STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ORIGINAL

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 14114

APPLICATION OF CHEVRON U.S.A., INC. FOR AMENDMENT OF DIVISION ORDER NO. R-4442, AS AMENDED, TO AUTHORIZE A VERTICAL EXPANSION OF THE VACUUM GRAYBURG-SAN ANDRES UNIT AND ADDITION OF NEW WELLS FOR INJECTION OF CARBON DIOXIDE, LEA COUNTY, NEW MEXICO

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID K. BROOKS, Jr., Legal Examiner
WILLIAM V. JONES, Technical Examiner
TERRY WARNELL, Technical Examiner

April 17, 2008

Santa Fe, New Mexico

This matter came for hearing before the New Mexico Oil Conservation Division, DAVID K. BROOKS, Jr., Legal Examiner, and WILLIAM V. JONES, Technical Examiner, on April 17, 2008, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive, Room 102, Santa Fe, New Mexico.

REPORTED BY: JOYCE D. CALVERT, P-03
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500 Fourth Street, NW, Suite 105
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Examiner Hearing
CASE NO. 14114

A P P E A R A N C E S

FOR THE APPLICANT:

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FOR THE RESPONDENT:

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MR. JONES: Let's go back on the record. I'm William V. Jones. I'm going to hear one case today.

Let's call Case No. 14114, Application of Chevron U.S.A., Inc., for Amendment of Division Order No. R-4442, as amended, to authorize a vertical expansion of the Vacuum Grayburg-San Andres Unit and Addition of New Wells for Injection for Carbon Dioxide, Lea County, New Mexico.

Call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the Santa Fe office of Holland & Hart, LLP. We represent Chevron U.S.A. in this matter.

MR. JONES: Any other appearance? You may proceed.

MR. CARR: Mr. Jones, initially, if I may, I would like to point out that when Chevron was advised that this case would have to go to hearing, the Examiner and the Chevron witnesses thought that April was a good time to come to Santa Fe and that the weather would be good. And I'd like just like to note that for the record.

MR. JONES: Murphy is alive and well.

MR. CARR: I'd also like to point out that Chevron today is doing something which may be a little unusual in the history of the Oil Conservation Division. Chevron is seeking to expand the vertical interval in a unit prior to producing the reserves from that expanded area. We're going to expand first and then produce the reserves. I have a brief opening

statement.

As the Division is aware, the Vacuum Grayburg-San Andres unit was created in 1972, and at some time, pressure maintenance by water flooding was approved by the Division. In 2001, Texaco, the then operator of the unit, appeared before the Division and sought and obtained approval for the initiation of a tertiary recovery project in the unit area by the injection of CO2. That project was not undertaken.

And when Chevron assumed operation in 2007, last year, we came before you and again received Division approval for a CO2 flood for tertiary operations and also were authorized to inject carbon dioxide in 26 wells in the unit area. Chevron is actively working in the unit and intends to be in full CO2 injection during 2008.

And today we're seeking two things: We're seeking to expand the vertical interval in this unit. You will see from our evidence that recent reservoir studies suggest that there are reserves in the Grayburg-San Andres Formation in a residual oil zone that is located below the vertical unit limits. And we are seeking authority to expand the vertical interval to take in that additional deeper interval.

We also are seeking authorization to inject in certain additional CO2 wells. The application addresses 14 wells. All of the wells except one are within the tertiary project area, which is most of, but less than, the entire unit

area. And that well that is not in the approved CO2 area is the Vacuum Grayburg-San Andres well No. 145. And we ask that that well be dismissed from this application. We will file a subsequent application seeking administrative approval to convert that well or to use that well only for water injection.

Based on our study, we're before you today seeking authorization to complete five new injection wells. As you may recall, between the time that Chevron got its CO2 project approved -- the time Texaco, in 2001, got its CO2 project approved and when it was reapproved by Chevron -- for Chevron -- by mistake five wells were approved administratively for addition to a tertiary recovery project that, in fact, did not exist.

So in the order a year ago, those five wells were identified. They were approved for water injection only. And that order provided that if these wells were to, at a later time, be used for CO2 injection, that could only be done by subsequent order of the Division.

So today, as part of this case, we're seeking authorization to use those five wells for CO2 injection. So that's 10 of the wells. And then we have three other wells that are currently water injectors that we seek authority to convert to CO2.

And I have two witnesses.

MR. JONES: Will the witnesses please stand and be

sworn?

[Witnesses sworn.]

DANIEL PEQUENO

after having been first duly sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

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

A. My name is Daniel, and the last name is Pequeno, P as in Paul, e-q-u-e-n-o. In the Spanish language they usually put a little wavy line on top of it which makes it Pequeno.

Q. Mr. Pequeno, where you do reside?

A. In Midland, Texas.

Q. By whom are you employed?

A. By Chevron.

Q. And what is your position with Chevron?

A. I'm a senior landman with Chevron.

Q. And have you previously testified before this Division and had your credentials as an expert in petroleum land matters accepted and made a matter of record?

A. Yes, I have.

Q. We have some new examiners, Mr. Pequeno. Could you just briefly summarize your educational background for

them, please?

A. I have a Bachelor's in marketing, and I have been employed as a landman for 28 years. 20 of those were with Mobile, five as self-employed, and now with Chevron.

Q. And you were the land witness that testified for Chevron in the 2007 hearing that resulted in the order authoring the CO2 project in this unit?

A. That is correct.

Q. Are you familiar with the application filed in this case today on behalf of Chevron?

A. Yes, I am.

Q. Are you familiar with the status of the lands in the Vacuum Grayburg-San Andres unit?

A. I sure am.

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

MR. JONES: I think I know Mr. Pequeno pretty well by now.

Where did you work with Mobile?

THE WITNESS: Same area, Lea County Vacuum fields.

MR. JONES: North Abo?

THE WITNESS: Right. North Vacuum Abo, right.

MR. JONES: Mr. Pequeno is qualified as an expert in land matters.

Q. (By Mr. Carr): Mr. Pequeno, would you briefly

summarize what it is that Chevron seeks with this application?

A. Okay. Today, Chevron is the operator of the Grayburg-San Andres Unit Tertiary Recovery Project. It is seeking approval of the expansion of the vertical limits of the unitized formation to include portions of the Grayburg-San Andrea Formations between stratographic depth of 3,902 and 5,020 feet. We believe a vertical expansion to the proposed depth of 5,020 feet will allow the efficient recovery of all movable hydrocarbons within the Grayburg-San Andres Formation.

Q. Are we also seeking authorization to now place 13 additional wells on carbon dioxide --

A. That is correct.

Q. Mr. Pequeno, could you go to what has been marked for identification as Chevron Exhibit No. 1? Identify this exhibit, and review it for the examiners.

A. Okay. This Exhibit 1 is a map of the Vacuum area. The unit outlined in red to the south, which is right in the center, is the Vacuum Grayburg-San Andres unit that we're addressing today.

The outline in green is the Central Vacuum Unit. And to the west, which is outlined in pink, is the West Vacuum Unit. They are all operated by Chevron.

Q. And are enhanced recovery operations underway in all of these units?

A. Yes, sir.

Q. You are currently flooding in each of them down to approximately the same depth?

A. The same depth, yes.

Q. And are they being operated under the same pressure limitations?

A. That is correct.

Q. Does the proposed expansion create any issues with these offsetting units or offsetting owners, to your knowledge?

A. As far as I know, all offset operators were notified, and I have not been aware of any concerns.

Q. And it's fair at this time to say that depending on what happens in the Vacuum Grayburg-San Andres Unit, there may be requests for similar expansions for offsetting operators?

A. That is correct. There is considerable operators.

Q. When was this unit formed?

A. The unit was approved by order R-4433 dated November 27, 1972, and is now operated by Chevron.

Q. And when did water-flood operations commence in the unit area?

A. Water-flood operations have been conducted in the unit areas since 1973 pursuant to Division order R-4442.

Q. Does the unit agreement for the Vacuum Grayburg-San Andres unit provide for carbon dioxide flooding?

A. Yes, sir. Section 44 of the unit on Page 6 applies to that.

Q. And is a copy of the unit agreement included in the exhibit marked Chevron Exhibit No. 2?

A. Yes, sir.

Q. Is the character of the land in the unit area fee?

A. All the lands within the unit are state-owned, 100 percent.

Q. Could you identify for the examiners what has been marked as Chevron Exhibit No. 3, and just briefly explain what this is and what it's designed to show?

A. Exhibit No. 3 was my initial submittal to the State Land Office with a copy to the OCD making an application for the vertical expansion of the unit. And attached to that were all the attachments to it.

Q. This exhibit today does not include all of the attachments that were included with the original file; is that right?

A. That's correct.

Q. Geological exhibits will be reviewed by a subsequent witness?

A. Yes, sir.

Q. But this is the application that you filed with the land office seeking their preliminary approval of the vertical expansion of that area?

A. That is correct.

Q. In this material, there is also a formal application, and it sets out the original unitized formation as set forth in Article 1.4, and it also contains the new language?

A. That is correct, the one we just previously discussed.

Q. And this does extend the vertical limits down to a depth of 5,020 feet?

A. That is correct.

Q. Would you identify what has been marked as Chevron Exhibit No. 4?

A. Exhibit No 4 was a response to my application from the land commissioner granting us preliminary approval to our request for a vertical expansion.

Q. Mr. Pequeno, going back to this application, when you filed the application with the land office with the attached geological technical presentation, did you also file a complete application at that time with the oil --

A. Yes. I filed it with the State Land Office, with a copy to Mr. Fesmire of the OCD.

Q. Could you identify now what has been marked as

Chevron Exhibit No. 5?

A. Exhibit No. 5 is the tract participation in the unit.

Q. And this shows this is dated for the vertical expansion --

A. Effective January 1, 2008.

Q. And what does this show as to the working interest ownership in the unit area?

A. It shows that everything is owned -- operated and owned by Chevron.

Q. And does this indicate Texaco, but you have succeeded to their --

A. That is correct.

Q. Would you identify Chevron Exhibit No. 6, please?

A. No. 6 is my notification of all offset operators, lease owners, surface owners and the State of New Mexico with respect to the application. It was sent at the same time and made a part of the application initially.

Q. Okay. So you notified all interest owners in January of your plans to expand the unit?

A. That's correct.

Q. Now, the second page of this exhibit, what does that show?

A. Okay. That shows an exhibit. The exhibit is an affidavit that shows --

Q. Excuse me, Daniel, the second page of your --

A. Oh, the second page. I'm sorry. That just shows the unit outlined in the center, which is the Vacuum Grayburg-San Andres Unit, and notification was sent to all the parties, working interest owners, lease owners, surface owners surrounding that area.

Q. You had notified all interest owners within a mile of the --

A. That is correct. And in my conversations with Mr. Pete Martinez of the land office, he stated that that needed to be done.

Q. And did you notify tenants that had temporary ownership or --

A. That's correct. I tried to cover everything. The State Land Office is a surface owner, and the Pearce Trust, and every other one, and the tenants as well.

Q. Is Exhibit No. 1 an affidavit from Holland & Hart confirming that notice of this -- today's hearing has been provided in accordance of the rules of the Oil Conservation Division?

A. That is correct.

Q. Were all leasehold operators within one mile, again, notified of this hearing?

A. That is correct. I provided all that information to Holland & Hart.

Q. And were surface owners notified?
A. Yes, sir.
Q. All offset operators?
A. That's correct.
Q. And the State Land Office?
A. And the State Land Office.
Q. Will Chevron call an additional witness to review the technical aspects of this application?
A. Yes, sir.
Q. Were Chevron Exhibits 1 through 7 either prepared by you or compiled under your direction in your position?
A. That's correct.
MR. CARR: May it please the Examiner, at this time, we would move the admission into evidence Chevron Exhibits 1 through 7.
MR. JONES: Exhibits 1 through 7 will be admitted.
MR. CARR: That concludes my direct examination of Mr. Pequeno.

EXAMINATION

BY MR. JONES:
Q. Okay. I pretty much rely on Mr. Brooks here for questions like these, but you guys are asking only to amend 4442 one more time; is that correct?
A. That's correct.
Q. Okay. And the unit order itself, 4443, you're

not really asking to amend that, you're just asking for approval of the unit -- to lowering the unit depth?

MR. CARR: We are seeking your authorization to expand the unitized interval to a lower depth to pick up this residual oil. That's all we're requesting with that part of the application.

MR. JONES: And you say you're not really requesting another formal amendment to the unit order that the Division --

MR. CARR: We think the unit covers that, Mr. Jones, and we also have already received authorization for a CO2 project within the unit. The pressure limitations have been approved. The injection volumes have been approved on a per well basis, and all of those provisions are in place, and Chevron intends to live with those.

MR. JONES: So it's -- the original unit order that was -- the State Land Office approves it with provision to modify the units from time to time, and the initial order from the commission or division does not ever need to be revised?

MR. CARR: We're asking you to approve the expansion. Once that occurs, we'll go back to the land office and obtain final approval of the amendment of the interval agreement as shown in the language as set out in Chevron's exhibits to amend the unit to just expand the vertical interval. We'll get final approval, and at that time record it.

MR. JONES: Okay.

Q. (By Mr. Jones): Mr. Pequeno, this Section 35, what's going on with Section 35?

A. That is the State 35 Unit that is operated by --

Q. Okay.

A. -- and that's under water-flood and is on the Grayburg-San Andres unit as well.

Q. Okay. Is it a similar depth interval?

A. Yes, sir.

Q. Okay. It's just water-flood? It's not a CO2 flood?

A. Right.

Q. The depth of the West Vacuum Unit, is that similar to this now or --

A. No. That's still to 4850, I believe.

Q. Okay. But the central Vacuum unit is actually already at a lower depth; is that right?

A. That's correct.

Q. And the East Vacuum Grayburg is deeper?

A. Right.

Q. Okay. And there's 10 tracts, and they're all identically owned?

A. That's correct, sir.

Q. When did No. 10 -- when did that one get added?

A. Tract No. 10? Let me look at the unit.

Q. If you don't know, that's okay. But I just don't

remember that tract being part of the unit years ago, and I thought maybe it was picked up.

A. Let me get a picture of the exact tract number. Tract No. 10 was added a year later.

Q. A year later. So it was --

A. Right. At that time, we were trying to get the entire Section 35, but Phillips, the owner of that tract at that time, did not want to add to it. So we ended up -- narrowed it down to the west half about a year later.

MR. JONES: Okay. That's it. Do you have any questions?

EXAMINATION

BY MR. BROOKS:

Q. Okay. Mr. Pequeno, pleased to meet you. We've exchanged a number of e-mails.

A. We've exchanged e-mails, that's right, sir.

Q. Looking at Exhibit 1, are all -- there are a number of wells that have pink circles around them. It looks like 1, 2, 3, 4, 5, 6, 7, 8, 9 wells that have pink circles around them. Is that -- are all those wells subject to be certified as injectors?

A. I believe that's correct. I would defer to Mr. Ingram, the next witness.

Q. Okay. What is the significance of the purple-dashed line?

A. Okay. That's the target area for the CO2.

Q. Okay. And what is the significance of the brown- or gold-dashed line that -- with the curves?

A. The tan lines? See --

MR. CARR: Mr. Examiner, this plat really serves as the final area of review map for the application, the C-108 application, for authorization to inject.

The subsequent witness will review it in more detail. But that kind of brown line that is scalloped around the unit area is the total of the areas of review for the injection wells.

MR. BROOKS: Okay.

Q. (By Mr. Brooks): What I want to get to here is the notice. You know, I specialize in notice. Exhibit No. 6 summarizes the notice, the people who were notified; is that correct?

A. That is correct, sir.

Q. Okay. Now, if notice provision is based on distances from wells where the injection will take place and the wells up in the -- the four wells up along the lease line up there, they are on the margin of the Central Vacuum Unit, right?

A. And they were notified by virtue of the C-108s when they were sent for submittal for approval. They were covered under that as well.

Q. Okay. Now, the Central Vacuum Unit -- Chevron operates the Central Vacuum Unit, right?

A. That is correct, sir.

Q. So under the rule, then, you would have to notify all working interest owners --

A. That is correct. And we have done so by virtue of the C-108s when we submitted them.

Q. So they were notified of the original submission of the application but not of the hearing; is that correct?

MR. CARR: At the time of the January letter, there was no hearing schedule, so application was sent. It wasn't until --

MR. BROOKS: It would have been set more recently.

MR. CARR: March the 18th. That's in Exhibit No. 7 that a separate notice was sent of the actual hearing on today's date and the location of the hearing.

Q. (By Mr. Brooks): You know, the people on the notice list that are attached here, were they notified of the hearing? Or, given the dates on here, it looks like that was before the hearing was set.

A. Yeah. What I submitted was prior to the hearing, when I initially submitted the application. Then when I was advised that we needed to get an attorney, then I submitted all the paperwork back to Holland & Hart to further address that matter with the list of owners.

Q. Okay. And Exhibit B to Exhibit 7, then, is the list of the people who were notified of the hearing?

MR. CARR: That is correct.

MR. JONES: Another thing we have here is a lease line agreement, I think. Was that renegotiated recently, also?

THE WITNESS: The lease line agreement, yes. There is a water lease line agreement that was an amendment to the original one. And we have -- everybody, all the working interest owners approved that one.

And also for those four line wells that are 438, 439, 440 and 441 were covered by the lease line agreement. And we got everybody's approval, all the working interest owners and CVU.

MR. JONES: And at that time, they knew that you were going to go to 5,000 feet, and they were aware that the Central Vacuum, I think, is 4850 or something like that?

THE WITNESS: Yes.

MR. JONES: So they knew that?

THE WITNESS: Uh-huh. And we have continuous communications with the folks there, the other working interest owners.

MR. BROOKS: I'm a little vague on this, and I should have been better prepared in advance, but I don't want to delay things at this point, so I will not ask any more questions.

MR. JONES: One situation we had was the C-108s came

in, there was no protest to them for adding these wells at the lower depths. And for purposes of the hearing, there was no protesting parties except me being a little bit obstinate about it and requiring -- declaring it a little bit more than an administrative-type application.

MR. BROOKS: Well, of course, you and I conferred about it, and we conferred with Mr. Ezeanyim about it at the time, but -- about setting it for hearing -- but as far as the notice is concerned, my thinking at this point would be that as far as the notice of the hearing, when there's not a protest -- of course, when there is a protest, the protesting party has a right to notice under general provisional rules -- but it seems to me this probably goes under that catch-all "all other proceedings" that notices whoever the Division requires.

I don't see anything that would seem to make it otherwise. I will look into it afterwards, but I don't want to delay the hearing for this purpose.

MR. CARR: And if you have concerns, if you will communicate those to me, please?

MR. BROOKS: I will. Okay. Thank you. Let's continue.

MR. JONES: Okay. Terry, do you have any questions?

MR. WARNELL: No, thank you.

MR. JONES: Thank you, Mr. Pequeno.

MR. CARR: May it please the Examiners, at this time,

we call Scott M. Ingram.

THE WITNESS: May I say something that might help clarify some of the --

MR. CARR: Yes.

MR. INGRAM: The lease line injectors for the 438, 439 through 441, those will only be injected into -- down to the established oil/water contact to 700 sub-sea, even though we're asking for vertical amendment to the VGSAU unit interval. Since the CVU doesn't flood deeper, we're not going to inject along those lease line wells deeper, because there would be no opportunity to recover the hydrocarbon and the CVU site with this current -- the way the CVU is currently managed. And it will be consistent with the existing lease line injectors that are already injecting CO2 that these are simply 10-acre in-fill locations.

MR. JONES: Well, we're getting ahead of ourselves here, but does that include CVU 238?

MR. INGRAM: Yeah. 238 is the replacement for the 138, which is mechanically unsound to continue to inject, so it will just be injected into -- down to approximately 700 sub-sea.

MR. JONES: Okay.

SCOTT M. INGRAM

after having been first duly sworn under oath, was questioned and testified as follows:

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DIRECT EXAMINATION

BY MR. CARR:

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

A. Scott McCoy Ingram.

Q. Mr. Ingram, where do you reside?

A. Midland, Texas.

Q. By whom are you employed?

A. By Chevron.

Q. What is your position with Chevron?

A. I am a senior staff -- or scientist and also the Vacuum project manager.

Q. Have you previously testified before the Oil Conservation Division.

A. Yes, I have.

Q. Were your credentials as an expert in petroleum geology accepted at that time?

A. Yes, they were.

Q. Are you familiar with Chevron's plans to expand the vertical interval in the Vacuum Grayburg-San Andres unit?

A. Yes, I am.

Q. And are you familiar with the form C-108 that was filed with this application?

A. Yes, I am.

Q. Are you familiar with the Grayburg-San Andres geology in the area for this hearing?

A. Yes, I am.

Q. And you made a study of that geology?

A. Yes.

Q. Are you prepared to review your work with the examiners?

A. Yes, I am.

MR. CARR: I would tender Mr. Ingram as an expert in petroleum geology.

MR. JONES: Mr. Ingram is qualified as an expert in petroleum geology.

Q. (By Mr. Carr): Mr. Ingram, I think, initially, it would be helpful to just explain to the examiners why it is that Chevron is now seeking to expand the vertical interval in this unit as you are now proposing to do.

A. Last August, in Case 13961, we reapplied for CO2 injection. We made reference then to our ongoing study of this residual oil zone interval. It is, essentially, a lower part of the hydrocarbon entrapment that exists beneath the point of first produced water.

Historically, operators didn't want any water back in the '30s and the '40s, so these oil/water contacts were typically established at the point that they first encountered water, and in this particular case, these units, essentially, have been developed to that depth, but not beneath it.

What we've learned in other major -- other operators

in the industry have learned and recognized that there is recoverable hydrocarbons beneath that point as well. Some through a primary and secondary means and then further down in the reservoir, there's no longer mobile oil without tertiary means, but there's oil that can be mobilized with CO2.

So we're trying to access that part of this reservoir. It's actually still part of the same reservoir. And to do so, though, the current interval doesn't extend deep enough to allow us to do that. So we are asking for a vertical amendment to the unit or a vertical extension.

Q. And during the last few months, you have obtained core information, have you not, on this lower zone?

A. Yes, we have. We took a sponge core on the VGSAU No. 250 well. It will be referenced on a couple of cross sections here. We're also planning another sponge core and some other what we call high-tech logs of this residual oil interval to validate its extent and to determine exactly how far down it goes -- because we did not penetrate all of it with the 250 well -- and then to try to identify the commercial limit of that.

Q. So what we're doing is we're starting immediately below the current oil/water contact?

A. Yes, sir.

Q. And we are expanding the unitized interval down several hundred feet -- whatever it is -- to include this

residual zone and attempt to produce reserves from that zone?

A. Correct.

Q. Can you describe the general characteristics of the Grayburg-San Andres Formation for the Examiners?

A. The Grayburg-San Andres are Permian-aged, carbonate buildups in this location. They are carbonate-dominate buildup deposits in the relatively shallow water, high energy environment, warm waters, a little bit of silt stone intermixed in that, but at a high energy grain stone dominated type deposition, and that's what has made this accumulation at the Vacuum field.

Q. Are all current Vacuum Grayburg-San Andres unit completions within the current unitized interval?

A. Undoubtedly, yes. 100 percent.

Q. And is the proposed vertical expansion completely contained within the Grayburg-San Andres Formation?

A. Yes, within the San Andres Formation, which continues all the way down to Glorieta, which is 5800 foot, more or less.

Q. Let's go to what's been marked as Chevron Exhibit No. 8. It's a typed log, and I'd ask you to review the information on this exhibit for the examiners.

A. Okay. Yes. This -- as I peel back to it, I know exactly what it looks like. It references the same unit well that was the original well in the unit agreement, the

New Mexico M State #8. It covers the lower part of the Penrose and then the Grayburg-San Andres Formations.

It shows the top of the unit interval, which I believe is at 3102. And it shows the bottom of the current unitized interval, which is, I think, 4809, that subject well. And then it also shows what we're proposing to extend the lower part of the unitized interval down to, which is 5020 in that same reference well.

MR. WARNELL: So, Mr. Ingram, excuse me. The 5220 depth on Exhibit 8, that's a typo? It would be 5020 feet?

THE WITNESS: Thank you. Yes. That's a typo. It should be 5020.

Q. (By Mr. Carr): Mr. Ingram, this is basically the same type log that was presented last August to the Division?

A. Yes, sir. Yes, it is.

Q. Just extended and includes a larger section so that you can show the expansion interval?

A. That's correct.

Q. Let's go to your structure map, Exhibit No. 9. If you would review the information on this exhibit for the examiners.

A. This is a structure map on the top of the San Andres Formation. There's a very good marker correlated across the northwest shelf. The two main units of reference, the VGSAU is shown in red, the boundary of it is in red, and

the Central Vacuum Unit is shown in green. The lighter tan color in the center is the structural crest. You can see it extends from the north -- north central part of the map down through the Central Vacuum Unit and through and into the VGSAU. You can see that the structure -- a long strike falls slowly to the east and to the west. And when you get to the southern boundaries of the VGSAU, you see the contour lines are much closer, reflecting the deeper dip as you're falling into the Delaware Basin.

Q. Let's now move to Chevron Exhibit No. 10.

A. Okay. This is a zoomed-in version of Exhibit 1, the one that Mr. Brooks had a question on earlier. It's the exact same information, except with the zoom-in, you no longer see the two-mile radius.

The tan-dashed line is the one-half mile radius area of review. The purple-dashed line is the original target area that was part of the 2001 Texaco application for CO2. It shows all the area that we envision eventually putting under CO2 flood.

It also shows the three units, the Central Vacuum Unit, the VGSAU Unit and the West Vacuum Unit in pink over to the left. And then the two blue lines are the cross section indexes of those cross section. I'll show you that shortly. The pink circles -- I love colors -- the pink circles are all of the injection wells that are the subject of this

application. Eight of those are existing wells, and then five of those are proposed wells to be drilled.

And then the blue circles is the 145, which has been removed from this application. It'll just be reapplied for water injection.

Q. What is the yellow area?

A. I'm sorry. Thank you. The yellow area is our current CO2 project. We're actively implementing that CO2 flood as we speak. That was the subject -- that was initiated after the approval of 13961 last December.

Q. Mr. Ingram, let's go to the west to east cross section of Chevron Exhibit No. 11. And would you review that for the Examiners, please?

A. Yes. This is the west-east cross section. There are several things I want to point out, first, the fourth well from the left, the VCW 113. In parentheses you see the M State #8, that is the unit-referenced well in the VGSAU agreement.

And I want to point out the correlation markers are markers within the Grayburg San-Andres Formations that we use to confirm and evaluate lateral continuity. I believe you can see that there's a lot of porosity indicated consistently through the San Andres Formation, not as much so through the Grayburg.

The curve on the left of each well trace is the gamma

ray. The curve on the right is the porosity. And we have highlighted the porosity above 6 percent, which is essentially the effective cutoff porosity.

And then there's the historic oil/water contact, the blue horizontal line that continues across the cross section. Again, that's the depth at which all of the VGSAU wells have been completed to historically. The green line beneath that is at a depth of 850-foot sub-sea. That's the depth with what we know right now that we're implementing, the CO2 flood in the VGSAU.

Then the red line, the red-dashed line -- let's start from the fourth well on the left, which is the type well, the M State #8. You can see that it encounters that wellbore at a depth of 4809, and then its interpreted contact from each of the other wells from that well's location.

And I want to point out the way the perforations of the completion intervals are indicated. The hot pink color in the depth track, the center of each log, those are the completion intervals, the active completion intervals, either perforations or open hole sections. There's one well there where you see some teal. Those are perfs that have been subsequently squeezed for various reasons.

The black intervals at the bottom of the 157 well, the 57 and the 250, those are proposed perforations. Those are perforations that we are getting ready to do as part of our CO2

project. And if you look at the VGSAU 57, you can see why there's an immediate need for this vertical expansion to go down to the 850-foot sub-sea data, which is where we want to focus our CO2 flood. We can't do that with the current unit boundary. About 40- to 50-foot of that completion would be beyond the current unit boundary. So we've delayed doing work on that well and a few others in that situation.

If you look at the VGSAU No. 250, it's the second well from the right. And then look at the green curve down two-thirds down the well trace. That's our oil saturation curve from the sponge core that we took on that well in 2006. We've done a pretty thorough analysis of that, but we still have yet to do the SCAL analysis, the special core analysis on that, which will give us relative perm and wettability and some other information.

But what it does show, that curve is scaled from 0 to 50 percent, 0 to the left, 50 oil saturation to the right. And it's highlighted, all the oil saturation above 10 percent. So you can see for that entire interval from roughly just below 4700 down to 48 -- excuse me -- 4960, we've got continuous oil saturation.

So it shows oil saturation well beneath the unit boundary. And again, that's why we need to extend the vertical unit boundary so that we can access this in the VGSAU pool.

The last thing I want to point out is the gray-dashed

line at this bottom. That's the -- how the proposed unit boundary would correlate across the unit in those wells that have been drilled that deep to date.

Q. Let's look at the northeast-southwest cross section.

MR. BROOKS: That's Exhibit 12?

MR. CARR: Yes, sir.

A. It is essentially the same set up, same color scheme, but of course, I want to point out the red-dashed contour, which is labeled the VGSAU boundary. Again, that's the current unit boundary. And then just beneath it, you'll see the CVU unit boundary. It's got its own unitized interval described. And in that unit, it's slightly deeper.

The second well on this cross section from the left is VGWU 101 and was originally the O State #23. And that is the unit reference well in the Central Vacuum Unit unit agreement. So you can see, if you can look at this, when -- if and when we implement a residual oil zone flood of the Central Vacuum Unit, if we want to go below 850 sub-sea, then we would also need to amend that unit agreement vertically as well.

And then you can see the last proposed lower unit boundary, still within the San Andres Formation.

Q. (By Mr. Carr): As to Central Vacuum, as you indicated in the beginning of your presentation, there's a lease line agreement, and the injection wells between Vacuum

Grayburg-San Andres unit and Central Vacuum Unit are not going to be injecting below the current established base of the unitized interval?

A. That is correct.

Q. Is Chevron at this time planning a pilot project in the Central Vacuum Unit to determine whether or not similar activity needs to be instituted in that unit?

A. Yes, sir. We're currently looking at that. We've been studying it since last year. One of the main data pieces we need is to decide how deep we can commercially go to make that determination. We're going to do the SCAL analysis on the 250 core that we've already acquired, and then we're going to drill another well in the Central Vacuum Unit and sponge core it down to the free water level.

And then we'll do a complete analysis of that core, including SCAL analysis, to decide, you know, how deep the residual oil zone goes to and to what depth we can commercially flood it.

Q. Could you just summarize the geological conclusions you have reached from your study of this area?

A. Two main things: First, we have to amend the vertical limitations to the unit in order to access this hydrocarbon that's still part of the same reservoir. And the oil is compatible because it is from the same reservoir.

We have sampled the upper part of the ROZ

independently of other wells and compared that oil to the main table oil. And other than having fewer and lighter hydrocarbons, it's the same fingerprint oil.

Q. It is possible that there is recoverable oil in portions of this residual oil zone below the vertical interval that you're trying to bring into the --

A. It's possible. As I said, we haven't yet got core data deep enough that will give us all those answers. So it is possible that someday later we could say, "Well, I wish we had extended that unit boundary further."

But I'll say this: Right with what we know now, we're only comfortable going to 4850 in the VGSAU, so that extra 150 foot beneath the established oil column -- but with the proposed unit boundary being amended to 5020 in the type well, that's essentially 1,000-foot sub-sea. So that gives us another 150 foot that we could go. And we really don't envision the commerciality of any residual saturations extending beneath that depth.

Q. Could you identify what has been marked as Chevron Exhibit No. 13?

A. Yes. That's the hearing order from last December authoring the CO2 injection in the VGSAU.

Q. And this order established pressure limitations and determined other production parameters for the unit; did it not?

A. Yes, sir, it did.

Q. And Chevron is intending to fully comply with the limitations or provisions of the order that it obtained last December?

A. Yes, we are. All the 13 injectors that are the subject of this application will be managed with the same pressure limitations and injection rates as previously approved by R-4442-B.

Q. I'd like to now ask you some questions about Chevron's plan of operation. And I guess we should start by just asking when Chevron plans to initiate this tertiary recover project.

A. We're actually doing it now. We started it after last December's approval. We've actually done some pilot deepening in some wells prior to that that is still above the unit boundary at the time. To date, we have added perforations or deepened wells and made the necessary wellhead changes on 12 of the 27 wells in our current project area, that yellow area you saw in Exhibit 10. And we have three work-over rigs actively working that project as we speak continuing on the balance of those wells.

We have identified, though, several deepening or add perforation opportunities that need to be done to complete that project but that we've delayed doing pending the Division's approval of this application.

Q. Would you identify Chevron Exhibit No. 14?

A. Yes. This is a list of the wells that are the subject of this application.

Q. All right. Then we are going to dismiss the 145?

A. Correct.

MR. CARR: May it please the Examiners, the Well No. 233, there's a typographical error there. The unit is identified as being Unit L. That actually should be Unit H on that exhibit.

MR. JONES: 243?

MR. CARR: 233.

MR. JONES: 33 is an H?

MR. CARR: Is an H.

A. The first eight of those are the wells that are already existing water injectors and need to be converted to CO2. And the last five would be omission of the 145. Those are the wells to be drilled that will be completed as CO2 injectors.

Q. (By Mr. Carr): Mr. Ingram, would you explain how Chevron plans to implement the CO2?

A. Well, it will be a phased implementation. As I said, we're currently initiating and completing the first phase, which is that project area in yellow that we showed you. It's 160 acres. We're anticipating doing the next phase in next year's capital program in 2009. And then beyond that, it

will be a phased expansion, based on the results of the first two areas. But we do anticipate fully developing the target area, that purple-dashed area with CO2 eventually.

Q. Would you identify Exhibit 15, please?

A. 15 is the C-108 application which is the subject of this hearing.

Q. In fact, there have been three recent C-108 applications filed for this unit; is that not correct?

A. I've lost count. Yes.

Q. Texaco filed an application back in 2001?

A. I'm sorry. Texaco filed the application in 2001 asking for CO2 injection, which we did not act upon, and that expired. So last July there was a followup application, 13961, that was approved by the Division in December for CO2 injection, and that was -- that application included all of the original wells that had been applied for by Texaco in 2001 and made reference to the fact that there were additional wells that had been drilled since 2001.

So that application brought current all of the well data -- as part of the C-108 -- all of the new drills that had been drilled and any subsequent P&As that had happened in the interim.

And in this application, just supplements that application and asks for the authority to inject into the 13 wells, and then it also shows some supplemental data. As one

of you noticed, the lease line injectors, their area of review extends further into the CVU than any of the previous wells, so we have the T&A data and the well completion data sheets and all that for the incremental area as the area of review has expanded.

Q. So summarize for the Examiner what information is contained in this C-150.

A. There's the well completion data sheets. There's the P&A records. I believe that's in part six. There's the chemical analysis of fresh water. Essentially, there's all the data responsive to this application for the additional wells that weren't covered in prior filings.

Q. So if you take these three C-108s together, you now have before the Division full information on all wells within the current areas of review for each of the injection wells that are the subject of today's hearing?

A. Yes, that's correct.

Q. Could you identify what has been marked as Exhibit 16, please?

A. Yes. That's the tabulation of the well data in response to Item 4.

Q. 4 -- 6. I'm sorry, 6.

A. Item 6, and it's specifically for the sections as we expanded the area of review. It covers the wells that weren't previously part of the area review because of the

smaller area covered with injectors.

Q. Mr. Ingram, this exhibit isn't just supplemental information?

A. No. In these sections, it's all the wells that exist in those sections.

Q. So when Mr. Jones looks at the sections that are involved in this case, Exhibit No. 16 contains, in tabular form, all the required information for all wells in those sections? He doesn't have to go back to prior filings to take a look at what's going on in those sections?

A. That's correct.

Q. Does the new C-108 exhibit contained all data required on plugged and abandoned wells within the expanded area of review?

A. Yes, it does.

Q. Was most of this information actually filed last fall?

A. Yes.

Q. Does the exhibit, as revised, now contain all information required by the C-108 for every one of the wells that's involved in this application?

A. Yes, sir.

Q. And the current and accurate area of review map, the one that is current as of today, is what was marked as Exhibit 1 and used by Chevron as their orientation plan in this

case?

A. That's correct.

Q. Are all wells in the project area properly completed and cased so as to prevent any problems with any water wells in the area?

A. Yes, sir.

Q. Have you reviewed the data available on wells within the areas of review of this CO2 flood and satisfied yourself that no remedial work is required on any of these wells to enable Chevron and others to safely operate wells in close proximity to this CO2 flood?

A. Yes, I have.

Q. How many total injection wells and producing wells will be in the unit if this application is approved?

A. There will be 46 injection wells, 36 of which will be in this target area, and there will be 53 producing wells, 46 of which are in the target area.

Q. When you talk about injection wells, you're including both water and CO2 injectors?

A. That's correct.

Q. How does Chevron monitor these wells to insure the wellbore integrity?

A. We have a SCADA system, an automatic monitoring system that monitors pressures and injection rates and it has automatic shut-ins built in so that if the injection pressure

were to suddenly drop indicating a leak, those wells would be automatically shut-in. We also maintain the mechanical integrity tests on these wells, and then they are visually inspected by our lease operators, our field specialists on a daily basis.

Q. Are there fresh water zones in the area?

A. Yes, there is, the Ogallala. Its base is about 220-foot sub-sea -- or 220-foot depth.

Q. Have you examined the available geologic and engineering data on this reservoir?

A. Yes, I have.

Q. And as a result of that examination, have you found any evidence of open faults or other hydrologic connections between the proposed injection intervals and any underground source of drinking water?

A. No. No, I haven't.

Q. What is the source of the CO2 you propose to inject?

A. It comes from the McElmo Dome. It comes down the Cortez pipeline, and we have transportation contracts to get it to the VGSAU. Also part of the gas will be -- part of the injected CO2 will be reinjected-produced CO2 from the wells. We will recycle that CO2.

Q. What volumes of CO2 do you propose to inject?

A. On average, the wells, when on CO2, will be at

two and a half million CO2 per day. When they're on water injection, on average, 1,000 barrels of water a day.

Q. And these injection rates have previously been approved by the Division?

A. Yes. This is identical to what was approved in 13961.

Q. And what will be the maximum injection?

A. 5,000 MCF of CO2 a day and 2500 barrels of water.

Q. And again, these have been previously approved?

A. Yes, sir.

Q. What pressure limitation has been approved for this project?

A. 1850 pounds while on CO2 at the surface and 1500 pounds while on water.

Q. In your opinion, will the approval of this application for the expansion of the vertical limits in this unit and the approval of the subject injection wells be in the best interest of conservation and prevention of waste and protection of rights?

A. Yes, it will.

Q. Does Chevron request that the order be expedited?

A. Yes, we do, if at all possible. As I said, we've delayed some well work pending the approval from the Division. It also ties into the timely coordination with shutting in offsetting existing CO2 injectors along the lease line. We

have to do that from a safety standpoint to reduce the reservoir pressure in the wells that we're getting ready to deepen and work on. We don't want to be injecting CO2 in a nearby well and re-pressuring the reservoir. It just causes added safety concerns. So as soon as the Division could approve this, it would be greatly appreciated.

Q. Mr. Ingram, were Chevron Exhibits 8 through 16 prepared by you or compiled at your direction?

A. Yes, they were.

Q. Can you testify as to their accuracy?

A. Yes, I can.

MR. CARR: May it please the Examiners, at this time, we move the admission into evidence of Chevron Exhibits 8 through 16.

MR. JONES: Exhibits 8 through 16 will be admitted.

MR. CARR: That concludes my direct examination of Mr. Ingram, Mr. Examiner. Chevron will be filing a proposed order in this case that will correctly contain well descriptions and everything else so you don't have to go back and recheck that part of it.

MR. JONES: Mr. Carr did give me a post order last time, and it really helped also.

MR. CARR: And that concludes my direct examination, Mr. Examiner.

MR. JONES: Okay. Terry, do you have questions of

Mr. Ingram?

MR. WARNELL: No. I don't believe I do at this time.

MR. JONES: Speak up if you have some later. I have quite a few. Mr. Brooks usually asks the pertinent ones after I forget to ask them.

MR. BROOKS: Well, I'm not going to ask Mr. Ingram very many.

MR. JONES: You're not interested in transition zones in the San Andres?

MR. BROOKS: Well, I am. But I don't know enough about it to ask intelligent questions.

EXAMINATION

BY MR. JONES:

Q. How are you guys set up on joint interest, monitoring joint interest operating? Is it somebody out of Houston that does that, or do you do it out of your shop?

A. No. It's our accounting group that handles --

Q. What I mean is, for approving for East Vacuum Grayburg, what engineer looks over that project? Does Chevron still have an interest in that?

A. No. Actually, we sold all of our interest in the East Vacuum Grayburg-San Andres. We do have a lease line agreement with them as well. We have some common lease line injectors between the CVU and the East Vacuum Grayburg.

Q. Okay. That's what I was getting at. Do you have

any data from them? I thought they were injecting pretty low -- they were going pretty low on their --

A. I'm not sure what their interval is, but I don't believe it's beneath the established 700-foot sub-sea data, not substantially --

MR. BROOKS: Excuse me. I'm sorry. Go ahead and finish your answer. And then I'll interject before the next question.

A. It's not substantially beneath 700 sub-sea. In fact, there are isolated wells in the Central Vacuum Unit that currently produce from 770 sub-sea, 780 sub-sea. But nothing in the VGSAU produces beneath the current unit boundary. And, in fact, nothing produces beneath 700 sub-sea in the VGSAU.

It's something that, I think historically, people have said, "We've got a 300-barrel a day oil well down to 700. I wonder if we went a little farther, is there any more oil?"

So isolated wells have completed slightly deeper in the CVU, and that may well be in the East Vacuum as well.

MR. BROOKS: It seems to become apparent that we're not going to be able to get started on the next case prior to the lunch hour. So I'm sure as fascinating as this testimony is that some of you may want to do something else.

So everyone who's not involved in this case is excused to 1:30.

Q. (By Mr. Jones): I'll try to go a little faster

here. Why were those wells, those perfs, squeezed off in some of those wells that were actually perfed lower?

A. The specifics of--

Q. Well, did you see anything in general why they were?

A. In some wells, I'm sure they encountered incremental water that they weren't willing to handle at the time. We know that in doing this and expanding deeper, we're going to have to move more water in the wells that we've already deepened or added perfs.

But above the current unit boundary, we've seen that we've had to upsize our pumping equipment. And I suspect that that was the main thing, that they didn't see the economic value of it at the time.

However, we've already done two deepenings where we've encountered a good bit of incremental oil without incremental water. So, you know, it's kind of like any carbonate reservoir. It's heterogeneous enough that you can't apply any rule to every wellbore.

Q. Have you done any tracing in your frac jobs to see if they're moving down -- or any fracture identification logs?

A. We haven't been running any fracture identification logs recently. And, in fact, we haven't fracture stimulate the wells recently. I'm sure some have been

done over the years, but all of our completions are just with acid stimulations up to five to eight barrels a minute.

We do know that the vertical permeability is high enough that we are having some CO2 impact strata deeper than where it's injected. We've recently deepened a well in the Central Vacuum Unit and encountered an increased GOR by deepening it. And there's really no explanation for that, other than you had CO2 migrating downward.

Q. So you're going to do the sponge core, special core analysis to get capillary pressures?

A. To get the oil saturations and also the capillary pressures, the relative permeability --

Q. But even without that information, you know enough to lower it to this depth --

A. Yes, sir.

Q. -- based on log analysis and the work you've already done on the sponge core?

A. That's correct.

Q. Okay. You haven't run any TDT logs to look for changing saturations?

A. No, but we had planned in this current drilling program to do some pulse neutron logs -- essentially, the same thing for that very purpose -- pulse neutron logs and some repeat formation testers to kind of determine the pressure profile vertically through the Central Vacuum flood.

Q. It looks like it's a little dirtier down deep.

A. Yeah, if you look at that type well, the gamma ray kicks up. So the permeabilities in that particular well may be lower, but if you look laterally in all the deeper wells not necessarily shown in that cross section, that character isn't always present.

Q. Okay.

A. There's good porosity down there in what we've seen. It's reservoir quality.

Q. Okay. Is the CO2 versus water a factor in lowering these? In other words, I've heard that you can CO2 higher water saturation reservoirs where you couldn't water-flood them. In other words, you could have them expanded or deepened. Is that a factor in your decision?

A. Yes, it is. Because, yeah, you mobilize oil with CO2 that water will not mobilize. You change its mobility.

Q. Okay. Are the pressures that you're encountering so far on the wells that you've started, is that plenty? 1850 pounds?

A. Yes, sir. We've had no problem. Of course, we're not injecting CO2 yet, but we're not encountering problems injecting water at our 1500-pound limit, so we think 1850 will be fine.

Q. Okay. And your CO2 availability is okay? Are you still doing makeup water? I probably asked this a year

ago, and I forgot the answer.

A. Yes. And don't ask me why, because I can't give you a good reason. We talked to our lease operators. Last year we spent $5 million drilling a saltwater disposal well on the property so that we could put away the excess water that we're currently injecting. But as we convert patterns to CO2 flood, we'll be taking water out of the injection system, and we need a place to put it. So we've drilled a disposal well. But at the same time, on an individual property basis, the field specialist at the time will end up short on water.

So we do have water supply wells there, and they are on occasion used for extra makeup water. But we are putting in a water transfer line from each of the three main batteries: CVU, the VGSAU and also we have a Glorieta flood there, VGW --

Q. Okay.

A. -- so that we can better transfer water from one unit to another to avoid needing any more makeup water.

MR. JONES: Okay. These -- before I forget, can you guys send me Exhibit A by e-mail? Or, actually, you're going to give me --

MR. CARR: I will do a proposed order, and we will include Exhibit A.

MR. JONES: The water flows, the big water flows that were encountered out there in the past -- this is a change of subject -- but it looks like all your wells are decent.

There's one well I wanted to question on this list, but I appreciate you coming up with a new list like you did here.

MR. CARR: It was simply getting too hard to manage.

MR. JONES: It looked like a giant project.

Q. (By Mr. Jones): But the water flows in years past, there was gigantic water flows -- Mr. Carr probably remembers this -- right at the corner where the CVU 238 is?

A. Uh-huh.

Q. There were water flows that could almost not be trucked off as fast. And did you ever figure out where that water was coming from?

A. Was it in the reservoir section?

Q. It was coming through the salt. It was highly brine-saturated waters that were coming to surface when the wells were being drilled through the salt. I think that's what happened. So it charged up salt.

A. Off the top of my head, I can't answer that. But I will tell you that the wells in the area, the four lease line wells, the 438 through 441 and then the -- well, those are the ones that we're getting ready to drill in that area, because of that situation. Because of problems drilling, the water flows, those wells have an incremental casing rod instead of just setting a surface casing at 1500 feet, we're going to set an intermediate string at 3200 feet. So we'll have all the salt section cased off with that string and then, once again, the

production string at TD.

Q. So did you -- I was looking down. Did you just say that you are encountering water flows still? Or are you not? You're just planning on casing off the salt?

A. Casing off, for protection.

Q. Okay. The tracts -- there's 10 tracts, and obviously they're the same interest probably to the granite down there, but if they were not, and considering this Exhibit No. 9 with your nice structure map and everything, deepening this unit, would that necessitate changing the participation parameters?

A. If the deeper intervals were owned differently than the --

Q. No. If in the area, the 10 tracts were not identically owned.

A. Oh. I see what you're saying now. I suppose it might if that structure still plays a role. We're going to have more of the residual oil zone on the crest of the structure that's above the current unit boundary than we will off the flank and extend the unit boundary. That relationship is still going to hold true.

I don't know if I'd have to work the numbers to see, but I guess on the perimeter of the unit, you're still going to have a lesser valuation of that hydrocarbon interval than on the crest of the structure. So maybe to reverse my answer, it

probably really wouldn't change because the ratio would still be present.

Q. What about the actual where you're going to -- the decisions you're going to make of where to perforate in those wells? You're just asking for general deepened structure. Are you asking for the 5,020 feet? Are you asking for sub-sea --

A. We're asking for that depth in the same reference well, in the M #8 well.

Q. So you are asking for sub-sea -- oh, so you're asking for geologically --

A. The way the unit is currently defined, it's by two depths, two reference depths in the M #8 well.

Q. In that well? Okay.

A. So that -- you correlate those markers at those depths to offsetting wells, so we're just asking to move to a different lower marker in that same well.

Q. It will float with the structure. And so your actual performance in perforating, you will have the opportunity to look at the wells that are saturations, for instance, and actually not perforate too low if you don't -- decide not to?

A. Right, right.

MR. JONES: Okay. That's all my questions.

EXAMINATION

BY MR. BROOKS:

Q. Okay. I don't have very many questions. I'm going to keep it very general here. The wells that are in pink on Exhibit No. 1, those are the wells that you're seeking injection for at this time, correct?

A. Yes. And I count 13 total.

Q. Now, understanding -- and I believe you're right. I miscounted a minute ago. I neglected those two that are in the yellow zone. I didn't see those at the time. I said 11, but I know you're right, there are 13.

These are all new drilled wells?

A. They are all wells that have been drilled since 2001.

Q. Okay. Now, the ones up on the lease line are --

A. Those are to be drilled later this year.

Q. And how many of these are already drilled?

A. Of these, there were eight that are already drilled. And there are five. Those four along the lease line --

Q. Yes.

A. -- and then the one southwest that's on the purple-dashed line, that one is to be drilled.

Q. Okay. So it's the four along the lease line and the one on the purple line.

A. Yes, sir.

Q. Those are to be drilled. The others are already existing wells?

A. Yes, sir. They're current water injectors.

Q. So what you're seeking here is the CO2 injection authority?

A. Yes, sir.

Q. The water injection authority you already have on the existing wells.

A. Yes, sir.

Q. Okay. Now, there's something said about CO2 injection authority under a previous order that has not been used; did I hear that correctly?

A. Yes. Texaco gained approval to initiate a CO2 flood in 2001. And we -- that had a 12-month time frame, and it was not implemented in that 12 months. So that permit expired.

Q. So there's never actually been any CO2 injection into the --

A. No, sir.

Q. -- Grayburg-San Andres unit?

A. Into this unit. That's correct.

Q. Right. Okay.

MR. BROOKS: That's all my questions.

MR. JONES: Terry?

EXAMINATION

BY MR. WARNELL:

Q. Good questions. I really don't have a whole lot to add, although I'd like to go back to Exhibit 8.

A. The type logs?

Q. Yeah. That old Welex Acoustic sonic log there, do you know when that was logged?

A. No, I don't.

Q. It's been --

A. I would say in the '60s.

Q. It's been quite some time back. Where would this well be from Exhibit 8 on my Exhibit 10? Or is it on there?

A. Yes. It is on Exhibit -- I'm sorry. No.

On Exhibit 10, if you look where the two blue lines cross or intersect, they both intersect on that type log well.

Q. Okay. There it is. I see it. All right.

A. I designed the cross sections for that very purpose, to make sure the unit reference well was on both.

Q. I appreciate your planning that out. Thank you.

MR. WARNELL: I have no further questions.

MR. JONES: Okay. Well, thank you very much for coming. I think it was necessary still for you guys to come up for this. And I appreciate Mr. Carr giving a direct order.

MR. CARR: And we are glad you are --

MR. JONES: Sorry about the weather.

MR. CARR: And our only thought is we're glad you are the examiner and not the weatherman.

MR. JONES: With that, we'll take Case No. 14114 under advisement.

[Hearing concluded.]

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____ heard by me on _____.

_____, Examiner
Oil Conservation Division

REPORTER'S CERTIFICATE

I, JOYCE D. CALVERT, Provisional Court Reporter for the State of New Mexico, do hereby certify that I reported the foregoing proceedings in stenographic shorthand and that the foregoing pages are a true and correct transcript of those proceedings and was reduced to printed form under my direct supervision.

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

Joyce Calvert

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)
COUNTY OF BERNALILLO)

I, JOYCE D. CALVERT, a New Mexico Provisional Reporter, working under the direction and direct supervision of Paul Baca, New Mexico CCR License Number 112, hereby certify that I reported the attached proceedings; that pages numbered 1-57 inclusive, are a true and correct transcript of my stenographic notes. On the date I reported these proceedings, I was the holder of Provisional License Number P-03.

Dated at Albuquerque, New Mexico, 17th day of April, 2008.

Joyce Calvert

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