do waterflood the Tubb at the Warren Unit.

Q. Well, I guess -- Are you satisfied that your wellbore integrity in some of these injection wells is sufficient to not allow any water to get into the Tubb?

A. I do, yeah.

Q. You were talking about an exhibit that had to do with the EOR. Do I have that?

MR. KELLAHIN: I thought we did.

THE WITNESS: I don't know as we made an exhibit out of it. We verbalized it more than anything else.

EXAMINER CATANACH: Okay, so you were just --

MR. KELLAHIN: You were talking about that production display, and he only mentioned it in his testimony. There's not a separate EOR exhibit, right? You were looking at the production data --

EXAMINER CATANACH: Well, as far as qualifying the project for the EOR tax credit --

MR. KELLAHIN: I think the tax credit --

EXAMINER CATANACH: -- we were talking about that last --

MR. KELLAHIN: Yeah, right.

EXAMINER CATANACH: -- and there's not an exhibit to that effect.

MR. KELLAHIN: His testimony is, the affidavit associated with the Application is his testimony, and it meets all the requirements of the tax credit process.

EXAMINER CATANACH: Okay, I've got it.

MR. KELLAHIN: I thought you were talking about gas-oil ratio, I'm sorry.

EXAMINER CATANACH: I just wasn't sure that there was an exhibit that kind of went over that.

MR. KELLAHIN: You would have to look at his affidavit associated with the Application. We were trying to shorten this process, Mr. Catanach. We can make it longer if you want.

EXAMINER CATANACH: Okay, I think that's all I have, although I'll probably think of something later that I should have asked, I'm sure. That always happens. Anyway, that's all I have.

Mr. Carr, you didn't have anything?

MR. CARR: I have no questions.

EXAMINER CATANACH: Okay. There being nothing further in these cases, Cases 13,504 and 13,503 will be taken under advisement.

(Thereupon, these proceedings were concluded at 11:55 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 13503, 13504 heard by me on June 16, 2005.

David R. 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 June 19th, 2005.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006