STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

CASE 10,618, 10,619

EXAMINER HEARING

IN THE MATTER OF:

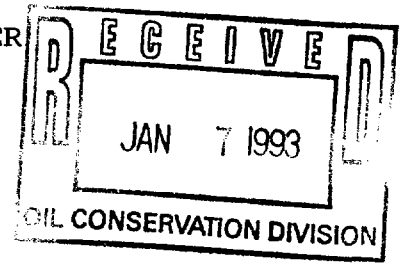
Application of Siete Oil and Gas Company for statutory unitization, Eddy County, New Mexico

Application of Siete Oil and Gas Company for approval of a waterflood project, Eddy County, New Mexico

TRANSCRIPT OF PROCEEDINGS

ORIGINAL

BEFORE: DAVID R. CATANACH, EXAMINER



STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

December 3rd, 1992

A P P E A R A N C E S

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I N D E X

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E X H I B I T S

APPLICANT'S EXHIBITS:

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WHEREUPON, the following proceedings were had at 1:20 p.m.

EXAMINER CATANACH: At this time we'll call Case 10,618.

MR. STOVALL: Application of Siete Oil and Gas Company for statutory unitization, Eddy County, New Mexico.

EXAMINER CATANACH: Are there appearances in this case?

MR. PADILLA: Mr. Examiner, my name is Ernest L. Padilla, Padilla & Snyder, Santa Fe, for the Applicant in this case.

And I also request that the case for waterflood, Case 10,619, also be called at this time.

EXAMINER CATANACH: At this time we'll call Case 10,619.

MR. STOVALL: Application of Siete Oil and Gas Company for approval of a waterflood project, Eddy County, New Mexico.

MR. PADILLA: Mr. Examiner, we move that both of these cases be consolidated for hearing and separate orders be issued.

EXAMINER CATANACH: Okay, Mr. Padilla.

Are there any additional appearances in

either of these cases at this time?

Okay.

MR. PADILLA: Mr. Examiner, I believe Jim Bruce filed an entry of appearance yesterday in this case. He said he would not be here today but he did file an entry of appearance.

MR. STOVALL: He did not file a pre-hearing statement. That would have been -- It was just a written --

EXAMINER CATANACH: Yeah, and I saw it --

MR. STOVALL: Probably in the case file.

EXAMINER CATANACH: Maybe, maybe not.

MR. PADILLA: I have a copy of it if you'd like to see it.

EXAMINER CATANACH: Let the record reflect that Mr. Jim Bruce of the Hinkle firm has entered an appearance in this case on behalf of Santa Fe Energy Operating Partners, L.P.

MR. PADILLA: Mr. Examiner, I have three witnesses.

EXAMINER CATANACH: Will the three witnesses please stand and be sworn in?

(Thereupon, the witnesses were sworn.)

MR. PADILLA: We'll call Gene Shumate at this time.

GENE SHUMATE,

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

DIRECT EXAMINATION

BY MR. PADILLA:

Q. Mr. Shumate, for the record please state your name.

A. Gene Shumate.

Q. Mr. Shumate, are you a petroleum landman?

A. Yes, sir.

Q. And have you previously testified before the New Mexico Oil Conservation Division and had your credentials accepted as a matter of record as a petroleum landman?

A. Yes, sir.

Q. Have you prepared or had compiled under your supervision certain land exhibits for introduction at this hearing today?

A. Yes, I have.

Q. Would you first tell the Examiner briefly what is it that you have compiled in terms of land exhibits?

A. For land exhibits today, we have put together the unit -- proposed unit agreement, proposed unit operating agreement, and various other documents as far

as mailings, et cetera.

MR. PADILLA: Mr. Examiner, we tender Mr. Shumate as an expert petroleum landman.

EXAMINER CATANACH: Mr. Shumate is so qualified.

Q. (By Mr. Padilla) Mr. Shumate, would you briefly describe what Siete is seeking by its Applications here today?

A. We're seeking approval for the Parkway-Delaware waterflood located in Eddy County, New Mexico, covering approximately 920 acres in portions of Section 26, 35 and 36, Township 19 South, Range 29 East, and Section 2 of Township 20 South, Range 29 East, Eddy County, New Mexico.

Q. Mr. Shumate, let's get right into the exhibits and go into Exhibit Number 1 that has been marked as an exhibit for Siete and have you tell the Examiner what that is.

A. Exhibit 1 is our proposed unit agreement, the unit operating agreement for the Parkway-Delaware flood.

Q. Now, at the very top of that is a map. Is that the map of the proposed unit?

A. Yes, sir.

Q. Is that also the map of the proposed

waterflood project?

A. Yes, sir, it is.

Q. And both have identical descriptions?

A. Yes.

Q. What follows that map?

A. Following it, the map, is a table that lists each of the tracts, the legal descriptions for those tracts, the federal or state lease number, record title holder, the breakdown of the overriding royalty interest and working interest by tract.

Q. Now, the map and this second series of pages that are labeled Exhibit B, those are really Exhibit A and Exhibit B to the unit agreement; is that correct?

A. Yes, sir.

Q. And that lists all the interest owners for the working or royalty interests --

A. Yes, sir.

Q. -- and overrides?

A. Yes, sir.

Q. Okay. Let's go on to the third item in that exhibit, and tell us what it contains.

A. The third item is the unit operating agreement for the proposed Parkway-Delaware. It provides for how operations and -- names the operator, provides for the operations of the unit.

Q. Does that define the rights and duties of the working interest owners in the proposed unit?

A. Yes, it does.

Q. Does that also identify how costs and expenses are going to be shared amongst the working-interest owners?

A. Yes.

Q. And does that have a procedure for voting in terms of how -- what is going to be done as far as operating the unit?

A. Yes, sir.

Q. Tell us how that currently is going to be done in terms of voting and that sort of thing and carrying out certain aspects of the unit and its operations.

A. The unit agreement, as it stands right now, as proposed, provides for 85-percent approval of the parties for a new project.

That will be amended by the parties. We've verbally agreed with the major working interest owners to amend that portion of the agreement.

Q. The exhibit here calls for 85 percent?

A. Yes, sir.

Q. And you've agreed with everyone else to change that to 65 percent?

A. To 65 percent.

Q. Does the unit operating agreement also contain the customary COPAS that is contained in most operating agreements?

A. Yes, sir, it does.

Q. And that's the standard COPAS that is used by the oil and gas industry?

A. Yes, sir.

Q. What else does that -- the unit operating agreement have in terms of attachments to it?

A. You've got your Exhibit A, which once again is a breakdown of the working interest owners.

Exhibit A-1, which is tract descriptions.

Your Exhibit B is an outline of the unit area.

Q. And that's the same thing as the first map; is that correct?

A. Yes, sir, it is.

Q. And --

A. Your accounting procedures we've previously discussed, and then your insurance provisions.

Q. Does this unit operating agreement contain a provision for nonconsenting working interest owners?

A. Yes, it does.

Q. And what -- where is that provision

contained?

A. That would be Article 11.5.

Q. And what does that say?

A. It provides for a 200-percent penalty.

Q. And is that the maximum allowed by law?

A. Yes, sir.

Q. And when you say 200-percent penalty, you're saying proportionate oil costs plus 200 percent?

A. Yes.

Q. Now, do you have anything further to add to your testimony concerning the unit operating agreement?

A. No, sir.

Q. Let's go on now to the final portion of Exhibit Number 1, which is the unit agreement, and have you identify for the Examiner the various aspects of that.

And in particular I'd like for you to tell the Examiner where is contained the vertical limits of the pool or of the unit. In other words, what intervals are you going to unitize?

A. The unit agreement provides in Article 2 the depth limitations for the proposed unit, identified on the electric log of the Osage Federal Number 1, being 50 feet above 3914 feet and 50 feet below 4288 feet.

Q. Mr. Shumate, is that generally 50 feet above

the Parkway-Delaware Pool and 50 feet below the pool, as far as you know?

A. Yes.

Q. Okay. Your geologic witness is going to testify more concerning the type log and that sort of thing; is that correct?

A. Yes, he will.

Q. Where is the tract participation for the unit agreement or for operation of the unit found in this unit agreement?

A. That would be covered under Article 6, 6.1 in particular.

Q. Can you briefly tell the Examiner how tract participation will occur, even though your engineer is going to be more elaborate on that?

A. Tract participation, it was jointly done, Meridian, Santa Fe, Siete, through Platt, Sparks, went in and picked the different zones, came up with parameters which each party could agree to, and that basically was breaking out producing sands to come up with the participation factors.

MR. STOVALL: Mr. Padilla, would you hold on for a minute here? My exhibit seems to be somewhat out of -- Do you have all your parts, Mr. Examiner?

EXAMINER CATANACH: I'm not sure.

MR. STOVALL: Because as I go through my exhibit, I'm on -- I've got the unit agreement, I've got the cover sheet --

THE WITNESS: Are you missing 3?

MR. STOVALL: Article 2, I've got the start of Article 3, references exhibits, my next page, first full -- first article that starts the last page is Article 8.

MR. PADILLA: Mine is the same way. is that --

THE WITNESS: Yeah, that's a good copy there.

MR. STOVALL: Maybe what we can do is substitute, make sure we take these out and get them out of the case file, and we'll use the accurate one to --

Q. (By Mr. Padilla) So there are a number --

A. Excuse me.

Q. So there are a number of parameters that go into tract participation; is that right?

A. Yes, there are.

Q. And that relates to geology and cumulative production or that sort of thing in terms of how you ultimately arrived at that, correct?

A. Yes, sir.

Q. Mr. Shumate, have you had any meetings with

the Bureau of Land Management and the New Mexico Commissioner of Public Lands in terms of getting approval for this unit agreement?

A. Yes, sir, we have.

Q. And what has been the result of those meetings?

A. We have received preliminary approval from both Bureau of Land Management and the State.

Q. And that's in the form of Exhibits 3 and 4; is that correct?

A. Yes, sir.

Q. I've skipped 2 momentarily, Mr. Shumate.

At this time I'd like for you to tell the Examiner what efforts you have made to obtain voluntary approval of this unit.

A. We have sent out the proposed unit agreement to all the royalty interest owners and working interest owners within the proposed unit.

Q. And when did you start doing that in writing?

A. July of 1992.

Q. In July of 1992, did you send to all of the working interest owners and royalty owners what has been marked as Exhibit Number 2?

A. Yes, sir, we did.

Q. And can you tell the Examiner what type of

joinder in terms of voluntary joinder you've obtained since that time, both the working interests and royalty interests?

A. To date we've received 61-percent approval of the working interest owners.

We have approval for the project of 83 percent.

Santa Fe has yet to sign the agreement. We're still negotiating on some major -- minor items, and we anticipate being able to obtain that approval.

Q. Is a representative of Santa Fe present here today?

A. Yes, sir.

Q. And you've continued to speak with Santa Fe in terms of working out the minor problems that you speak of?

A. Yes, we do.

Q. Do you anticipate that within six months of an order by the Oil Conservation Division, that you will have at least 75 percent of the working interest owners approve?

A. Yes, sir. I really feel like we'll be at probably be at 95 percent approved.

Q. Within six months?

A. Within the six months.

Q. Are there going to be some other five percent or so that are not going to approve? Is that what you're essentially saying?

A. We anticipate that probably four or five percent will not approve the project, for whatever reason.

Q. How about the royalty owners?

A. To date we've received 85 percent approval of the royalty owners within the proposed unit.

Q. Is there anywhere where you have a listing of those who have approved and those who have not approved the unit in terms of both royalty and working interest owners?

A. Yes, sir, within the brochure here --

Q. Exhibit -- ?

A. Exhibit 22.

Q. Exhibit 12, right?

A. Exhibit 12.

Q. Okay.

A. Yes, sir.

Q. Would you point to the Examiner where in Exhibit 12 you have that list?

A. It would be under the section of figures, Figure Number 22.

Q. And what is that Figure 22?

A. It's an exhibit that lists all the working interest owners within our proposed unit, a breakdown by tract of their working interest.

On the right-hand side you'll see their total percentage within the unit, and under the "Approved" column where there are numbers indicated, those are the parties that have approved to date.

Q. And if you add that column up, you come up to 61 percent?

A. Sixty-one percent.

Q. And if you threw in the Santa Fe Energy --

A. -- you get 83 percent.

Q. -- you'd be at 83 percent.

Is there a list for royalty owners?

A. Yes, the following page is a two-page summary, identical as far as tract breakdown, which lists the royalty owners within our proposed unit.

Q. And that also shows the royalty owners who have approved and not approved the unit?

A. Yes, sir, it does.

Q. Okay. Can you tell the Examiner what type of meetings you have had with -- or whether you've had any meetings with the working interest owners for the waterflood and for statutory unitization?

A. We have had meetings probably over the last

two years. Initial meetings were started in summer of 1990. Initially, they were geological meetings to determine how they were going to come up with the parameters to try to work on the unitization.

At a later date it was more of an engineering type, along with geology.

Several meetings, until the final agreement was put together to form the unit earlier this year, and then the proposed agreements went out in July of this year.

Q. Who have been the major players, as far as working-interest owners are concerned?

A. The major participants in the unitization meetings were Siete, Santa Fe and Meridian.

Other operators in the unit were invited to participate. Due to their smaller interest, they elected not to take a hands-on approach to the deal. But they have been kept informed all along.

Q. Okay. Let me go back to Exhibit Number 2, and I'd like for you to briefly tell the Examiner what that exhibit contains.

A. Exhibit 2 is our Parkway-Delaware waterflood proposal. It was sent to all the working interest owners, and an identical copy was sent to all the royalty owners, the only difference being that a

ratification was attached for them as to the unit.

It lists our proposed AFE, waterflood unit parameters, phase 1 and phase 2 AFE proposals for the unit.

Q. That also contains a tract participation formula in Attachment Number 4; is that correct?

A. Yes, sir.

Q. And your engineer will speak to that in more detail?

A. Yes, sir.

Q. Okay. What else is in there? Obviously the AFE that's in here does not apply to royalty owners, does it?

A. No, sir, it does not.

Q. Anything further on that exhibit?

A. No, sir.

Q. All right. Let's go to what we have marked as Exhibit Number 5 and have you identify that, please.

A. Exhibit 5 is a letter from Meridian Oil concerning our proposed Parkway-Delaware unit.

Q. What's the essence of that letter?

A. Essentially Meridian is approving our proposed project, subject to minor modifications to the unit operating agreement, unit agreement.

Q. And do you anticipate that those minor

changes will get worked out?

A. Yes, sir, we verbally have agreed to all of their changes they've requested.

Q. Okay. How about Santa Fe Energy?

A. Santa Fe Energy has requested some items. I would say that 90 percent of them we're in agreement with.

There's a few small items we have yet to work out. From my experience in working with Santa Fe in the past, I feel like we'll come to an agreement.

Q. Okay. Let's move on to Exhibit Number 6 and have you tell the Examiner what that is.

A. Exhibit Number 6 is a purchase and sale agreement between Strata Production Company and Siete to acquire their interests within the proposed unit, which would be Tract 1.

Q. Tract 1 is right at the top of the map, right?

A. Yes, sir.

Essentially, the agreement provides that all working interest owners will be given the opportunity to sell, and those who elect not to sell will ratify the unit agreement.

There are two or three working interest owners in the Strata well that are also partners in the

Siete wells, and we anticipate they'll ratify the unit rather than selling.

Q. This exhibit is labeled "Draft" at the top. Can you explain that?

A. Essentially, this was a proposal that we had worked on, and it essentially outlined our agreement, and so therefore we just executed it, and it became our agreement.

Q. Okay. So you're in effect buying out Strata; is that --

A. Yes, sir, we are.

Q. And how many interest owners does that affect, approximately?

A. Approximately, I would say, 20 to 30 working interest owners.

Q. Let's go on to Exhibit Number 7 and Exhibit Number 8, and identify those for the Examiner, please.

A. Exhibit Number 7 is the application -- It's the notification to all the working interest owners and royalty owners of the Application for statutory unitization.

Q. And those were sent out of my office; is that correct?

A. Yes, sir, they were.

Q. And attached to that are the return receipts

of all those people that were sent this mailing, right?

A. Yes, sir.

Q. Both of the waterflood and the statutory unitization, correct?

A. Yes, sir.

Q. Okay. Let's go to Exhibit Number 9 and have you identify that, please.

A. Exhibit Number 9 is a list of the parties where their return receipts -- where they're mailed as not received. There's approximately seven parties within the unit.

Q. What efforts are you trying to -- or what efforts are you making to make sure that these people are ultimately contacted?

A. We'll attempt to locate them, and also get them a copy of the unit agreement.

Q. Do you think you may have a problem with addresses or something of that nature?

A. Something like that, yes, sir.

Q. What are Exhibits 10 and 11?

A. Exhibit 10 is an affidavit prepared by your office, or prepared by you, which states that all the parties on the attached list were sent copies of the proposed application for statutory unitization.

Q. And waterflood?

A. And waterflood, yes, sir.

Q. All right. Mr. Shumate, do you have anything further to add to your testimony?

A. No, sir.

MR. PADILLA: Mr. Examiner, we tender Exhibits 1 through 11 and tender Mr. Shumate.

EXAMINER CATANACH: Exhibits 1 through 11 will be admitted as evidence.

MR. STOVALL: Mr. Padilla, could we get another copy of Exhibit 1 --

MR. PADILLA: Oh, certainly.

MR. STOVALL: -- that's been corrected?

MR. PADILLA: What we have are all bad copies, so we'll prepare a good one for you.

MR. STOVALL: Okay.

MR. PADILLA: But you do have one with you.

MR. STOVALL: We do have the one, yeah.

Mr. Shumate, we're not through with you yet.

THE WITNESS: I'm sorry.

MR. STOVALL: I do have one question while the Examiner is looking.

EXAMINATION

BY MR. STOVALL:

Q. Back on your Figure 22 -- Is it 22? Is that correct?

A. Yes, sir.

Q. The royalty -- Now, it appears that the working interest list is based upon 100-percent working interest; is that correct?

A. Yes, sir.

Q. Now, it would appear to me that the royalty tabulation is based upon the total -- upon the -- they're essentially really a net revenue, non-cost; is that correct?

A. True.

Q. So to figure out that calculation, I'd have to divide the 16.16 by the .19 to see where we --

A. Yes, sir.

Q. Okay, as long as I know how to do it.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Shumate, has the allocation formula been agreed to by Siete, Santa Fe and Meridian?

A. Yes, sir.

Q. That's not one of the sticking points with Santa Fe?

A. No, sir. Strictly provisions of the unit operating agreement.

Q. Is there a reason for requesting unitization outside of the pool boundaries? You said generally 50

feet below the pool.

MR. STOVALL: Vertically, beyond the pool boundaries.

Q. (By Examiner Catanach) Yeah, vertically, above and below the Parkway-Delaware Pool.

A. That covers the entire productive interval of our Parkway-Delaware.

There are four other wells in the Parkway-Delaware Pool. They're east.

One is operated by Santa Fe, being the Parkway 36 Number 9, produces from the zone above what we're unitizing, although it's still within the Parkway-Delaware pool. It's about probably a half a mile east of our boundary.

And there's an Eastland well in Section 31 of 19-30, and a Fortson well in Section 6 of Township 20 South, Range 30 East. But they produce from a Cherry Canyon zone above our proposed unitized zone.

MR. PADILLA: Mr. Examiner, our geologist will go into more detail on that.

EXAMINER CATANACH: Okay.

FURTHER EXAMINATION

BY MR. STOVALL:

Q. From a landman's perspective, would it be safe to say your answer is that you want to make sure

that you get all the interval, and it's not uncommon to go 50 feet or a hundred feet on either side of an interval when you're dealing with something like this?

A. No, sir, I think we feel like by adding that 50 feet in, we have the total productive portion of the field covered.

Q. Okay. But it's a geological consideration?

A. Yes, sir.

MR. STOVALL: Okay.

EXAMINER CATANACH: I don't have anything further at this time.

Anything else?

MR. PADILLA: I have nothing else, Mr. Examiner.

We'll call our next witness at this time, Bruce Uszynski.

BRUCE USZYNSKI,

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

DIRECT EXAMINATION

BY MR. PADILLA:

Q. Mr. Uszynski, would you please state your name, please?

A. My name is Bruce J. Uszynski.

Q. Would you spell your last name, please?

A. U-s-z-y-n-s-k-i.

Q. Mr. Uszynski, have you previously testified before the Oil Conservation Division and had your credentials accepted as a matter of record?

A. No, I have not.

Q. Would you tell the Examiner what your educational background in geology is?

A. I have a bachelor's degree in geology from Rutgers University and a master's degree in geology from the University of Arkansas.

Q. Mr. Uszynski, what is your experience in the oil and gas industry?

A. I have a total of 13 years experience, nine and a half years with Tenneco Oil and the remainder of that has been with Siete Oil and Gas.

Q. Where has your experience been with Tenneco?

A. I spent all my time as a geologist working in west Texas and southeast New Mexico, Permian Basin, and San Antonio.

Q. And how long have you been working for Siete?

A. Since February of 1989.

Q. And where has your experience taken you with regard to these applications today?

A. Primarily working for Siete, I've been involved in working in the Delaware, in both Texas and

southeast New Mexico.

Q. Tell us, Mr. Uszynski, what studies you have made in connection with preparation for this hearing today.

A. In my capacity as a district geologist with Siete, I've been involved with supervising the geologic interpretation that was completed by Mr. Mike Clemenson on behalf of Platt, Sparks Engineering Consultants.

Additionally, I've conducted many field studies in southeast New Mexico throughout the entire Delaware sand section.

Q. Have you prepared certain portions of Exhibit 12?

A. Yes, I have. I've prepared six exhibits, including a type log, three cross-sections, two structural maps.

MR. PADILLA: We tender Mr. Uszynski as an expert petroleum geologist.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Padilla) Mr. Uszynski, would you briefly tell us where in this Exhibit Number 12 is contained a geologic discussion or description of the area of the waterflood?

A. Under the tab listed as "Discussion" there's a brief history of the Delaware field, followed by a

geologic summary.

Q. Now, before that, you have a certain portion, conclusions and recommendations.

A. Right, under the --

Q. Is that your portion, or is that -- Well, let me ask you -- Let me go back to the summary.

In the summary portion of that are certain geologic conclusions; is that correct?

A. Yes, sir.

Q. Would you tell us which of those summary items are geologic type of summaries?

A. Numbers 1 and 2.

Q. And essentially what are they?

A. Basically, it summarizes the fact that the proposed Parkway (Delaware) flood, discovered in 1988, currently includes 22 producers and one shut-in well. The limits of the field have been currently defined by drilling.

It also gives a brief summary of the description of the reservoir, that being that the reservoir is found at an average depth of 4100 feet, consists of fine-grained sandstone and shale, average net pay thicknesses are 133 feet, average porosities are 17 percent, productive limits of the trip are controlled by porosity distribution and downdip water,

and the trap is a combination structural and stratigraphic trap.

Q. In terms of your testimony, you're essentially testifying concerning the waterflood aspect of the --

A. Yes, sir, that's correct.

Q. -- the waterflood application, correct?

A. Yes.

Q. Now, earlier you had started telling the Examiner about the portion -- the geologic description found in the "Discussion" portion or under the "Discussion" tab. Would you go into that, please?

A. Okay. First, let me give a brief summary of the history of the field.

The Parkway field was found or discovered by Santa Fe Energy with the drilling of their Number 1 Parkway 36 well in 1987.

In 1988, Siete Oil and Gas drilled the Osage Federal Number 1 well and discovered the reservoirs that we're currently considering to put under flood.

In addition to Siete, the field was developed by Meridian, Santa Fe and Strata Production.

The field has cum'd 1.2 million barrels of oil on primary. The remaining primary of 2.8 million would make 2.4 BCF of gas and a little over 800,000

barrels of water.

Q. What kind of a recovery mechanism -- Or under what kind of a recovery mechanism are you recovering oil now?

A. The reservoir is a solution gas drive reservoir.

Q. Okay. No gas cap?

A. No.

Q. This "Discussion" portion also has a description of the geology --

A. Right.

Q. -- starting at the bottom of the second page. I don't want you to read that, but simply brief it for the Examiner, please.

A. The Delaware -- the reservoirs in question are part of a sequence of Delaware sands. The sands are generally fine-grained in nature, average porosities again are 17 percent, average permeabilities through the field are 3.2 millidarcies.

Q. Okay. Would it help at this time to jump into your type log and cross-sections and have you discuss --

A. I certainly think that would help.

Q. -- explain it --

A. Yeah.

Q. -- the geology, through explanation of those exhibits?

A. Yes.

Q. Where do you want to start?

A. Let's begin with Exhibit 1.

Q. Which is Exhibit 1 of Exhibit 12; is that correct?

A. Correct.

Q. These are the -- They're found in the Examiner's packet?

A. That's right, at the end there's three clear plastic folders containing the maps, and I've got them in order.

Q. Okay. Let's go to Exhibit Number 1 of Exhibit 12.

A. Okay. Exhibit Number 1 is a type log. It's a log segment from the Osage Federal Number 1, drilled by Siete Oil and Gas.

Within the reservoirs that we're proposing for the flood we've subdivided the sand into three distinct sands, the C, the B and the A sand.

It is primarily -- our initial waterflood proposal is to begin flooding in the C sand, which is the lower of the three sands that we've defined.

Q. Mr. Uszynski, how are the sands separated?

Is there a vertical separation between the sands?

A. There is. The sands are separated by shaly dolomites ranging in thickness from 10 to 15 feet in thickness, so --

Q. Would -- Okay, go ahead.

A. -- we feel that these act as barriers to vertical migrations from one sand to the next.

Q. So when you say you're going to flood the C sand first, that means that you can contain that flood within the C sand, and I assume at a later time you're going to flood the other two sands, correct?

A. That's correct.

Q. Are you done with Exhibit Number 1?

A. Yes, I am.

Q. Okay, let's go on to what we have marked as -- Well, there's a C-C' cross-section. Is that Exhibit Number 2?

A. This is Exhibit Number 2, yes.

Q. And you also have an Exhibit Number 3, which is an F-F' cross-section; is that right?

A. Yes, sir.

Q. What type of cross-sections are these two cross-sections?

A. These are structural cross-sections. Exhibit 2 is an east-west cross-section through the Parkway-

Delaware field.

The intent of these cross-sections is to, number one, define more clearly the structural element in the trap, that being an anticlinal feature. Secondly is to show the continuity laterally of these three sand zones from well to well.

Q. Do these cross-sections show that the reservoir is homogeneous in nature?

A. They certainly do. As you go from well to well, you can correlate the individual sands across the field.

Referring to Exhibit 3, which is a north-south field, you can correlate those sands in a north-south direction as well.

Q. Mr. Uszynski, do you have other cross-sections -- Well, let me ask the question this way: These cross-sections, one is a C-C', the other one is F-F'.

A. Yes.

Q. Do you have other cross-sections that are part of your study?

A. Yes, we have six additional cross-sections that comprise a north-south and east-west grid that were compiled by Platt, Sparks Engineering.

We chose these two and excluded the others

because we felt it would be redundant to show all eight of the cross-sections.

Q. Would the other cross-sections essentially show the same thing?

A. Yes, they certainly will. Because of the nature of the grid, all the wells tie together and correlate in all directions.

Q. When you say "the grid", you're pointing over on the left-hand side --

A. Right.

Q. -- of these cross-sections, correct?

A. Right. There's four north-south cross-sections and four east-west cross-sections tying all the wells that are within the proposed unit.

Q. Now, you've highlighted on that grid the unit area in yellow; is that correct?

A. That's correct.

Q. Okay. Anything further on Exhibits 2 and 3 of Exhibit 12?

A. No.

Q. What do you want to go to now?

A. Let's go on to Exhibit 4 and 5.

Q. What are they?

A. Exhibit 4 -- These will be found in the packet. Exhibit 4 is a structural cross-section

contoured on top of the C sand. And --

Q. Do you want us to hang these up, Mr. --

A. Yeah, I think that would be helpful.

Q. Okay. Mr. Uszynski, you've put up Exhibits 4 and 5 of Exhibit 12, up on the wall?

A. Right.

Q. Start out with Exhibit Number 4 and tell the Examiner what that is.

A. Exhibit 4 is a structural contour map, contoured on the top of the C sand. It further displays the structural component of the trap, having four-way dip closure in all directions.

Q. In terms of the contour lines, does that show any permeability problems or barriers and that sort of thing?

A. On the structure map that would not show any permeability problems or barriers. All it shows you is that your peripheral wells in the unit are downdip structurally.

Q. In terms of water flooding, what does that show?

A. In terms of water flooding, it would show that your better production, because it is in part a structural trap, your better flood capability will probably be in the crest of the structure, highest part

of the structure.

Q. Now, does the Examiner's Exhibit 4 have the unit boundary outlined?

A. It certainly does.

Q. Okay, move on to Exhibit Number 5 and tell the Examiner what that is.

A. Exhibit 5 is a net pay isopach map of the Delaware C sand.

Q. How is that relevant to today's hearing?

A. The parameters that were used to develop this map, 14 percent porosity, water saturations of 55 percent, shale volume of 50 percent, contouring those values, again as you approach the peripheral areas of the field, your net pay volume on the edges of the field is decreased, as indicated by the contour values of the contours themselves.

Q. So actually, this exhibit goes more to tract participation; is that correct?

A. That's correct.

Q. Okay, not so much waterflooding, but --

A. Right.

Q. -- tract participation?

A. Right, you're looking at -- This gives you a better feel for reservoir quality in the wells within the unit.

Q. Okay. Anything further on Exhibits 4 and 5?

A. No.

Q. You have already put Exhibit 6 up there, and I'd like for you to tell the Examiner what that is.

A. Okay. Earlier Mr. Shumate had referred to the Eastland wells to the east of our proposed unit.

I included this cross-section just to verify the fact that we are in a separate reservoir than the Eastland producing wells are. They're in a zone that is stratigraphically higher in the section than what we're proposing to flood here.

Q. Did this cross-section have anything to do with determining the eastern boundary of the pool?

A. It certainly did. This is -- Based on these correlations, and again the correlations included on the other eight cross-sections, we found that the limits of the pool that we're referring to went no further than this easternmost boundary here.

Q. So essentially what you've done in defining the limits of the pool is, you have found a portion of the reservoirs -- of the pool --

A. Right.

Q. -- not so much of the reservoir, that is susceptible of flooding; is that right?

A. That's correct.

Q. And the Eastland well would not be susceptible --

A. That would not be susceptible to flooding, no. It's a separate sand reservoir.

Q. Okay. Are there any other exceptions that you know of with respect to the pool or surrounding wells that would have -- that would show a difference between what you're proposing to waterflood and -- that may also -- and other lands that may also be in the pool themselves?

A. The Santa Fe -- the discovery well for the pool, the Santa Fe Parkway 36 Number 1, produces from a zone stratigraphically higher than the A sand, and therefore would not be included in the flood boundaries, or within the flooding -- floodable reservoir.

Q. And where is that well located?

A. That well is located right here in Section 36, 1980 from the north, 1980 from the west.

Q. Now, in terms of -- Have you included any lands in the unit or in the waterflood project that are not in the Parkway-Delaware pool?

A. No, sir.

Q. All of the lands that you've included are within the current limits of -- horizontal limits of

the Parkway Delaware Pool?

A. To my knowledge, yes, they are.

Q. Do you have anything further to add to any of the exhibits that you have spoken about?

A. No.

Q. Is there anything else in Exhibit Number 12 that you need to call to the Examiner's attention at this time?

A. No, there is not.

MR. PADILLA: Mr. Examiner, we tender the geologic portions of Exhibit Number 12, and we pass the witness for cross-examination.

EXAMINER CATANACH: Okay.

Q. (By Mr. Padilla) Oh, before I go and do that, I should ask him if in his opinion approval of the waterflood project and the statutory unitization would be in the best interests of conservation of oil and gas and protection of correlative rights?

A. I think that's -- Yes.

Q. Can you tell the Examiner why that is true, or why you make that opinion?

A. Based on our well-to-well correlation through the field, we believe that everyone's rights as a working interest partner will be protected because of the continuity of these sands.

As far as the peripheral operators such as Eastland, I think we've demonstrated that they are a separate reservoir and will be unaffected by the flood.

In terms of protecting against waste, it is our opinion that instituting a flood this early on in the primary history of the field, we'll stand to recover more oil than if we waited for a period of time down the road.

Our engineer, Mr. Lee, will elaborate on that further in his testimony.

MR. PADILLA: We have nothing further, Mr. Examiner.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Uszynski, the Delaware C sand is the main producing interval in the field?

A. Yes, it is. There are 17 wells producing from the C sand, of the 22.

Q. The B and the A sands are being produced in some of the wells?

A. Right, nine wells are productive in the B sand, eight wells are productive in the A sand.

Q. And you stated that the C sand was initially going to be the one to be flooded?

A. Yes.

Q. Your average permeabilities and porosities, is that across all three zones?

A. Yes, those are field-wide -- across all three zones, yes, that's just an average number.

Permeability values in the C sand tend to be better than they are in the B, at least in the B.

Q. Okay. You mentioned something about a Santa Fe well that was producing outside of the Parkway-Delaware Pool?

A. There is a Santa Fe well producing within the pool which is the Number 1-36, the discovery well for the pool, but it is producing from a different sand, not one of the three sands that we're proposing to flood here.

Q. Is that sand non-continuous over the unit?

A. We did not find it to be productive in any of the other wells, and it doesn't appear to be as continuous as these three sands.

Q. It is present, though?

A. It is present in some of the wells, but it is tighter.

Q. I see. Tell me -- You explained pretty much how you defined the eastern boundary of the unit. Could you explain how you determined the rest of the boundaries?

A. The western boundary was defined basically the same way. Siete operates the wells to the west of the proposed unit, and those are Bone Spring producers. The sands in question are thinner and of poorer reservoir quality to the east, and also -- excuse me, to the west, and also structurally lower.

In terms of the northern boundary, if you'll refer to Exhibit 3, the Strata Production well, as you go to the north you are getting structurally lower. As you can see, the C sand thins to the north, the A sand is present but it is structurally lower, and the B sand as well is present but looks to be tighter and more poorly developed.

That defines our northern boundary of the unit. Those sands were not developed of sufficient reservoir quality in either the 3 or the 1 well here to warrant inclusion in the unit.

In a sense, the porosity and permeability in those two wells to provide proper reservoir-quality rock were not present.

Q. Are those two wells that you've just mentioned the only two wells that are -- that have been excluded from the unit, that are producing from the Parkway Delaware Pool?

A. To my knowledge they are.

Q. Do you feel like the boundaries of the pool have adequately been defined by development?

A. Yes, I do.

Q. You don't think any additional drilling will be undertaken outside the unit?

A. Not by any of the three partners here. And based on, again, the structural component, I think any additional drilling that would find these sands would find them in a downdip and wet position, especially to the south and to the east.

Q. What information have you utilized to come up with the conclusion that these sands are vertically isolated from one another?

A. During the initial development of the field we found -- when the field was initially being developed, we found that there were differences in the pressures between the C's and B and A zone. That is probably one of the things that led us to that conclusion.

Secondly, again, we have found no reason during the completion phase of these wells to suspect that we've gone through these barriers during our completions.

The barriers are laterally continuous, and nowhere do we see within the boundaries of the pool

those barriers being absent.

EXAMINER CATANACH: I think that's all I have of the witness at this time.

(Off the record)

MR. PADILLA: Nothing further.

EXAMINER CATANACH: The witness may be excused.

ROBERT LEE,

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

DIRECT EXAMINATION

BY MR. PADILLA:

Q. Mr. Lee, would you state your full name, please?

A. Robert Lee.

Q. Are you a petroleum engineer?

A. Yes, I am.

Q. Have you previously testified before the Oil Conservation Division and had your credentials accepted as a matter of record as a petroleum engineer?

A. Yes, I have.

Q. Have you compiled a portion of Exhibit 12 as part of your testimony at this hearing today?

A. Yes, I have. I've either compiled it myself or supervised the compilation of the data presented

here.

MR. PADILLA: Mr. Examiner, we tender Mr. Lee as an expert petroleum engineer.

EXAMINER CATANACH: Mr. Lee is so qualified.

Q. (By Mr. Padilla) Mr. Lee, tell me what have been your efforts with respect to the waterflood project and statutory unitization?

A. Pretty much from the ground floor, whenever Meridian, Santa Fe and Siete started to look at unitizing and waterflooding the Parkway field, about two years ago, we had several technical committee meetings, decided upon what the tops of the different sands would be for use of -- as far as like the exhibits presented here today.

And we contracted a consulting firm in Austin -- Platt, Sparks & Associates -- to do the bulk of the analysis of the reservoir, of the three sands, and to perform a reservoir simulation of the waterflood.

Q. And what was your role in all of this?

A. Well, I selected -- We as a committee selected the consulting firm, quality control on the data, supervised the consulting firm, checking up on, at different phases of their analysis, what they had done at that time, offering suggestions, criticisms, getting the study to reflect what had actually gone on

in the field, as much as possible.

Q. In effect, you were supervising the --

A. Right.

Q. -- this consultant; is that correct, sir?

A. That's correct, we were supervising the activity of the consultants.

Q. Where do you want to start in this Exhibit 12?

A. We can start here with the summary and just work our way down through that.

Q. Okay, what portion of the summary relates to your testimony here?

A. Probably picking up on about item 4. The summary is just a brief statement of some of the items covered in the discussion and throughout this exhibit.

Number 4 basically says that based upon the waterflood model, we feel like we'll have a secondary/primary ratio of 1.55 to 1. We anticipate the secondary reserves to be about 6.4 million barrels or about nine percent of the original oil in place.

And then Figure 26 in the very back -- it's the last figure right in front of the plastic folders -- shows you the production curve with the historical primary production, the anticipated primary production, and the incremental reserves that we anticipate from

waterflooding the C zone, and then later the A and the B zone.

You'll notice two vertical lines there, one in 1993 and one in about 1995. Those indicate that we anticipate starting the waterflood in the C zone in 1993, and you can see the subsequent projected increase in production reserves.

Then later -- we're anticipating about two years, but we're going to be real flexible on that -- we will go in and open up the A and the B sands and flood those zones also.

And this graph shows that the incremental reserves we anticipate from the C zone is about -- a little over 4.5 million barrels. The reserves from the A and the B zone together will be about 1.8 million barrels.

Basically, we feel like the C zone will have the bulk of the waterflood reserves.

Q. Earlier, Mr. Uszynski indicated something about commencing the project at this time and in this stage of the primary production.

Does this Figure 26 tell you anything with regard to timing in terms of starting the waterflood or -- as opposed to, say, starting it in 1998?

A. There are several reasons to initiate the

waterflood now. Even though our primary rates are still fairly high and we have not gotten down to that very low producing rates, we feel that for several reasons it's important to initiate the flood now.

One reason -- If you'll look at Figure 2, which contains some fluid properties of the reservoir crude, you can see there at the top we have a listing of the oil properties. On the left-hand side we have pressure, and then oil formation volume factor, solution GOR, and viscosity.

If you look at the viscosities, as you reduce the reservoir pressure, you're going to evolve more free gas out of the crude, and the viscosity is going to increase.

When that occurs, and then you come in and put your waterflood in, with a higher viscosity you're going to have a more unfavorable mobility ratio. The water is going to tend to finger through the more viscous oil than it would a lower-viscosity crude.

So if we were to wait until we were at the very end of primary depletion, we would not recover as much oil as we would if we start the flood now, and we would be wasting oil.

Q. Are all your working interest partners in concurrence with you on this aspect?

A. Yes, they are. Yes, they are.

Another reason to put the flood in now is that if I can get these incremental barrels, you know, today or in the next few years, they're worth a lot more to me from a present-value standpoint than they would be if I recover those reserves 10 or 15 years down the road at the end of primary production.

Q. That's an economic aspect --

(Off the record)

MR. STOVALL: You may proceed.

Q. (By Mr. Padilla) That latter reason was an economic aspect, correct?

A. That's correct.

Q. And the former reasoning has to do with essentially waste?

A. That's right, and trying not to waste oil in the reservoir, to maximize the production that we can get out of it.

Q. Okay. Are you done with the summary section here?

A. That pretty much wraps it up. The next page just shows that the cost to implement this flood will be about $3.4 million.

And there's a slight correction in Number 6, in the Summary. We anticipate this waterflood to

generate undiscounted net cash of a little over $85 million, not $85,000. There's three zeroes have been left off of that figure.

And the discounted value is almost $17 million, discounted at 15 percent, not the -- $17 million, not the $17,000 that's shown here on the Exhibit. And there's a summary of the economics on that.

Q. Let me see that. I -- The first correction you want to make is, the number $85,329 should have three zeroes so that it would be $85,329,000?

A. That's correct.

Q. And which is the second correction?

A. The second correction is the number immediately following that, which is $16,912. There needs to be three zeroes after that, indicating nearly $17 million, not $17,000.

MR. STOVALL: I assume your banker likes the zeroes.

THE WITNESS: Our banker likes the zeroes very much, although they're not worth anything by themselves.

Q. (By Mr. Padilla) Okay, how about the "Conclusions", the next tab?

A. Right, this is a list of our conclusions and

recommendations. These are based upon the Platt, Sparks study that was performed.

We feel that there's going to be an increase if the -- in reserves, if the field is waterflooded. The estimated primary recovery is 4.1 million barrels, which was shown on the Figure 26. A five-spot pattern will be the most efficient and effective to maximize our ultimate recovery here with this project.

Q. Do you have a map showing your injection pattern?

A. Yes, we do.

Q. Where is that?

A. It's figure 17.

Q. Would you explain Figure 17 to the Examiner?

A. This is a map of the proposed unit boundaries, the proposed wells that we are going to be converting to injection and wells that we're going to be drilling as new injection wells.

The wells that has the dot inside the triangle, these indicate the conversions.

The solid black triangles indicate the new injection wells to be drilled.

And it's basically going to give us -- We'll be downspacing to 20 acres and be flooding with a 40-acre pattern.

Q. How does someone receive -- Say a working interest owner who currently owns a well here, how does that person receive credit for a wellbore and that sort of thing?

A. Okay, we --

Q. And how are you going to determine whether that person gets credit or not?

A. Okay, the major working interest owners in the field, which was Meridian, Santa Fe and Siete, decided that -- we decided upon the unit parameters that needed to be chosen and what percentage each one of those parameters would carry weightwise in the unit.

And we will discuss that further back in the unitization part or unit parameters part of this exhibit.

Q. Okay, so I'm jumping ahead of you; is that --

A. A little bit.

Q. Okay. Anything else on the "Conclusion" portion of this exhibit?

A. No, it's all pretty cut and dried and, you know, has the -- It shows the original oil in place of the C sand to be about 31 million barrels and the original oil in place of the A and the B sand to be a little over 11 million barrels and 28 million barrels, respectively.

And as previously stated we should recover an additional 1.8 million barrels from the A and B sand when we get it under flood and that the solution gas -- It's a solution gas drive reservoir. That's the drive mechanism for the reservoir.

Q. Where do you want to go next?

A. We can go on and hit the -- Bruce has pretty much covered the "Discussion".

We can go into the "Reservoir Simulation" now.

Q. Okay.

A. The -- Platt, Sparks took the log data that we provided them and did a very in-depth study of the A sand, the B sand and the C sand. We supervised that work and, you know, checked up on it from time to time, made sure that it was what we wanted.

When it came time to do the actual waterflood simulation, we decided to only do a simulation model on the C sand, and that's what is presented here in this discussion. There was several reasons to do that.

One, the C sand was -- is the predominant productive sand in the field. We were going to waterflood it first to see how the project was going to work, how successful it's really going to be.

And also to keep our costs down. If we would

have turned them loose on the A and B sand both, why, the cost of the project would have, you know, gotten pretty high.

So in order to keep our costs down a little bit and to get the main part of the reservoir analyzed, we only simulated the C sand.

And what we did was to --

Q. Let me ask you, do you anticipate that the reservoir simulation for the A and B sands would be similar to the C sand?

A. Right, based upon the well data they had done, the in-depth log analysis, we felt like the A and the B sand and the C sand were all similar enough that the results from the simulation could be applied to the A and the B, right.

Q. In terms of flooding the C sand first, will that give you some insight as to what to expect in the A and B sands when you ultimately flood those sands?

A. That's correct.

Q. So you'll be gaining actual experience for the A and B sands from the C sand flood?

A. That's correct.

Q. Okay. What else is in here that you'd like to point out to the Examiner?

A. This is basically a discussion of the -- how

the model was put together, how the grid pattern was chosen. I have a map back here in the figures, showing what grid was used, the wells -- you know, where the wells were located within the grid, the parameters that went into the initialization of the model, you know, basically that in the C sand that had an original pressure of 1858 p.s.i., had about 31 million barrels of oil in place.

Then based upon the relative perm and capillary pressure curves that we created, those were plugged into the model and a history matching process was began, trying to have the simulator match the historical production of the field.

It goes through the discussion that we had to play with our relative perm curves a little bit in order to get the actual history match to line up with actual production. It's typically normal on any type of simulation you have to do.

But we got a very good history match, so then we feel very good about the future predictive cases that were ran. And Platt, Sparks ran several different scenarios. The two that I talk about in here is the history match, the primary production, and the case which most closely reflects what our final pattern is going to be.

The other models checked, you know, peripheral waterflood, line drives with various orientations, things of that nature, and the five-spot infill drilling pattern proved to be the most economically effective.

Q. Why?

A. Because with the five-spot infill drilling pattern there, we recovered the maximum amount of oil, more oil than compared to the peripheral flood or a line drive, and -- you know, with 40-acre spacing.

Q. You were comparing different kinds of floods, in other words?

A. Right, we were comparing different flood scenarios, different patterns, and --

Q. And you got more bang for your money using the five-spot pattern?

A. That's right, the 20-acre infill five-spot flood pattern.

Q. Okay. Where do we go next?

A. We can go through the "Plan of Operation".

Q. Okay.

A. This is -- In this next section we're basically saying that we intend to waterflood the Delaware formation here in the Parkway field.

We're going to be getting our supply of water

from three different sources.

We're going to be using produced brine from the Delaware formation there, actual wells within the unit.

We have a salt-water disposal well within the area called the Tuesday Federal where the brine water is currently being disposed into. We're going to basically turn that around, put a pump on that well, and use the water that was put away, use that as the source water.

And there are some shut-in wells in the area that we anticipate going back into and recompleting in some wet zones in order to use them as source wells, use them as make-up water.

And we have done compatibility studies on all of these waters. That was done by Martin Water Labs. It's in the "C-108" discussion.

Q. Are you using any fresh water?

A. No, we are not.

Q. Why not?

A. The Delaware formation, we tend to believe, has a problem with clays. They tend to be swelling clays. If you put fresh water in there, you can swell them shut and, you know, shut down your injectivity or productivity of your wells.

You know, you could take the fresh water and make it up with some brine and probably get it salty enough, but we would rather not take that chance of not getting it salty enough and messing up our formation.

Q. You have a discussion in here about the costs of converting the wells and drilling new injection wells and all that sort of thing that --

A. Right.

Q. -- are part of the project.

A. Uh-huh. That's going to be Figure 17 -- one of our figures back here.

Okay, Figure 18 and 19 go over the anticipated cost to convert our producing wells to injection wells. There's going to be five producing wells converted to injectors. We anticipate it's going to cost $30,000 each to do. That's detailed on Figure 18.

Figure 19 is sort of a full-blown cost estimate, includes the facilities. We anticipate the facilities to cost about $230,000.

We're going to be drilling nine new injection wells. That's where the bulk of the cost comes from in the project. That accounts for about $2.8 million our total anticipated expenditures.

Like I said, the $150,000 to convert the

wells.

And we've got three recompletions in there. What those are, are wells that are currently, say, producing out of the B zone or the A zone, which will be -- those zones will be squeezed with cement, and we'll perforate the C zone and inject in through the C zone in those wells.

And then an additional $120,000 for waterflood and legal expenses.

Q. In terms of obtaining revenues or deducting this figure, $3.4 million, from the total revenues to get at a profit picture, what number would you use to subtract this $3.4 million?

A. Well, let's see, the Figure 25 is an economic analysis of the project, and rather than worrying about what to subtract it from, I'll just probably refer you to that.

Q. Okay.

A. This shows that the primary depletion of the reservoir has a value discounted at 10 percent of about $27.5 million. And of course, you know, we have a line here that shows total investment. There's no remaining investment from a primary completion.

In the C zone what I'm showing here are incremental reserves for those -- or incremental

economics for those waterflood reserves. It shows the investment of about $3.4 million, the additional reserves. And it shows that the C zone has an additional value discounted at ten percent of almost $19 million. So I'm spending a little over three and getting nineteen back.

And then I also show the A and B zone incremental waterflood reserves. That has an additional cost of $455,000. That's going to be just recompleting the existing wells, maybe a little facilities upgrade, no additional drilling.

Q. But that's not going to be part of the $3.4 million?

A. That's right, that's not part of the $3.4 million. That's an additional expense to be incurred in 1995 or 1996, whenever we go to the A and B sands.

Q. The sum of this whole thing is that you're going to make a profit; is that right?

A. That's correct.

Q. And where is that indicated on this Figure 25? You have profitability indicators, but where do I see profit, or --

A. Probably the third one down, your before-tax rate of return for the project will be 47 percent for the C zone flood.

The total incremental for the C, A and B zone will be about a 51-percent rate of return.

Q. Forty-seven is the rate-of-return figure?

A. Yes, it is, for the C zone.

Q. So what you're saying is that you're going to receive 47 times your expenditure?

A. No.

Q. No?

A. No, what this is, it's a sort of a -- it's a pseudo -- It's like an interest rate. If I -- It's like putting $3.4 million in the bank and getting a 47-percent interest on the money.

Q. So you're going to make a profit, is the bottom line?

A. That's correct.

Q. Okay. I think before we go on, I'd like for you to go through this series of figures and make sure that we've discussed each one of those in terms of...

Will you tell me if I'm getting ahead of you at this point, before we get into the C-108?

A. Just a little bit. We went over the unitization unit parameters discussion. That will include --

Q. -- some --

A. -- a few more of the figures here.

Q. Okay, why don't you do that at this time?

A. Okay. The unit parameters section is basically a discussion on the unit area and the parameters that went into the waterflood.

There's going to be 11 different tracts in the waterflood, and that was shown on the Exhibit A that Mr. Shoemaker [sic] discussed earlier. These 11 tracts were broken out due to common working and royalty interest owners.

There's a figure here, Exhibit B, in the current exhibit we're looking at, that Gene has already gone over. It's basically, you know, going over each tract and who owns what, where it is.

The five parameters that Meridian, Santa Fe and Siete agreed upon was recoverable oil reserves, remaining oil reserves, usable wellbores, recoverable gas reserves, and remaining gas reserves.

And once we kind of came up with -- these are the five parameters that we're going to use, we felt that it would be fair to weight those parameters differently. In other words, oil has a heavier weight than usable wellbores.

And the percentages that we attached to each and agreed upon was that recoverable oil reserves would comprise 40 percent of the unit or carry that much

weight.

Remaining oil reserves would comprise 35 percent of the tract participation formula.

Usable wellbores would be five percent,

And recoverable gas reserves and remaining gas reserves would be ten percent each.

Since we were looking at unitizing three different sands, we felt that it was also fair that each sand should carry a different weight in the unit. In other words, the C sand has much more recoverable oil than the B sand or the A sand, and so people with a lot of C sand on their acreage should -- are at a higher percentage of the unit than the people that maybe didn't have too much C sand.

We decided to allocate weighting factors to the different sands, based upon the recoverable oil reserves.

That's shown on the next page, showing that the A sand carries 25.66 percent of the unit. The B sand is 3.37 percent, and the C sand is 70.97 percent of the unit.

And that was what went into the tract participation factor formula. That is detailed in the unit agreement. I believe it's figure 6. But it's just the equation written all out with the different

sands and the percent of the recoverable sand times 40 percent for the A, B and the C sand, and all those added up to derive the interest of the working interest owners and royalty interest owners in each tract.

And the rest of the exhibit here -- or part on the unit parameters is a discussion of how we derived the recoverable oil reserves for each well and each sand.

Q. Mr. Lee, in your opinion, is this a fair and equitable method of --

A. Yes, it is.

Q. -- apportioning the oil and gas reserves to each of the tracts?

A. Yes, it is.

Q. Are you done with the unitization portion of this exhibit?

A. Yes, we are.

Q. Let's go now to the figures again --

A. Okay.

Q. -- and see if there's anything in here that we have missed and that we have not discussed.

A. All right. Figure 1 is a kind of a big cartoon map of the area to roughly acquaint you with where it is, see where -- You know, just out east of Carlsbad.

Figure 2 shows some --

Q. You've talked about this already?

A. We've talked about Figure 2.

Figure 3 is just a graphical presentation. Figure 3 and 4 both are graphical presentations of the data on Figure 2.

Figure 5 and 6 show the relative permeability and capillary pressure data which went into the water data model that was performed by Platt, Sparks.

Figure 7 shows some pressure data over time that we had performed to come up with some of the pressure history matching in the model.

Q. And this is what you talked about -- In other words, matching the model with actual performance?

A. That's correct.

Q. Okay.

A. And Figure 8 is the same thing, only in the A sand.

Figures 9 through 12 show the volumetric reserves for each sand, which was calculated by Platt, Sparks off of the well data that we had provided them.

Figure 13 is a grid that was used in the model, shows the various cells and the location of the wells within the cells.

Figure 14 is just more waterflood simulation,

input data. These are the input parameters that went into the C sand.

Figure 15 shows a matched -- shows the match that they were able to attain with the pressure data that we showed -- that we actually measured, and then what they camp up with in their simulation, comparing actual pressures to simulated pressures.

Figure 16 shows the projected water injection needs, showing by year the annual water and daily water injection needs.

Figure 17 we have discussed.

Eighteen and 19 are costs.

Figure 20 is just a map that shows the injection lines, where they're going to run. Threw that in.

Figure 21 shows the five different parameters that went into the tract participation formula for each tract by each sand.

And then Figure 22 and Figure 23, which does not have a number on it, was the working royalty interest owners.

Figure 24 was a data sheet that we put together sort of to help the Examiner get acquainted with some of the parameters of the reservoir.

Figure 25 was the economics we discussed.

Figure 26 is a -- the graph of the anticipated production with the waterflood.

Q. Do you want to get into the C-108 at this time?

A. Yes.

Q. Some of this is going to be repetitive, Mr. Lee, so --

A. Uh-huh.

Q. -- let's get -- Probably Roman numeral III of the C-108 would be not repetitive, so let's be a little bit more definitive in that respect in discussing the well data.

Q. All right.

Q. Where is that well data contained?

A. The well data asked for in Number 3 starts on the third page. What Number 3 asks for is a diagram showing the current status and proposed status for the injection wells with some tabular data for each well. We have --

Q. So the first well is the Apache A-3, right?

A. That's correct, showing the current configuration.

Q. And that's the first page, right?

A. That's correct.

Q. And the second page is the proposed

configuration?

A. That's correct.

Q. And the third page is the written --

A. Yeah, the tabular data.

Q. Tabular data.

A. Requested in number III.

Q. And that is contained in this thing for all of the wells?

A. That's correct, for all of the five proposed conversions.

And we also have at the very end of that series a typical configuration for the nine wells to be drilled, basically detailing where the packers will be set, that we're going to use plastic-lined tubing, the casing strings and cementing requirements, and once again the tabular data.

Q. Okay.

A. Behind that we have the -- as required by Roman numeral V, the map of the area with the half-mile-radius circles drawn around the proposed injection wells, showing area within two miles around the proposed unit.

And the next page is just the unit boundaries outlined on that.

After that, we get into the -- all the wells

that are within the area of review, showing their status, names, the operators, where they're located, what type of well they are, completion data, depth and the casing programs that were used in drilling these wells.

Q. Mr. Lee, do any of these wells shown on this tabulation indicate that there may be some problems with it from a standpoint of migration through the wellbore of the injected water?

A. No.

Q. How about up or down, either way?

A. No, not up or down, either way.

Q. And you identified all these wells, and you see no problem with any of them?

A. That's correct.

Q. They're properly cemented, in your opinion --

A. Yes.

Q. -- to prevent any type of migration?

A. Based on the data available, from what we've looked at, why, everything does look like it's been cemented correctly.

Q. Okay. Following that tabulation, you have what looks like a schematic of the Petco State Com Number 2. What is that?

A. As required on the C-108, any P-and-A'd wells

within the area of review need to have a diagram showing where the plugs are set. That's what this is for the Petco State Number 2, showing where all the plugs are set, what the TD was.

Behind that we have the plugging report for that well. There were three wells in that area that were P-and-A'd. The next well was the 1-35 Federal Walter well. Once again, a diagram with the plugs.

Q. In terms of the plugs themselves, say in the 1-35 Federal Walter, does that show where the injection interval of your waterflood is going to occur?

A. Not per se.

Q. You just have to compare the depth? Is that --

A. Right, right. For instance, you know, the bottom plug is set at 4455. That probably would be below our injected interval. The top -- or the plug immediately above that is from 3223 to -93. That will be above our injected interval. The casing was shot off at 3293, so the interval that we'd be injecting into is actually below where they shot the casing off.

Q. How about the well in front of that, the Petco?

A. Well, the casing was shot off below the zone we'll be injecting into. There's a plug set there.

Then there's a plug set at 3850 to 3750. That would be above the zone we would be injecting into, and that would isolate the zone.

Q. In your opinion, are these plugs sufficient to isolate the zones from --

A. -- communication up and down that wellbore.

Q. -- communication, yes?

A. Yes, that's correct.

Q. Okay. How about the next well? You have a third well in that series, right?

A. That's correct, the Lambie well.

You know, we have a plug set at 4200 to 4300. That would probably be -- probably within the zone or maybe a little bit below it.

But then we have another plug set at 3090 to 3190, which would be above the interval that we'd be injecting into. So that should be sufficient and, you know, between that and the surface, why, there's other multiple plugs up and down the wellbore.

And then we have a plugging report for that well also.

We have a scout ticket in here, Mr. Examiner, for the Agave "IK" Number 2. If you'll notice, it says it's an abandoned location. The reason we put that in was that on the map showing our area of review in unit

letter A of Section 2 in 20-29, it looks like there's a producing well there. That's an error on the map. There's no well there.

I've been out and physically examined the area. It's just a misprint on the map. They haven't spotted that abandoned location.

Q. You're saying there's no well out there?

A. At that location, that's correct, on the -- the 2 IK in unit letter A in Section 2, there's no well there.

And that's why in the tabular data, the construction data, that well doesn't show up.

So if you would go -- look at that map and go through that data it would look like I missed a well, but I didn't.

Article VII is just on the injection data, saying that we anticipate injecting at a rate of 500 barrels a day. Proposed pressures are going to be 700 p.s.i. The maximum injection pressure will be 800 p.s.i., and this abides by the .2-p.s.i.-per-foot maximum injection pressure required by the OCD.

And if we need subsequent increases in injection pressures, what we plan to do is to perform step-rate tests and submit those to the Commission for increase in injection pressures.

Q. Would you like to have administrative authority or some kind of procedure by which you would seek authority administratively without having to come to a hearing in order to increase injection pressures?

A. Yes, we would.

Q. If your step-rate tests would indicate that --

A. Bear it out, that's correct.

Q. You could make that increase?

A. That would be a good thing to have.

Q. Okay.

A. Also included in the C-108, Section VII, we have performed chemical analysis of the injection waters and the formation waters. That is attached as, you know, the Martin Water Lab discussion. It indicates the waters are compatible, there's no scaling tendencies, no problems there.

The geologic data, you know, we can probably skip through. Bruce has covered that in detail.

Item IX just -- is just saying that any wells that we're going to drill will be stimulated similar to the wells that have already been completed, probably frac'd with about 40,000 gallons and 100,000 pounds of sand. Nothing unique or different there. And that we've also already filed all of the well logs

previously.

Q. Who is the surface owner for this area?

A. It is the State of New Mexico and the BLM.

Q. Earlier Mr. Shumate indicated that all the operators within a half-mile radius of each of the wells within the waterflood zone had been sent a notice, as well as the surface owners, correct?

A. That's correct.

Q. And the surface owner, in this case being the USGS -- or the BLM, I should say, and the Commissioner of Public Lands, have already given preliminary approval to this whole --

A. That's correct.

Q. What else is in this exhibit, C-109 -- 108, I should say?

A. Item 10 also goes into what the production is from the wells that will be converted. That's listed there as a table.

Article XI, there's a question asked, is there any fresh water in the area?

There is. A water analysis of that water is included in the Martin Water Labs report. It's a shallow zone about 150, 200 feet deep.

Q. Can you identify that well in the map?

A. That well -- okay, it's -- Let's see, yeah.

If you look at the map with the circles shown in the area, showing the area of review, this well is just off the location off the pad on the Osage 8 Bone Spring well. It's located in Section 34. It would basically be the well spotted here in the southwest quarter of the northeast quarter on that map.

That's our Osage 8, and it was just a shallow well that will be drilled to use as drilling -- get some water for when we're drilling these wells out there.

It's not really shown on the map per se by itself. It's just at that Osage 8 location.

Q. Is there anything that you have examined that would indicate that any of this fresh water would be contaminated by your injection operations?

A. No, there's not.

Q. Why is that?

A. Because there's sufficient cement between the zones that we're going to be injecting into and the well at that depth.

In this area we are required to set four strings of casing here, specifically to protect the Capitan reef and fresh water in the area, so this is well protected.

Q. And you're talking about the Rustler

formation water, essentially?

A. The Rustler formation and actually the four strings program was instituted more to protect the Capitan reef water there in the area.

Q. What else haven't we talked about on the 108 portion of your discussion?

A. That pretty much wraps it up.

Q. Mr. Lee, do you have anything further to add to your testimony in terms of things that you may have omitted from the Exhibit 108 or otherwise?

A. No, sir.

Q. Mr. Lee, in your opinion would approval of this Application be in the best interests of conservation of oil and gas and the prevention of -- protection of correlative rights, I should say?

A. Yes, it would.

MR. PADILLA: Mr. Examiner, we tender Exhibit 12 in its entirety at this time and pass Mr. Lee for cross-examination.

EXAMINER CATANACH: Exhibit 12 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Lee, let me make sure I understand the procedure as you have it outlined. Is it your

intention to flood just the C zone at this time?

A. Yes, it is.

Q. And what will happen to the wells that are producing from the A and the B zones?

A. We'll, you know, continue to produce them. If they're not completed in the C zone, you know, we will open the C zone up in those wells.

They're -- I have no, you know, concern of cross-flow or anything like that. These wells are predominantly on a -- being pumping units, you know, you keep the C zone -- keep it pumped off, don't let your fluid levels get high, and there's no way that your C-zone oil will cross into your A or B zones. I don't see an operational problem here by doing the C zone by itself.

Q. So the producing wells will be essentially commingled in all three zones?

A. That's correct.

Q. Some of them will?

A. Yes.

Q. The allocation formula that you have agreed to will be utilized as soon as the flood initiates?

A. That's correct, as soon as we get approval from you all and get the unit agreement signed and as soon as they go into effect, the tract participation

formulas will allocate production based on those parameters we discussed earlier.

Q. Will all of the producing wells in the unit be opened up in the C zone?

A. Yes.

Q. And you mentioned something about squeezing off the A and the B intervals. Is that planned in any of the wells?

A. We have three -- not in any of the producing wells. That's going to be done in three injection wells that we're going to be converting. Currently they're in either the A or the B sands. We're going to squeeze those zones off and perforate the C sand and flood only the C sand. Mainly doing that, you know, keeps it cleaner.

If we want to go -- when we go back to the A and the B sand, we'll just go back and re-frac those zones. That way I don't have perforations open on the back side of my packer.

Q. When will it be determined to initiate the flood in the A and the B zones?

A. Once we see adequate response out of the C zone to convince us that it's going to be a viable project and that we have enough water to inject, make sure all of our operational considerations are lined

up, taken care of and everything is running good, we'll go ahead and open up the A and the B.

Right now we're anticipating that about two years down the road, two or three.

Q. Once the A and the B zone flood is initiated, do you have any proposal to regulate the volumes that go into each of the zones through the injection wells?

A. No, and that's really kind of one of the considerations, to hit the C zone first.

That will -- That could possibly get to be a problem down the road, as to keep the water equally distributed amongst the three zones.

But we don't plan to run two strings of injection tubing or inject down the back side or anything like that at this time.

Q. Do you know what the current average production is in each of the zones, fieldwide?

A. Not right off the top of my head. That was estimated in the Platt, Sparks report.

Of course, there's several -- Some of these wells now that are opened in all three zones, you know, it's commingled. So it's very difficult to really assign, you know, this reserves come out of the A, the B and the C.

Platt, Sparks attempted to do that, based

upon the well log parameters, what the porosity, permeability looked like in each zone, and they went back and sort of allocated out production and current rates.

But no, right off the top of my head I don't know what the production is from each zone.

Q. Would you say that production from each zone is above marginal production or --

A. Yes.

Q. In all three zones?

A. Yeah.

Q. Your estimated ultimate recovery of 6.7 million barrels -- is that right?

A. Waterflood reserves, yes.

Q. Right, secondary reserves.

A. Uh-huh.

Q. 6.3. That includes all three zones?

A. That's correct. The table on Figure 26 shows that the C zone incremental reserves is 4.5 million barrels, and the incremental A and B zone reserves is a little over 1.8 million barrels.

Q. Okay, was the ratio the same ratio used for all three zones?

A. That's correct. What we did was look at the C zone recoverable reserves, primary reserves, which

were calculated by Platt, Sparks.

Then we took the incremental waterflood reserves as calculated by Platt, Sparks' model and got a ratio, secondary/primary ratio, the 1.55.

Then we applied that to the recoverable reserves from the A and the B zone, and that's where I come up with the 1.8 million barrels to be recovered from the A and B zones.

Q. Do you have an opinion as to whether initiating the flood at this point in time, in the life of the field, is beneficial in terms of increasing the ultimate recovery?

A. Yes, I do. Yes, I believe that it will. And as we addressed earlier, if you wait until your field has just totally depleted down to virtually nothing -- you know, all your free gas is coming out, your viscosity of your oil has increased. It's sort of like -- It becomes much thicker and the water will have a tendency to finger through it more.

Q. Is there a method by which you could quantify the benefit?

A. We haven't done it here, but you can calculate what the mobility ratio would be now, compared to what the mobility ratio would be at depletion, and what it would show is that your mobility

ratio now will be better, closer to one, and you'll get a much better areal sweep.

Q. Referring to your figure 17, injection pattern --

A. Yeah.

Q. -- is there a reason why the eastern portion of the unit does not contain injection wells between the producing wells?

A. Yeah, as Bruce showed on the structure map, as you tend to get downstructure, the wells become much poorer in quality. Eventually there may be some injection wells put on the east side of the unit.

Once we determine, say, exactly how good these zones will flood up here in the better part of the reservoir, once that's ascertained, looking at the production on these wells, we'll be able to get a better handle on whether it will be economically feasible to go in and waterflood that portion of the field.

Q. At this point in time, without the addition of injection wells, do you think the well numbers 1 and 4 would receive any benefit from injection?

A. No. But we're including them in the unit because they do have, you know, C-zone, A-zone, B-zone reserves there, and so that at a later time we don't

have to go in and expand the unit. We tried to wrap everything up that we deemed to be productive or to have some recoverable reserves now, and throw them all in now, rather than expand the unit at a later date.

Q. Mr. Lee, you said -- You mentioned something briefly about the Capitan reef. Where does that occur in this area, at what depth?

A. I'm not sure exactly. I think it's 1500 to 3000, somewhere in that range. I think it's around 1500 feet.

Q. And that generally -- The reef is generally behind pipe in all these wells?

A. Right. Not generally, it is.

Q. It is?

A. Yeah.

Q. Does that string of casing, does that require to be circulated?

A. Uh-huh.

MR. PADILLA: Yes.

THE WITNESS: Yes. Good kick, Ernie.

EXAMINER CATANACH: Why don't you go ahead and I'll work on this.

EXAMINATION

BY MR. STOVALL:

Q. I assume, Mr. Lee -- Your stating of the case

says you're looking for the EOR tax credits, you don't mind taking advantage of a 50-percent tax-rate reduction; is that right?

A. No, sir. We don't mind that at all.

Q. You're not looking for it, or you're -- or no, don't mind?

A. No, we don't mind. Yes, we want it.

Q. Okay. Would have simplified my job if you had said no, you don't want it.

Now, you understand, I assume, that as far as the approval of a project, it's the normal approval which you've already gone through requesting the approval for the waterflood?

A. Uh-huh.

Q. But there are some additional things that we're going to have to do as far as administration of those things that are necessary for you to obtain the credit.

A. Okay.

MR. STOVALL: Kick him, Ernie, and get a "yes".

THE WITNESS: Yes, yes.

MR. STOVALL: Actually, I think Steve can take an "uh-huh" down, but...

Q. (By Mr. Stovall) First is the definition of

the project area. And you've kind of presented a unique situation.

Let's start first with the horizontal extent of the area.

A. Okay.

Q. And Figure 20 looks like the easiest thing to work from for me.

Is it safe to assume that you are proposing as the qualifying area for the EOR tax credit that it be the entire waterflood project area horizontally?

A. Yes, that is correct.

Q. Including those wells 1 and 4 which you say are not going to get any benefit?

A. That is correct. Under the current pattern, they will not get any benefit.

Later on, once, you know, when we get, say, good response up here, the flood would be expanded from injection wells drilled down there. At that time they would see some waterflood benefit.

Q. Well, you've kind of used a buzz word there that says, gee, maybe they're not in the project now for the tax credit purposes, because you've talked about expanding the project, if you will, into those -- into that pattern.

I guess the converse side is, you understand

that when we go to approve -- before you can actually get the benefit of the credit, you've got to get a positive production response.

Are you familiar with the Enhanced Oil Recovery Tax Bill?

A. I'm familiar with -- Yes, in Texas. I'm assuming that what we see in New Mexico is the same as what we have --

Q. No, it is not --

A. Okay.

Q. -- and I will tell you why it is not, is because in Texas, as I understand the Texas legislation, you get the tax credit on -- or the tax rate reduction, whatever it is -- on the incremental recovery. I believe that is correct.

A. That's correct.

Q. In New Mexico, you will get the reduced tax rate on all of the production from the project area, after there is a positive production response.

Do you understand the distinction?

A. Yes, I do.

Q. Okay. And this is getting into the other area that I need to get into. Let's start out -- In fact, let me go straight to that line of questioning, is -- See, I told you I've studied some engineering

stuff.

A. Yes, you have.

Q. There are several steps in the process, and let's go through those.

The first step, of course, is this one and that is getting the project approved. And assuming we approve the project as a waterflood project, that is the initial threshold qualification.

A. Okay.

Q. In order to actually receive the tax credits you will have to obtain a positive production response within five years of the date we certify the project to Taxation and Revenue as being qualified for the project.

A. Okay.

MR. STOVALL: And I assume Mr. -- I'm sorry, I've forgotten your name, but you're --

MR. SHUMATE: Shumate.

MR. STOVALL: You're the number-one man at Siete, right? Did I see your name as president of Siete?

MR. SHUMATE: Yes.

MR. STOVALL: So you're listening to this too, I assume --

MR. SHUMATE: Oh, yes.

MR. STOVALL: -- with great interest.

Q. (By Mr. Stovall) The process which we are proposing, and using in a couple of cases, is, we assume you do not want to certify the project as of the time of the approval, because from the time you approve it there's a time lag to install the facilities and complete the conversions and drill the injectors.

A. What's that time lag?

Q. Whatever it takes you to do it.

A. Okay.

Q. I mean, there's a physical time that --

A. Right.

Q. -- you're required to take to -- The five-year time to get a positive production response is dated not from the date of approval of the project but rather from the date of our certification to Taxation and Revenue, and for your benefit we are assuming that you would not want to certification to occur until all construction and preliminary work has been done, but before injection of any water has commenced.

Do you follow me?

A. Yes, I do. So I can build my facilities, but I can't inject water until you give me approval of the certification?

Q. Well, it's kind of backwards, you've got it

kind of backwards.

If you want certification now, we'll give it to you. But what that does is, it takes you away from you the time to get a positive production response that you require to build your facilities.

Let me ask you, how long do you think it will take from the time you get this Order approved and your unit approved and effective until you would actually be ready to start injection?

A. Three to six months.

Q. Okay. Well, that would be three to six months that would be, in effect, lost in an attempt to get that production response.

So we would assume --

A. Five years.

Q. -- that you would not want to ask for that certification until your facilities are in place and you are actually physically ready to begin injection --

A. Okay.

Q. -- so that you obtain the maximum benefit of the five-year period.

A. Right, I agree with that, okay.

Q. Okay. So at such time after approval and after you have completed construction and got your unit all in place, but before such time as you are ready --

and you make the determination when you're ready to inject water -- you need to contact the Division and request that we certify the project to Taxation and Revenue.

A. Okay.

Q. Now, the next step, what we'll need to do -- and this is where we get back more into the engineering side of it -- is, at that time we'll need to determine a baseline production level for your project area, because in order to receive the tax credit, you are within that five-year period that I talked about going to have to show a positive production response, which means you've got to know how to -- against what do you need to measure that --

A. Uh-huh.

Q. -- in order to determine your positive production response?

A. Okay.

Q. Your Figure -- What is it? Your last figure, I think?

A. Twenty-six, I believe.

Q. Yeah. In other words, you appear to be showing, if I'm looking at this correctly, your bottom --

A. Yeah, the --

Q. The first curve on the left is your C zone; is that correct? Is that your C zone primary reserves, or is that...

A. Yeah, it's basically the field reserves, the field production --

Q. Okay.

A. -- coming down, and then the C zone kicks in, and it has some additional incremental production, say in 1993, is the first year in which we see a production increase from the flood.

Q. As a result of the flood, right. That would be the time at which your tax credit would become effective.

A. Okay.

Q. But now, the question I'm asking you now is, in order to establish that baseline response, is this a number that we should use? Is this the line we should use for your...

I mean, it's going to have to be a field-wide baseline -- I'm referring to baseline, initial, you know, decline curve, established decline curve for the field, prior to secondary recovery.

And I guess the question is, we may or may not accept this as that number. We may ask you to provide additional information.

A. I'd rather provide additional information later, and at that time we can get together with our engineering committee and, you know, agree upon, amongst the three major working interest owners, what that baseline should be, or what we extrapolate the future production to be.

Q. Yeah. Well, it's a historical baseline, really, is what it is. And then, yes, of course your extrapolation. And it is a project-area-wide -- Whatever project we certify to Taxation and Revenue --

A. Uh-huh.

Q. -- is -- you've got to include all the historical production and the --

A. Okay.

Q. -- established decline curve for that entire project area.

A. Okay.

Q. Which now leads us back to your project area. Go back to Figure 20.

A. Uh-huh, okay.

Q. That would mean your baseline -- Your baseline production would be based upon every producing well included within the project area --

A. That's correct.

Q. -- prior to conversion and injection --

A. Correct.

Q. -- which would include wells 1 and 4.

A. That's correct.

Q. So that would be the number then established.

So then if they're included and they don't receive a response, there is some potential that could adversely affect your positive production response, because you are having to, if you will, carry some wells that aren't receiving it.

And it may not be a factor in this case.

A. It's probably not. The production from those two wells are fairly nominal anyhow.

Q. Okay. So you understand what we're going to have to do at that point.

Again, after you have established your positive production response, once you get your curve up, moving up again, you're going to have to come back to us and request that we certify to Taxation and Revenue a positive production response.

A. I understand, okay.

Q. So we have to notify Taxation and Revenue twice: once, to certify the approval of the project -- that's when you're ready to start flooding --

A. Uh-huh.

Q. -- and the second time, to certify a positive

production response, and that will probably require a hearing --

A. Okay.

Q. -- at that time. Okay?

MR. PADILLA: To certify and to establish a baseline production level --

MR. STOVALL: But that shouldn't require a hearing unless there are some questions.

MR. PADILLA: Let me ask, what would require a hearing now?

MR. STOVALL: The positive production response certification.

MR. PADILLA: Okay.

MR. STOVALL: I think we are taking the position at this time, particularly until we have some history on this, that we're going to ask you to come in and demonstrate at hearing that there has truly been a positive production response and not just, say, a burp in production caused by the better maintenance that establishing waterflood does.

You know, there's some prudent operation things that you go out and do before you do a waterflood that --

THE WITNESS: Right.

MR. STOVALL: -- will sometimes burp the

production up a little bit, but not be a true response.

THE WITNESS: Uh-huh.

EXAMINER CATANACH: What makes this even more complicated is the fact that it's phased program, vertically phased --

MR. STOVALL: I was just about to get at that part too.

EXAMINER CATANACH: -- which we haven't run across before, and I'm a little concerned that you're going to initiate flooding operations in the A and B after you have a response in the C.

THE WITNESS: Yes.

EXAMINER CATANACH: Theoretically, after you get your response in the C, you will qualify for the tax rate, but you will be getting the benefit in all three zones, even though you have not flooded the A and the B.

I'm a little bit concerned as to how we're going to handle that.

MR. STOVALL: The converse of that is that if we use the total production from the field, which includes the A, B and C, and you flood the C, you may get a response in the C, but not a total response for the field.

So I think when the -- because you have

created a unique situation because you are phasing vertically rather than horizontally -- and I wouldn't discourage -- I still want to encourage you to use sound engineering to accomplish the result.

But the question we may want to look at is, do we approve a zone C waterflood and then come back and approve -- and use the zone C production if you can adequately establish the zone C baseline production and the zone C response? But you're going to have to -- There's going to have to be some isolation of the --

MR. PADILLA: -- A and B.

MR. STOVALL: -- of the production so that you now what's C and what's A and B.

So by approving this waterflood at this time, we are not precluded from dealing with that, by approving it under the rules of the Division with respect to the waterflood project.

But in terms of the certification and establishment of your baselines and qualifying for the credits, you're going to have to want to look at it from that standpoint.

It may be that you can get enough production response out of the C that even though you're not yet injecting into the A and B, you've got a positive production response for the field, which would justify

the qualification --

THE WITNESS: Uh-huh.

MR. STOVALL: -- still. I mean, that's --

THE WITNESS: Okay.

MR. STOVALL: And we'll have to have some internal discussions because Dave looked at it from one way and I've looked at it from the other.

He's looking at it from the Division standpoint: If you're not injecting in the A and B, should you get credit for it?

I'm saying if you're not injecting in the A and B, is that going to handicap you? Or if you're successful in boosting production sufficiently from the C, does that mean that you ought to get credit even for A and B oil?

So I think that's --

MR. PADILLA: It seems like, to me, like you probably should get credit for it, based on what you're saying, if you get that boost.

MR. STOVALL: I think we need to have some discussion internally about that. But I think you are going to have to have some discussion with us at a future time, and we can do it informally.

THE WITNESS: Okay, that would be good.

MR. STOVALL: It does not have to be in a

hearing context.

THE WITNESS: And at that time I can get with my esteemed colleagues from Meridian and Santa Fe and see if they've run into anything like this, and --

MR. STOVALL: Well, they haven't, because yours is the first case that's --

THE WITNESS: Oh.

MR. STOVALL: -- I guess, that's come before us.

THE WITNESS: Well --

MR. STOVALL: You've got more experience than they do already.

And I think that addresses some of the issues that somehow we knew that the earlier ones were going to be the tough ones.

And somehow industry has worked to make the early tough ones tougher, coming up with interesting situations.

EXAMINER CATANACH: And appear on my docket.

MR. STOVALL: And they appear on your docket. That's because you're the waterflood expert, Mr. Catanach.

So far you've gotten them all, haven't you?

EXAMINER CATANACH: Yeah.

MR. STOVALL: Well, think about that and come

back --

THE WITNESS: Okay, we will.

MR. STOVALL: -- because we're going to have to deal with it. And familiarize yourself with the New Mexico Act because it is different from the Texas Act.

THE WITNESS: All right.

MR. STOVALL: There is some initial modeling. But, as I say, it's -- We are more critical of it, because it's not just giving you credit on incremental production.

Qualifying for the tax credit gives you your -- The tax reduced rate qualifies all production from the project for the reduced rate, so we are taking a more critical eye as to obtaining that positive production response.

THE WITNESS: I understand, okay.

MR. STOVALL: And I think that's the extent of the engineering preparation I've conducted, so...

THE WITNESS: A fine job.

MR. STOVALL: I have no further questions or comments, as the case may be.

EXAMINER CATANACH: I have nothing further of the witness.

MR. PADILLA: We have nothing further, and I'm sure we'll be back to have some discussions with

you concerning the EOR aspect of this.

MR. STOVALL: That is going to be primarily an engineering discussion with probably yourself coming in, and Mr. Van Ryan and Catanach and myself, so...

EXAMINER CATANACH: There being nothing further, Case 10,618 and 10,619 will be taken under advisement.

MR. PADILLA: Mr. Catanach, I have a third one of these booklets for you, and I'm not sure that you want it.

MR. STOVALL: Steve, would you like it?

COURT REPORTER: I could sure use it.

MR. STOVALL: Why don't you give it to him?

EXAMINER CATANACH: Yeah.

MR. STOVALL: All right?

COURT REPORTER: Would you like me to give it back to you?

MR. PADILLA: No, I have an extra copy for you, not of this one, but you can have that.

I have nothing further.

MR. STOVALL: Okay, you're going to submit the -- another copy of the --

MR. PADILLA: Correct, the --

MR. STOVALL: Make sure you get Steve one too.

MR. PADILLA: -- Exhibit Number 1.

EXAMINER CATANACH: Okay. This hearing is adjourned.

(Thereupon, these proceedings were concluded at 3:43 p.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10618/10619 heard by me on December 3 1992.

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 December 29th, 1992.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1994