STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	)	
APPLICATION OF FASKEN OIL AND RANCH, LTD., FOR A SALTWATER DISPOSAL WELLBORE, LEA COUNTY, NEW MEXICO	)	CASE NO. 13,601

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: WILLIAM V. JONES, JR., Hearing Examiner

December 15th, 2005

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, WILLIAM V. JONES, JR., Hearing Examiner, on Thursday, December 15th, 2005, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

December 15th, 2005
Examiner Hearing
CASE NO. 13,601

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A P P E A R A N C E S

FOR THE DIVISION:

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FOR THE APPLICANT:

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By: W. THOMAS KELLAHIN

* * *

ALSO PRESENT:

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* * *

WHEREUPON, the following proceedings were had at 8:30 a.m.:

EXAMINER JONES: Let's go back to page 1 on the docket, and let's call Case 13,601, Application of Fasken Oil and Ranch, Ltd., for a saltwater disposal wellbore, Lea County, New Mexico.

Call for appearances in this case.

MR. KELLAHIN: Mr. Examiner, my name is Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin. I'm appearing this morning on behalf of the Applicant, Fasken Oil and Ranch, LTD, and I have two potential witnesses.

EXAMINER JONES: Any other appearances in this case?

DR. BAYAT: Mr. Examiner, my name is Ghasem Bayat, and I'm vice president of engineering, exploration and production for AmeriCo Energy Resources. And I have my colleague, Mr. Oscar Nosrati, who's the vice president of operations for AmeriCo. And we are here to present our case to you.

EXAMINER JONES: Okay --

MS. MacQUESTEN: Before we get started with the testimony, I think that there are a few procedural matters that we need to address --

MR. KELLAHIN: Yes, ma'am.

MS. MacQUESTEN: -- and Mr. Kellahin, I'd like to start with you and ask you, you do have one or more pending motions?

MR. KELLAHIN: Yes, ma'am, there are some procedural matters for you and Examiner Jones to decide before you hear any evidence in this case.

Fasken originally filed this as an administrative application with an Application dated September 13th, sent notice to all the proper parties that are entitled to notice under Division Rules, which would be those for operators of wells in this area, plus the surface owner.

The Division's notice period is a 15-day notice period, as you are aware, and my review of the Division records reflects that AmeriCo, by a letter dated October 13th, received by the Division on the 20th of October, filed its first written objection to this process. It's my contention that under the Division Rules, a written objection filed 22 days after the objection period has expired precludes AmeriCo from participating in this case. So that's one issue.

The other issue is, I have received from AmeriCo what appears to be an effort on their behalf last week to file a prehearing statement. When you review that filing, I came to the conclusion that AmeriCo was intending to present their position *pro se*. In doing so, they are

subject to Division Rules and Regulations, including procedural rules. And should they desire to attempt to do that, they need to comply with Rule 1212 which, if they go forward with a *pro se* presentation, by rule precludes them from presenting evidence or cross-examining my witnesses. They can with the discretion of the Examiner make a statement.

We would suggest because of the timing situation that we have here that Fasken is very anxious to have the Division take action on its Application. It was originally filed in September; it's now mid-December and their need for this disposal well becomes more important every day.

For background, as Mr. Jones probably knows from processing these administrative applications in this area, there is a substantial need for the disposal of water produced out of the Devonian formation. The historical practice by operators in this area is to put that produced water back into the Pennsylvanian. It's been done in that fashion for many, many, many years, including a facility operated now by AmeriCo that was originally put together by Devon and then Merit, and now operated by AmeriCo, in which Fasken currently participates. But the capacity of the AmeriCo system is such that they cannot handle further disposal of production from produced wells in their disposal system.

So we have filed a request, with some urgency associated with it, a need to have our own disposal well to handle this excess water. We've applied for three possible disposal wells, and once we detail the evidence for you, we'll demonstrate why our engineer reached the conclusion to apply for three. His intent is to utilize the first of those wellbores that can successfully be utilized as disposal, and have the others as approved alternatives, in the event the need arises.

So that's our position. We are not intent on having this case continued. We realize there may be some question about how much compliance AmeriCo had with the prehearing filing procedures, but at this point we do not want to be penalized either for the fact that they have failed to bring an attorney and have chosen to ignore Division Rules, and would like to proceed pursuant to the limitations in Rule 1212 which says they can sit here and listen, but they can't present evidence.

MS. MacQUESTEN: Can I see the file?

MR. KELLAHIN: To aid you, Mrs. MacQuesten, here's a copy of 1212.

MS. MacQUESTEN: Okay, thank you.

Is it Mr. Bayat?

DR. BAYAT: That's correct, ma'am.

MS. MacQUESTEN: Am I pronouncing it correctly?

DR. BAYAT: That's perfectly correct.

MS. MacQUESTEN: Mr. Bayat, I see two documents from AmeriCo in the file, and I want to make sure that that is accurate. I have a letter from AmeriCo objecting to the Application. And then I also have a document dated December 7th to Mr. Jones.

DR. BAYAT: That's correct.

MS. MacQUESTEN: Is this December 7th document -- was this your -- is it your intent that we treat this as an entry of appearance and prehearing statement?

DR. BAYAT: That is correct, and that was our understanding, because when -- we recognized that we filed late to object to this case, and we did have our own internal reasons why that happened, but that's probably not important.

But we recognized that there is a technical problem, proposal from our partners in this whole Denton field, Fasken, and for that reason we ask the Commission if they are going to purely judge this case on the basis of the administrative error on our part and there is not going to be the opportunity for us to make this technical case, or is it worthwhile for us to try to do that? We were told that, yes, it would be worthwhile to put a technical case together and explain why we objected to this, and we are here for that purpose if your rules permit that.

MS. MacQUESTEN: It's certainly possible for an entity to make a technical case at this sort of hearing, and it's also possible for an entity to represent itself when it's doing that, but there are rules that need to be followed in order for that to take place. The rules do require that we have an entry of appearance and a prehearing statement, and the rules set out what is required for the prehearing statement, and I have some concerns about the document that was filed, because I'm not convinced that it meets all the requirements of the prehearing statement rule. It certainly meets some of the things that we ask for in a prehearing statement; it identifies the party, it gives a statement of your case.

I'm reading it to give the names of the witnesses, the individuals you hope to have testify at the hearing, but it doesn't make it very clear to me that that was your intent when you said that you were going to present your case, the two of you. If you had wanted to present the case and give expert testimony, we would have needed additional information from you in the prehearing statement on that.

The area that gives me the most concern, though, is that the Rule says that if an entity is not represented by an attorney, we need a sworn and notarized statement attesting that the governing body of the entity authorizes

the person who's going to present the case to represent that body, and that requirement shows up in two separate rules in our procedural rules: in Rule 1211.B.(3) and also in 1212.C, and I understand, Mr. Bayat, you are not an attorney; is that right?

DR. BAYAT: No, I'm chief engineer of the company and my expertise are entirely technical field.

MS. MacQUESTEN: Okay. And I looked up the company on our PRC website, and I thought I saw you listed as one of the organizers of the company; is that --

DR. BAYAT: I am chief engineer of the company. Also, we've reorganized ourselves; now I'm vice president of engineering, exploration and production; I'm also a partner in the company. And also I have my colleague who's also a principal partner in the company, as well as vice president of operation of the company. And the intent of placing our both of names in that document, in my mind, was the intent that we are both going to be here, answer technical questions and also present the technical case.

If that is not as clearly as you would like appear in that document, perhaps that's my misunderstanding.

MS. MacQUESTEN: The problem that we have is that we do need that notarized statement for several reasons. One, it gives us assurance that the right people are

representing the company and have authority to do so, but it also gives Mr. Kellahin notice that you will be representing the company and be able to present a case, and Mr. Kellahin has not had that notice in the prehearing statement that you gave.

Ordinarily when a prehearing statement is not sufficient, we give the -- when the prehearing statement from the protesting party is not adequate, we give the Applicant the opportunity to request a continuance so it can be corrected. But I understand from Mr. Kellahin that he's not interested in a continuance, they would like to proceed with the case.

MR. KELLAHIN: We'd like to proceed. The remedy for us is a continuance, which is not a remedy at all for a mistake that we did not make.

MS. MacQUESTEN: And I understand that position. What we can do is allow -- Under the Rules, anyone present at the hearing can make a statement. So what we will do is, we'll proceed with the case and Mr. Kellahin can present his case. You will not be allowed to cross-examine Mr. Kellahin or present evidence. Because we don't have authority to have you representing AmeriCo, we cannot really have you make a statement on behalf of AmeriCo, but you could certainly make a statement as an individual, as could your colleague.

So what we will do is proceed with the hearing, have Mr. Kellahin present his case, and if you -- either or both of you would like to make a statement at that time, you may. Now by "statement", you cannot present technical evidence, you cannot -- it is not an opportunity to make a technical or evidentiary case, but it is your opportunity to make a statement about the proceeding and about Mr. Kellahin's case. Mr. Kellahin will have the opportunity to cross-examine you and ask you about your statement, if you choose to make one.

Mr. Kellahin?

MR. KELLAHIN: Yes, ma'am. It is our intent, despite the procedural difficulties with AmeriCo's participation -- we've reviewed that document, and Mr. Carl Brown, the petroleum engineer for Fasken, is going to attempt to present as best he can what he thinks is a clear, concise presentation that will rebut or explain, hopefully to the satisfaction of AmeriCo and their representatives, their concerns and put Mr. Jones in a position where he can expedite approval for their need for having use of disposal wells dealt with.

And with that, with your permission, then, we'll call Mr. Carl Brown and proceed with our presentation.

(Thereupon, the witness was sworn.)

MR. KELLAHIN: Mr. Examiner, we have distributed

to the participants sets of exhibits for Fasken's presentation. They were prepared by Mr. Brown in association with Mr. Carlile and with my assistance, and they present all the documents that we intend to tender to you.

Included in the documents is another stamped copy with the pages numbered of the C-108 filing. Mr. Brown as an engineer has again reviewed that filing, and there have been some changes and corrections that we'll identify when appropriate.

In addition, he has participated with the assistance of their petroleum geologist to prepare some background geologic information to give you a better stage format in which to see the issues that you're dealing with.

Mr. Brown has been recognized as an expert before this Division on prior occasions, and with that introduction I'll begin to ask him question.

CARL W. BROWN,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A. Yeah, my name is Carl Brown. I'm a petroleum

engineer.

Q. Where do you reside, sir?

A. In Midland, Texas.

Q. By whom are you employed and in what capacity?

A. I'm employed with Fasken Oil and Ranch, Ltd., and I'm a petroleum engineer.

Q. When and where did you obtain your degree in petroleum engineering?

A. At Texas Tech University in 1977.

Q. How long have you been a petroleum engineer with Fasken?

A. Seventeen years.

Q. And during that period of time you've testified before the Division and the Commission?

A. Yes, I have.

Q. With regards to your appearance before Examiner Jones this morning, what is it you've done with regards to this case?

A. Well, I've prepared exhibits to explain our case about -- for the disposal Application.

Q. Based upon your review of all the available data, have you been able to reach conclusions about the appropriateness of having the Division issue approvals for these three proposed disposal wells?

A. Yes, I have.

Q. Are the exhibits that we're about to introduce exhibits that you have either prepared, reviewed or supervised?

A. Yes, I have. They are.

MR. KELLAHIN: Mr. Examiner, we tender Mr. Brown as an expert petroleum engineer.

EXAMINER JONES: Mr. Brown is qualified as an expert petroleum engineer.

Q. (By Mr. Kellahin) Mr. Brown, let's take a moment and turn to the exhibit packages, and I'll ask you to take the first display, if you'll unfold that. Before we talk in more detail about this area, describe for the Examiner what he's seeing when he looks at Fasken Exhibit 1.

A. This is basically an area map of the entire Denton-Devonian Wolfcamp oilfield in Lea County, New Mexico. And what I've identified there in the north half of Section 11 is Fasken's Denton lease. And also in the yellow triangles are the four saltwater disposal wells operated by AmeriCo.

Additionally, there are blue circles and orange-colored hexagons that denote active producing wells, either in the Devonian or Wolfcamp zones, that contribute water to this disposal system.

Also, there are -- noted there are three wells that are applied for, for the saltwater disposal

application, in the upside-down triangle. And there are two disposal applications from Brothers Petroleum in the south half of Section 11, with the red triangle there.

Q. Let me ask you, Mr. Brown, on this display in the lower left-hand corner, you have coded the wells as you've just described, and --

A. That's correct.

Q. -- should the Examiner desire to refresh his recollection of what you've just said, he can follow that index and specifically identify, to the best of your knowledge, the individual wells involved?

A. Correct.

Q. Let's focus for a moment on Section 11. This section has been developed in what configuration?

A. 40-acre proration units or production units, with twin producers on each 40 acres, one for the Devonian and one for the Wolfcamp zone.

Q. When we look at the north half of Section 11, are all those wells operated by a common operator?

A. Yes, they are.

Q. And who's the operator?

A. Fasken Oil and Ranch, Ltd.

Q. When we look at the south half of Section 11, is there a common operator associated with the south half?

A. Well, there are two operators, I believe:

Brothers Petroleum and -- it escapes me, there's another operator to the south; I think it might be Samson.

Q. So when we focus on the north half of Section 11, there are current wells producing from the Wolfcamp?

A. That's correct.

Q. Is there water produced in association with production from the Wolfcamp?

A. Yes, there is.

Q. In addition, in the north half of the section, are there Devonian oil wells?

A. That's correct, yes.

Q. Is the Devonian hydrocarbon production associated with a water component?

A. Yes, it is.

Q. In between the Wolfcamp and the Devonian lies the Pennsylvanian formations, right?

A. That's correct.

Q. Are there any hydrocarbon productions in this area associated with the Pennsylvanian formations?

A. There has been none.

Q. What are the operators in this area historically doing with their water produced from the Wolfcamp and the Devonian?

A. It's been disposed of in the Pennsylvanian interval.

Q. Has that been the course of conduct for AmeriCo?
A. That's correct.
Q. When we look at what you identified as three yellow injection well locations, you have a disposal well in Section 10, in yellow?
A. Correct.
Q. That's one of the AmeriCo-operated disposal wells?
A. Yes, that's their Number 2.
Q. And -- the Number 2. And then if we go over in the southwest of the southwest of 12, there is another yellow triangle. What's that well?
A. That's the Denton SWD Number 3.
Q. Is that also one of the AmeriCo-operated disposal wells for that system?
A. Yes, it is.
Q. And then down in Section 13 to the south there's another yellow-highlighted triangle. What's that?
A. That's the AmeriCo-operated Denton SWD Number 1.
Q. Now let's set this locator aside for a moment --
A. Excuse me, that Number 5 to the north --
Q. I'm sorry, I overlooked that one. Let's look to the north of -- the north half of 11, there's the last of the yellow triangles. What does that represent?
A. That's the AmeriCo-operated Denton SWD Number 5

well.

EXAMINER JONES: Section 2?

THE WITNESS: Section 2, yes.

Q. (By Mr. Kellahin) So those four yellow-highlighted rectangles are the four disposal wells approved by the Division currently for -- utilized by AmeriCo in their disposal system?

A. That's correct.

Q. If you'll set Exhibit 1 aside for a moment, Mr. Brown, and look to what is marked as Fasken Exhibit Number 2, what type of display are we looking at?

A. This is a graph of the -- and a sum of the injection, monthly injection, that is recorded in the public record, and it's the monthly injection for the four wells that we're talking about, the disposal wells, the Denton SWD Number 1, 2, 3 and 5.

And it just shows you the --

Q. Well, before you do that, Mr. Brown, let me remind you that it has confused me that we have different operators with wells identified or associated with Denton, and you can often have a different operator for a Denton Well Number 1 in a different section. And so let's be clear about -- when we talk about these wells, what we're talking about.

On this display, then, is a tabulation of

injection volumes that you have obtained from public records that are associated with the Denton disposal wells currently operated by AmeriCo?

A. They are operated by AmeriCo. I did not put the name on there, I apologize --

Q. Please continue.

A. -- but it's simply to show that the volume -- the monthly volume of water being injected in the sum of the four wells, and it's in the neighborhood of 25,000, 26,000 barrels of water per day.

Q. Does this tabulation commence with the earliest water disposal into these wells?

A. No, it only begins in 1994 where the data is available from public record. And this is from the *Dwight's* or *IHS Energy Data* system, which gathers information from the regulatory bodies. So it's directly from the NMOCD records.

Q. Will there be one or more of these AmeriCo-operated disposal wells that have volumes that predate the 1994 tabulation?

A. Yes, they all will predate what's on the graph here. It's just -- The data is not available in the data system at this point.

Q. Do you have a general estimate of what may have been the total injected water volumes historically by the

system currently operated by AmeriCo that puts water into the Pennsylvanian formation?

A. Well, the volume on this graph represents approximately 100 million barrels. Historically, back to the early -- or the late 1950s, it's more on the order of 300 million barrels.

Q. During that period of time, are the records available for you to review concerning these injection wells?

A. Not available in the public record, no.

Q. How long has Fasken produced water from the Wolfcamp and the Devonian and put it into these disposal wells?

A. Well, Fasken became operator of the Denton lease in the north half of Section 11 in about 1994, but the leases have been in operation since the 1950s.

Q. For at least the last 10 years, then, you have information available to you about the disposal of water from your production in the north half of 11?

A. Yes, uh-huh.

Q. During that period of time, have you become aware of any failures in the disposal system such that water injected into the Pennsylvanian formation would migrate among wellbores and then have injection fluids move down into the Devonian?

A. I have not seen any instance of that.

Q. Have you seen any instances of where there's injection fluids into the Pennsylvanian that have moved horizontally or laterally from the disposal wells and had areas of conduit in offsetting production wells cause fluid to migrate either into the Wolfcamp or down into the Devonian?

A. I have not seen any evidence of that either.

Q. If that was occurring for any of these injection wells, you do have producing wells in nearby association with these injection wells?

A. That's correct.

Q. When we look at your Exhibit Number 1 in the north half of 11, you have wells in the north half of the north half of 11 that were producing from either the Wolfcamp or the Devonian, right?

A. That's correct.

Q. Offsetting that to the north is one of the AmeriCo-operated disposal wells?

A. Yes, their Well Number 5.

Q. Have you seen any indication from your examination of the data that disposal by AmeriCo and its predecessors into the Pennsylvanian has adversely affected or impacted your production associated with wells to the south?

A. No, I have not.

Q. Are you aware of any reason why Fasken should not be afforded the opportunity to do in the north half of 11 with their water the same thing that AmeriCo currently is allowed to do with their injection wells?

A. I don't see any reason we shouldn't be allowed to do the same.

Q. Do you have an explanation, Mr. Brown, when we look at the tabulation of injection water in Exhibit 2, as to why it appears in '03, '04, there are a couple of points where there's an absence of information about disposal?

A. I'm not sure why the records were not available. I suspect there was failure to report the volumes at those periods.

Q. When you look at the table and look at the dates prior to mid-'02, what's your understanding of who operated the AmeriCo disposal system from mid-'02 and previously?

A. I believe it was Devon -- I'm not sure of the exact name of their company, Devon Production.

Q. Thereafter, who became the operator?

A. It was Merit Energy.

Q. And then after Merit, who became operator?

A. AmeriCo was Merit's successor in 2004, I believe.

Q. Do you have an estimate for us as an engineer, Mr. Brown, of what your understanding is of the volume of

water currently being disposed of through the AmeriCo-operated disposal system?

A. Approximately 26,000 barrels of water per day.

Q. Of that approximately 26,000 barrels of water a day, how much of that water disposal is attributed to wells that produce water by Fasken?

A. Fasken's portion of that 26,000 barrels is about 6000.

Q. Let's turn to your tabulation of the Fasken wells. If you'll look at Exhibit 3, identify for us, Mr. Brown, what you're representing by Exhibit 3.

A. This is just a table of well tests for Fasken's wells in November, or the latest. And it shows the current test date or status of each well and whether it's in the Devonian. The top half are the Devonian wells, and the bottom half are the Fasken-operated Wolfcamp wells. And it shows which are producing, which are temporarily abandoned. There are two that are plugged and abandoned.

And the total, then, for the well test, the water at this -- in November, was about 6300 barrels of water per day. It's just to identify which wells that Fasken operates are active at this time, which were inactive.

Q. Among this population of wells, you've selected three possible candidates for saltwater disposal and have sought approval to do so?

A. That's right.

Q. Can you show us which of the three are shown on Exhibit 3?

A. The three wells that were chosen for saltwater disposal candidates were obviously the three -- well, they would be the three wells of these that are temporarily abandoned and not in service. Denton 1 was a selection, Denton Number 5, Wolfcamp, was a selection, and the Denton Number 11 was a selection.

The purpose for the three choices, the Denton Number 1 we have identified a potential workover to open lower Devonian production in that well. We have an extensive workover to do on that well first, and that's to retrieve a fish in the hole. And if we were successful with returning Denton Number 1 to Devonian production, then we would have to choose another disposal candidate. If we were unsuccessful with Denton Number 1, we could then just come up the hole and perforate and, you know, dispose into the Pennsylvanian. It would be an easy recompletion.

If we make a successful producer, then we have to find other opportunities for disposal, and the two logical would be the Denton Number 5 and the Denton Number 11. Those two are temporarily abandoned Wolfcamp wells, and we would have to deepen those into the Pennsylvanian. The reason I chose both of these being -- they are side by

side, they are offsets, is to prevent delay. If we get into problems with the re-entry of one and the deepening of one, we could move to the other without, you know, extensive delay.

So the purpose for the three choices for disposal is to get at least one disposal well, whether it's Denton 1 and another well or just Denton 1 itself, we wanted to have the flexibility.

Q. Is there economy of scale of expenses and effort utilized in crews and equipment if on the field they have the regulatory approvals available so they can move from the first well to the second and maybe to the third?

A. Yeah, it would be easier to continue with -- if you get a rig available, you can keep it for multiple-well operations rather than waiting for a time.

Q. The tabulation of volumes on Exhibit Number 3 approximates about the current volume of water produced and delivered and disposed of into the AmeriCo system?

A. That's correct.

Q. Do you plan additional work in the area where you would need the ability to dispose of produced water that's in excess of the capacity of the AmeriCo system?

A. Yes, we have. In fact, the -- Let me point the Denton Number 7 there. That was a workover candidate. We did increase production from that well from -- lower

Devonian production. And so the water production from the Denton Number 7 has been raised to probably over 750 barrels of water a day. But that was additional to our 6000, and we did not have capacity and we shut in one of our lower producing wells to not have any additional water. But we anticipate further workovers in that fashion, so we'll look at -- we anticipate future increases in water volume that would exceed the capacity that's available to us at this point.

Q. In the south half of Section 11, there are Devonian production associated with the south half of 11?

A. That's true.

Q. Have you received notice from other operators in the south half of 11 of their desire and intent to do similar things with two of their wells in the south half --

A. Yes.

Q. -- utilize those for disposal purposes?

A. Brothers Production has applied for two additional disposal wells for their production also, for additional saltwater disposal capacity.

Q. Turn with me now, Mr. Brown, to your Exhibit Number 4. Exhibit Number 4 represents what, Mr. Brown?

A. This is a close-up view of the area in question, with the Denton lease, Fasken-operated Denton lease, being the north half of Section 11, highlighted there. I point

your attention to the lower left legend that shows the meaning of the symbols that was -- we talked about on Exhibit 1.

I've also included here a line that represents a cross-section that we will show soon, that represents 10 wells, and it would include all four of AmeriCo's operated wells and Fasken's proposed injectors, one of the Brothers proposed disposal wells, and a couple of production wells involved there too.

Q. Okay, let's utilize your Exhibit, Mr. Brown, to assist Examiner Jones in a clear understanding of what you've studied and what you've concluded. Let's start in the north half of 11. If we go down to the southeast of the -- I'm sorry, the southeast of the northwest, we find the Fasken Denton Number 1. Do you see that?

A. Yes.

Q. This is the one you described a while ago as a well deep enough to have been drilled through to the Devonian?

A. That's right, it was a Devonian producer and has been temporarily abandoned.

Q. So this is the first of your three disposal wells that you would seek to do work on?

A. Yes, that's my initial candidate. First we want to attempt to restore Devonian production, lower Devonian

production.

Q. In near proximity to that proposed injection or disposal well, there is a producing well associated with it. It's awful hard to read some of these numbers.

A. That would be the Well Number 8 --

Q. So that's the Number 8.

A. -- Wolfcamp.

Q. So the Number 8 is a Wolfcamp.

EXAMINER JONES: I'm sorry, can you guys -- Is this the southeast of the northwest of 11?

MR. KELLAHIN: It's the southeast of the northwest of 11.

EXAMINER JONES: Okay.

MR. KELLAHIN: It's where the line of cross-section makes that --

EXAMINER JONES: Okay.

MR. KELLAHIN: -- jog.

Q. (By Mr. Kellahin) So the Denton disposal well is the Denton 1. Right next to it is the Denton 8, which is a Wolfcamp producer?

A. Correct.

Q. Moving from left to right and going up into the northwest of the northeast, there's the second of your choices for an injection well. That is the number what?

A. The Denton Number 11.

Q. Associated in that area with the Denton 11 as a possible disposal well, there is a producing well. What's the number for that one?

A. That's the Denton Number 3, Devonian producer.

Q. That's a Devonian well. And the Denton 11, then, is a wellbore that would have to be drilled deeper into the reservoirs to utilize it for a disposal well?

A. That's correct, it's a Wolfcamp producer. It would have to be deepened to the Pennsylvanian -- or excuse me, it's a temporarily abandoned Wolfcamp producer.

Q. Now we're going to move farther to the east and look at the last of the three. That would be the Fasken-operated Denton Number 5?

A. That's correct.

Q. And that wellbore is what type?

A. That's -- the Denton Number 5 is a temporarily abandoned Wolfcamp producer and would have to be deepened to the Pennsylvanian for disposal.

Q. Just to the west of the Denton 5 proposed disposal well is a producing well, and I think that's the Number 9?

A. That's the Number 9 Devonian producer.

Q. That's a Devonian producer. All right, let's start over and go back down on this display and find A, which is the western edge of your first well in the cross-

section, the --

A. That's correct.

Q. -- Amoco-operated Denton disposal well, and I think it's the Number 2.

A. Yeah, AmeriCo-operated Denton --

Q. I'm sorry.

A. -- SWD Number 2.

Q. This is an open-hole disposal well?

A. Yes, it is.

Q. And it disposes into what formation?

A. Into the Pennsylvanian formation.

MR. KELLAHIN: Mr. Examiner, the order associated with that disposal well is SWD-24.

Q. (By Mr. Kellahin) Let's continue on the line of cross-section, Mr. Brown, and let's go up into Section 2 and pick up the AmeriCo State -- I think it's the State Number 9?

A. Yes, AmeriCo State T Number 9, is the next well on the cross-section line, and it's a Devonian -- active Devonian producing well.

Q. And then the next well in the line of cross-section is the AmeriCo Denton Disposal Well Number 5?

A. Five, yes.

MR. KELLAHIN: Mr. Examiner, that's been approved by Division administrative order 660.

DR. BAYAT: Excuse me, is it possible to make just an administrative comment?

MS. MacQUESTEN: Yes.

DR. BAYAT: Is it possible to make just an administrative comment?

MS. MacQUESTEN: Go ahead, please.

DR. BAYAT: Yes. In the whole proceedings it's constantly referred to as AmeriCo water wells or AmeriCo disposal wells. This is jointly operated by -- jointly owned by all operators, and AmeriCo is a minority, small owner, of the actual ownership, and it just happens to be the operator. And therefore, constantly referring to AmeriCo is doing this, AmeriCo is doing that, administratively is not correct.

This is something that all these operators agreed long before AmeriCo turned up in place, in 2004. It was just an administrative matter, so that the words would not indicate as to AmeriCo approves of certain things as being done before, and probably you will see references to those in the note I submitted to you. Thank you.

EXAMINER JONES: Thank you.

MR. KELLAHIN: If I respond, AmeriCo is the Division-designated operator for these wells, and the record reflects that they're the operator. If they don't want to be the operator they can resign.

Q. (By Mr. Kellahin) Mr. Brown, let's go to the AmeriCo-operated Disposal Well Number 5. That was under Order R-660?

A. That's correct.

Q. How long has that well been utilized for injection, or disposal?

A. I believe it was recompleted for disposal in -- I believe 1996 or '7, 1997 possibly.

Q. What's your understanding of the approximate daily rate in which water is disposed of in that well?

A. Oh, around 8000 to 9000 barrels a day, I believe.

Q. Do you have an estimate of the total volume of water that has been disposed of in that well since its approval in --

A. In this well I believe it's something like 20 million barrels, is my estimate. It's hard to tell in the records, but that's what I believe it would be close to that.

Q. And then we go north of that, and then there is the AmeriCo State T Number 7 well. That is still a producer, by your notations?

A. I believe it's a temporarily abandoned, or at least a shut-in Devonian producer.

Q. And then let's follow the line of cross-section down and you get into the north half of 11, and you pick up

Fasken's Denton proposed Disposal Well Number 1?

A. Right.

Q. And we've talked about that. So follow the line of cross-section and continue to identify the wells, so that when we look at the actual cross-section Mr. Jones has got a point of reference.

A. Well, the Denton Number 1 would be the fifth well on the cross-section. The next would be our Denton Number 3 Devonian well, the next being the Denton 11 Wolfcamp well, the next on the cross-section would be the Denton Number 9 Devonian well, and then the Denton 5 Wolfcamp well, on down to the south portion of Section 11 we have the Brothers-operated J.M. Denton Number 6, which is a proposed saltwater disposal well by Brothers. Next to the last on the line would be the AmeriCo-operated Denton SWD Number 3 in the southeast portion of -- southwest portion of -- I believe that's Section 12.

Q. Stop there for a moment, Mr. Brown. On the Number 3, is this an injection well that's injecting open-hole into the Pennsylvanian?

A. It's open-hole in the Pennsylvanian, but there is some upper portion -- or the lower portion of the Wolfcamp open in that open hole.

MR. KELLAHIN: Mr. Examiner, for your information the order associated with the Number 3 well is SWD-331.

Q. (By Mr. Kellahin) In reviewing the records, Mr. Brown, did you see an indication that there might be a difference in the reported information concerning what you have identified as the Number 3 and the dryhole-symbol'd well farther to the south in the same Section 12?

A. Yes, there was a little discrepancy. The wellspot that I have in my software showed it at the location that I have here. There's a possibility that this wellbore is actually located in that -- 330 from the south, 330 from the west line, where that -- other symbol to the south -- Number 5, I think it is. It's unclear from the records exactly which well it is, but it's one of those two.

Q. Is that difference in location significant enough to make a material difference in any of your exhibits or your conclusions or opinions?

A. No, it wouldn't change my conclusions.

Q. Let's go down, then, into the northwest-northwest of 13 and pick up the last well on the cross-section.

A. And that is the AmeriCo-operated Denton SWD Number 1 well, and it's --

MR. KELLAHIN: Mr. Examiner, the order associated with that well is Administrative Order SWD-5.

THE WITNESS: And it disposes into the Pennsylvanian.

EXAMINER JONES: Very old well, sounds like.

Q. (By Mr. Kellahin) Mr. Brown, let's turn for a moment and show the Examiner some structure maps to give him a structural relationship of -- at two different points in this area, and then we'll go into the structural cross-section itself.

Starting first with Exhibit Number 5, would you identify and describe this?

A. Exhibit Number 5 is, again, an area view of the entire Denton oilfield, and this is a structure map that's on the top of the -- subsea top of the Wolfcamp zone, and it just shows that the highs of the -- the high of the Wolfcamp feature centers in Section 2, and there's another lower, but a little -- a smaller high in the south half of Section 11. So the contour interval on this structure map is 50 feet.

Q. The marker for the structure map, again, is what?

A. It's the Wolfcamp formation, top of the Wolfcamp.

Q. And this is an exhibit that you prepared?

A. Yes, it is. Our staff geologist did help with some of the top picks.

Q. But this was based upon the information available to you and --

A. Right.

Q. -- and you've used industry-accepted

methodologies to have these prepared?

A. Yes, most of these Wolfcamp tops are commercially available from different companies, and I believe these tops were purchased and put in this database from a company called GDS, I believe it is.

Q. And so you as an engineer, then, can generate your own structure map --

A. Yes, the software is very useful, even for engineers.

Q. Let's turn to the second structure map, Mr. Brown, and look at that. It's your Exhibit Number 6?

A. Yes, Number 6 is a similar cross- -- excuse me, structure map, but this is on the top of the Woodford shale. The subsea, top of the Woodford shale shows essentially the Devonian structure. And the high of the Devonian structure centers around the south portion of the Section 11 there.

Contour interval here is 100 feet. The Woodford shale overlies the Devonian, and it's approximately 120 feet thick, and it's very uniform. And the top of the Woodford is a very good marker to determine structure.

EXAMINER JONES: Is it a member of the Devonian?

THE WITNESS: The Woodford shale, I'm not sure what the -- where it would be classified. I believe -- no, it would be Mississippian rocks, I believe, but I'm not

sure of that.

EXAMINER JONES: Okay.

Q. (By Mr. Kellahin) All right, Mr. Brown, let's turn to Exhibit 7. If you'll take a moment, let's unfold that display.

On Exhibit Number 7, you have duplicated as a locator map on that display information that appears to be the same information as you've displayed on Exhibit 4?

A. That's right, it's an area map there, showing the cross-section and where it begins, from A to A', being -- A being on the left side of the cross-section, to A', being the well further to the -- on the right side of the cross-section. And on this map there's some yellow dots. I probably should explain that those are what I've identified as either plugged and abandoned or inactive wells in the area. That's what that signifies. The other symbols are the same as previously.

Q. So should we forget, we can look down here on the lower left-hand corner, and you have written out in words the information that you intend to depict by the color code?

A. That's correct, down in the --I've described the color-coding here that you see. Of course, this is a structural cross-section, and with three different tops shown on each -- on the map, the top horizon being the

Wolfcamp zone, the next, I think is a blue horizon, is the Cisco, and that would be the base of the Wolfcamp and that would be the top of the Pennsylvanian. It's called the "CSCO" over there and noted on that cross-section.

The next horizon below the Cisco is the "MSSP", and noted there it's the Mississippian. And the Pennsylvanian is identified or defined, then, as the -- between the Cisco and the Mississippian.

And then below the Mississippian I have a horizon which is the Woodford shale identified on that line as -- the green line, as "WDFD". That's Woodford shale. And it --

Q. The Woodford shale is how much farther above the top of the Devonian?

A. It's about 120 feet, very uniform thickness.

Q. When you go back and relate Exhibit Number 5, which is the structure map of the Wolfcamp, find us the point on the cross-section that's being mapped by the structure map.

A. Oh, Exhibit 5, the Wolfcamp horizon is -- that's the topmost horizon on the cross-section, is what's represented on the structure map of Exhibit 5.

Q. And then when we look at 6, relate Exhibit 6 to the point on the structural cross-section that we find that control point.

A. Okay, the Woodford -- the top of the Woodford and the green that's the bottom line there on the cross-section is what's represented in the structural map of Exhibit 6, the Woodford structure.

Q. Let's start with the structural cross-section and start over on the far left with the A. The first wellbore is the AmeriCo Denton Disposal Well Number 2?

A. Number 2.

Q. Describe for us what your exhibit displays concerning that wellbore.

A. If I could explain some of the color-coding more generally on the cross-section here, what you see on the -- in the pink color would be an open-hole section, an active open hole. There are two -- actually two wells that are actively open-hole injection wells, this one and then the second to the end on the right side. Those zones that are colored red are active in perforations; whether they're producing perforations or disposal perforations, they're active perforations in casing.

The green are proposed injection intervals in there, the three wells that Fasken is proposing, and then the third from the right is the Brothers well. Those are the proposed injection intervals in the Pennsylvanian.

And there are some brown-colored, and those are inactive perforations. And then the dark blue colors are

perforations that have been squeezed, cement squeezed, so...

Q. If you go back over to the far left, there's the Amoco -- AmeriCo Denton Disposal Well Number 2. According to your information, disposal is taking place open-hole within the area shaded by what color?

A. In the pink.

Q. When we look at their disposal interval, is all that area confined within the vertical limits of the Pennsylvanian formation?

A. Yes, it is.

Q. Skip over, then, to the fourth next wellbore, and we see the Fasken Denton Number 1.

A. The fifth?

Q. The fifth one on the display.

A. Yes.

Q. The fifth one, and that's shaded in green?

A. Right.

Q. That is your proposed disposal interval into the Pennsylvanian?

A. That's correct.

Q. Does that substantially relate to the same interval that's being utilized by AmeriCo for disposal?

A. Yes, it is the same geological correlative interval.

Q. And as you compare those two and their correlative intervals, continue on to the right and find the next wellbore, the Fasken Denton 11, which is the sixth one from left to right. Do you see the green?

A. Yes, that's the Denton 11 --

Q. Yes, sir.

A. -- and the green represents the proposed deepening of the Denton 11 and the proposed open-hole injection interval in the Pennsylvanian formation.

Q. Once deepened and completed for injection, your disposal interval, then, would be in the Pennsylvanian?

A. That's right.

Q. And it's correlative thus far to all the proposed or existing disposal wells?

A. That's correct.

Q. And continue over, then, farther right to the Denton -- the Fasken Denton 5, which is your third disposal -- proposed disposal well, and describe its --

A. Well 5, of course, is a temporarily abandoned Wolfcamp producer. It would have to be deepened to -- through the Pennsylvanian zone, and we would complete it as a Pennsylvanian disposal well.

Q. Well, let's continue on, Mr. Brown, and look farther to the east on the cross-section. And in fact, we're moving to the southeast of the northeast of -- I'm

sorry, the southeast of the southeast of 11, down to the Brothers Denton 5 or 6 -- 6. Their plan that you're aware of is to dispose of water where?

A. Well, from their C-108 their proposed interval would be essentially the Pennsylvanian formation there shown in green. Those are the perforations they propose.

Q. Now, use whatever you want to on this cross-section, Mr. Brown, to relate to us the relationship between these disposal into the Pennsylvanian and where we have to go to find Devonian production in these -- in this area.

A. Well, essentially the Devonian production is approximately 1000 feet below the base of the Pennsylvanian zone. It varies, but it's about 1000 feet.

Q. Come back up and find the proposed Fasken Denton Number 11 wellbore.

A. Okay.

Q. Do you see that one?

A. Yes.

Q. This is a wellbore that will have to be deepened?

A. Uh-huh.

Q. It was historically a Wolfcamp producer?

A. That's true.

Q. Look just to the left of that to pick up the Fasken Denton 3?

A. Yes.

Q. That is still a Devonian oil producer?

A. That's correct.

Q. Both those wellbores are under your control?

A. That's right.

Q. Are you satisfied that upon recompletion of the Fasken Denton 11 that wellbore will have good mechanical integrity such that injection fluids will remain confined to the Pennsylvanian?

A. Yes, the Denton Number 3, 5-1/2-inch casing has sufficient cement behind the 5-1/2 casing up above the -- and across the Pennsylvanian formation to prevent any migration of water out of the zone through the Number 3 wellbore, up or down.

Q. Let's make a comparison. Let me ask you to make a comparison as an engineer between Well 11 and Well 3. Those wells are on the same 40-acre tract.

A. That's correct, they're twin wells, actually within 100 feet of each other.

Q. One of AmeriCo's concerns was an issue concerning possible breach of cement by use of the Number 11 well as an injector, such that fluids would migrate over towards the Denton Number 3 well; do you remember that question?

A. Yes, they're concerned about that, and a breach of the cement behind the Number 3, 5-1/2 casing.

Q. So if there's a breach of the cement behind the 5-1/2 casing in the Number 3 producing well, that fluid then, according to AmeriCo's concern, would have to migrate downward to a point where it impacts the Devonian oil production deep into the system?

A. Yes, the Devonian perforations are about 1000 feet below the Pennsylvanian injection zone, so...

Q. And the concern, as I recall it, was that that fluid would affect the Denton Number 3 and possibly migrate through other wellbores within the Devonian formation?

A. That was the concern of AmeriCo's.

Q. That concern was also expressed as to the producing wells in association with the other two proposed injectors?

A. That's correct.

Q. We characterize that as the breach-of-cement issue?

A. Right.

Q. Do you share the same concerns that the AmeriCo engineers have on that topic?

A. I do not share that concern. I do not think that's a risk that's -- a very high risk. It's a very remote, almost -- very unlikely that it would happen.

Q. Is there a relationship of disposal wells and producers such that Fasken is the first operator to be

impacted and would know that it's being impacted if that should occur?

A. Of course, if -- a breach of the cement in Well Number 3's -- allowed injection or injection water, disposal water, to migrate down into the Devonian formation, it would initially impact our own production, and we would notice that and remedy the situation immediately, long before any lateral movement of that out-of-zone disposal could, you know, get across the lease line and impact anybody else.

Q. Does that same circumstance concerning cement breach currently exist in relationship to the Amoco-operated injection well in Section --

A. AmeriCo-operated?

Q. I'm sorry, AmeriCo. I can't get AmeriCo in my mind. -- AmeriCo-operated disposal well in the southern portion of Section 2?

A. Yes.

Q. If you look at the relationship of AmeriCo's Disposal Well Number 5, there's a producer northeast of that, the Number 7, and there's another producer to the southwest, the Number 9, the T 9?

A. That's right, these are the -- Well, the Denton Number 5 is on the cross-section, the third well from the left side. And offsetting the Denton Number 5 disposal

well, within 450 feet or so to the southwest, is their State T Number 9 Devonian producer. To the northeast approximately 460 feet, is their -- AmeriCo currently shut in and inactive State T Number 7 Devonian producer.

And so the situation that is happening there, the current operation, injection in the Denton Number 5, they have the same potential of risk in their own lease, but in the eight or nine years of operation of the Well Number 5 and 20 million barrels or so of injection, I've seen no evidence that the breach of any cement occurred, and there has not been an out-of-zone injection in that area of the field.

Q. Let's continue on to look at your cross-section, Mr. Brown, and let's find for me the Fasken Denton Number 5, which is the third of your three proposed disposal wells.

A. Yes, the Denton Number 5 would be the fourth one -- fourth well from the right side of the cross-section.

Q. Have you been in contact with representatives of Platinum? Platinum is an interest owner in this area.

A. Yes, Platinum is a partner or a participant, I believe, along with AmeriCo. I did talk with Platinum's operations manager, and --

Q. What kind of concern did he express to you about any of your proposed wells?

A. Well, the concern that he had in the original proposal was a portion of the Wolfcamp zone, and that would have been open in the -- our original application, in our deepening of the Number -- proposed deepening of Number 5. They were concerned about Wolfcamp injection offsetting their lease on Section 12 and adversely affecting any restored Wolfcamp production there.

Q. I didn't ask that very well. Platinum is the only operator to have raised questions with you about potential impact onto the Wolfcamp?

A. That's correct.

Q. None of AmeriCo's questions or concern dealt with the relationship of the Wolfcamp to injection?

A. There was no mention of the Wolfcamp in their concerns of that letter, December 7th.

Q. Let's deal, then, with the Wolfcamp. Platinum's concern was about the Wolfcamp. Describe for us what you propose to do to alleviate any concerns about the Wolfcamp.

A. The deepening of the -- proposed deepening of Well Number 5 or 11, there would be a portion of the lower Wolfcamp open in that open hole, and we propose to set a 3-1/2-inch liner and cement it across that Wolfcamp interval and isolate, then, all the injection fluids to -- just to the Pennsylvanian zone only. And that would have -- that was satisfying to Platinum, to mechanically

separate the Wolfcamp open hole from any disposal.

Q. And that proposal is acceptable to you, and you're recommending that you'll do that?

A. Yes, and that's part of our C-108 adjustment.

Q. Let's go back to the second principal point that AmeriCo has raised in their objection, and that had to do with the acidization of these wells, the fact that there may be mineral deposits and plugging up of injection wells to the point where an acid treatment may not be effective and subsequently you might have to fracture-stimulate these wells to make them take water again. Do you remember that conversation?

A. Yeah, I believe I understood that -- you know, open-hole being hard to acidize effectively to increase activity, you may have to resort to a more aggressive fracture treatment, whether -- I'm not sure if they were interested -- or thought about sand proppant or not, but they were concerned that if you fracture-treat and increase the pressure above a fracture pressure, then we would have out-of-zone injection and possibly breach the cement again on the nearby wells, get into the Devonian and have out-of-zone injection in Devonian and detrimentally affect their production.

Q. As a petroleum engineer, Mr. Brown, do you think that's a reasonable concern?

A. I don't believe the open-hole section in the Pennsylvanian is going to require any fracture treatments, and acidizing is going to be effective, and has been, I believe, in the past history of these wells, in the two open-hole wells that have -- are operated.

Q. So as to that issue you have a principal engineering difference of opinion concerning what they are concerned about and your conclusions?

A. Well, my conclusion is that to acidize effectively, it can be done, and to increase injectivity in these open holes that we propose, and I believe that's been done effectively in the open holes that AmeriCo operates and their predecessors have.

Q. Let's turn now, Mr. Brown, and look specifically at the schematics for the proposed three injection wells. Let's turn now to Fasken Exhibit 8 and start with the existing wellbore. It's the Denton 1 that you want to utilize for disposal?

A. That's right.

Q. And it currently has been drilled down to the Devonian?

A. That's correct.

Q. Describe for us what you're showing on Exhibit 8 that would be of importance.

A. Well, Exhibit 8 is a wellbore diagram showing the

casing configuration, the cement. The point I wanted to show on this -- it also shows the Pennsylvanian-proposed injection interval in Denton Number 1, if we're unsuccessful in removing this fish that's in the hole at this point.

So what I wanted to direct your attention to is that there in the red on the right side, I've noted that the first stage of the cement of the 5-1/2-inch production string, first stage of the cement was circulated out of the diverter tool, set a depth of 8870 feet. So cement was brought from the casing shoe at 12,623 all the way up to 8870 and circulated out of the well. So we know we have good cement from the shoe up to the DV tool, sufficiently covering the Pennsylvanian proposed disposal interval.

Q. Let's move over, now, and let's look at the area around the proposed Disposal Well Number 11. In proximity to the Number 11 is the Denton 3?

A. That's right.

Q. Do you have a wellbore schematic of that wellbore?

A. Yes.

Q. Is that Exhibit 9?

A. Exhibit 9 is a similar wellbore diagram, and as previous -- and Exhibit 8, I want to direct your attention to what's noted in red there. On the primary cement job

the 5-1/2 casing was set at 12,800 feet. Cement was -- a two-stage cement job was applied with a diverter tool, DV tool, at 8994. The first-stage cement job from the shoe to the DV tool, a trace of the cement was circulated out of that DV tool, indicating that there's cement from the shoe all the way up through the DV tool -- to the DV tool and across the proposed Pennsylvanian disposal interval.

Q. Let's look at the producing wellbore associated in close proximity with the third of your proposed disposal wells. Turning to the 5, let's look at that offsetting producer, which is your Exhibit 10, the wellbore being the Fasken Denton 9?

A. Yes, Exhibit 10 is a wellbore diagram of our Denton Number 9 Devonian producer, and the -- direct your attention to what's in red on the right side there. There was 100 sacks of cement circulated on the first stage primary cementing job through the diverter tool, located at 9062 feet, so there was cement from the shoe, 5-1/2-inch casing shoe, at 12,780 feet up to the diverter tool at 9062. So we know we have cement across that proposed Pennsylvanian disposal interval and offsetting in the Well Number 5.

Q. Let's look at Exhibit 11 now, Mr. Brown. This was taken from Division records and applies to which well?

A. Exhibit 11 applies to Wells 3, Denton Well Number

1, and Well Number 9.

Q. What's the point with these?

A. Well, these are cementing sundry notices, or sundry notices of the cementing operations performed on the wells. And I just noted that that's where we got the information about cement circulating up through the DV tools. It was reported to the OCD on the sundry notices. For Well Number 3 --

Q. There's a minor explanation required, Mr. Brown. This says the 3A.

A. Oh, that's true.

Q. Help us understand what 3A means in relation to the --

A. I think actually our Denton Number 3 well should be noted on the cross-sections and all the others as 3A. It was a replacement well. The original 3 was junked and abandoned, so they skidded over, and 3A is the proper name for it and probably is in the OCD records as such.

Q. So again your point with this information?

A. Just to show that the OCD was reported, the cement being circulated up through the diverter tools on the first stage of the primary cementing jobs in Number 3.

And then on the next page, Number 9, I've highlighted that in yellow.

And then the third page is our Denton Number 1.

On this sundry notice it was not mentioned about any cement circulated up through the DV tool. However, the following page -- the fourth page in this exhibit is the well history in our well files, that does show that five sacks of cement were circulated out of -- through the DV tool on the first stage of the primary cement job.

So there's cement across -- in Denton Number 1, 3 and 9, there's cement across the Devonian -- or, excuse me, from the Devonian casing shoe all the way up past the proposed Pennsylvanian disposal intervals.

Q. Let's turn now, Mr. Brown, to what is marked as Fasken Exhibit 12. On the bottom of each of these pages, to help us find our way through the filing, there's a number associated with the page. Have you reviewed this document that was filed by Mr. Carlile of Fasken?

A. Yes, I have.

Q. Are you able to conclude from an examination from this and your other work for Fasken that these three proposed injection wells will be or have been drilled and will be deepened as necessary in such a way that they'll be properly cased in cement, such that water injection fluids will remain confined to the Pennsylvanian formation and not migrate up into the Wolfcamp or down into the Devonian?

A. Yes, that's what I believe, and that just shows.

Q. In addition, have you reviewed the tabulation of

wellbore data, which is dated, that Fasken has submitted for wellbores it's inventoried in the half-mile-radius areas around the three injection wells? Have you looked at that data?

A. Yes, I have reviewed those.

Q. And subject to certain changes that you see in the recorded information and what you have found, are you satisfied that injection by any of these disposal wells can be done in such a way that offsetting wells in the area of review would not serve as conduits by which injection water would move through and to those wellbores and then out of the Pennsylvanian into either the Wolfcamp or the Devonian?

A. Yes, I believe that's -- can be shown.

Q. Geologically, have you and your geologist concluded that there is sufficient geologic separation between the base of the Pennsylvanian and the top of the Devonian to isolate the two -- the disposal reservoir from the producing reservoir?

A. Yes, the Mississippian zone is 1000 feet or more thickness there.

Q. Is there any information available to you or to others in Faskens that indicates that there is any open faulting or faulting systems by which there is hydrologic connection between the Pennsylvanian and any producing reservoirs?

A. Not that I've indicated, no.

Q. You don't see any commingling or communication between the Pennsylvanian and the Devonian?

A. No, I do not.

Q. Do you see any opportunity for the migration of injection fluids out of the Devonian into shallow freshwater sands?

A. No, I do not.

Q. What's the general belief on your part of the deepest known fresh water in the area?

A. I believe it's about 250 feet.

Q. Are you satisfied that these injection wells and all the wells in the immediate vicinity are -- have surface casing set down through the base of the deepest known freshwater source?

A. Yes, I believe so.

Q. Are you aware over any of these period of time in which the Pennsylvanian has been used for disposal that there have been water flows at the surface of these injection wells that's attributed to leakage of injection fluids up to the surface?

A. No, I've not known of any.

Q. Let's turn to page 13 of Exhibit 12. This shape is drawn based upon the half-mile-radius circle around each of the two proposed injection wells?

A. The three --

Q. Yeah.

A. -- proposed injection --

Q. That gives us the shape?

A. Right, half-mile radius.

Q. Within this radius have you reviewed Mr. Carlile's tabulation of the wellbore information?

A. Yes, I have.

Q. Let's go through the tabulation so that you can make comments to Mr. Jones, because when he reviews this he may have questions that you can answer for him at this point. Let's go through that and have you identify any changes that you think the records may reflect that need explanation.

A. Okay, in reviewing this, on page 14 there, if you'll look at the information on the Fasken-operated Denton Number 2, on the far right where it has "Completion Record" and it shows 5-1/2 casing at 12,762 feet with 1130 sacks, there's no top of cement. I want to show you -- or mention that that should say top of cement, 3250, determined by a temperature survey. And this was -- there is a diverter tool at 9055 feet, so this is a two-stage cement job.

Then if you'll turn to page 16 of this exhibit, the top well, the Denton Number 12, there's not a note off

top of cement there. And I didn't get that from my office this morning, I should have made a call. But if you'll note that there are Wolfcamp perforations there, 9244 to 9444, this well was recompleted to the Wolfcamp, and we did perform a cement block squeeze across this Wolfcamp interval in that well, to allow us to perforate -- recomplete in the zones. So I think the top of cement is a few hundred feet above the top of that perforation at least.

Q. Is there any other data that needs amendment or that is unclear?

A. On the Number 17 well, the bottom of the page 16, there's not a note of the top of cement. The top of cement in our records is at 4650, and it's a temperature survey. There is a diverter tool in this 5-1/2 string also at 9496.

Q. Any other changes or comments?

A. Well, there were four other wells that might require comment. On page 17 there, the Denton 4 operated by Brothers, in the center of the page, it shows a top of cement of 4450, and it's from their records and that's a calculated top. And I don't know, if you applied the NMOCD 50-percent safety factor, you may not -- I'm not sure what the calculation requirement -- or criteria was for Brothers to calculate the 4450. But if you recalculate it with a 50-percent safety factor, you may get substantially less

top of cement.

But I do want to note that in operation of this producing Devonian well, they've not had, to my knowledge, casing leaks across the Wolfcamp interval, and if you don't have cement there you would expect some casing problems, and they have not experienced that to my knowledge, so I suspect the cement is above the Wolfcamp sufficiently.

That will be a similar comment for the -- page 19, if you'll turn to that page of this exhibit. In the center of the page there's -- Journey operates three wells of note that I want to point out, the Lea G State Number 2, the Lea G State 3, and the Lea G State 4. In every instance there, there are calculated top of cements recorded. And applying the NMOCD 50-percent safety factor, you may calculate lower cement tops than this.

But my same comment would be that if there were no cement across the Wolfcamp they would have, you know, problems with cement -- or the casing deterioration or corrosion and have casing leaks, and I don't believe they've -- to my knowledge, have had those issues.

But those are the wells that I see as wells of note in there, in this tabulation.

Q. Having made those notations, Mr. Brown, are there any wells within a half-mile radius that you as an engineer would recommend to the Examiner or what you would conclude

are problem wellbores that require remedial action?

A. No, I don't believe there are any.

Q. Let's turn now to Exhibit 13, and let's look at the --

A. Oh, excuse me, Mr. Kellahin, there's one plugged-and-abandoned diagram that may need to be -- there's a note we should make on it.

Q. Let me ask you the question, I skipped part of the outline.

A. Okay.

Q. In addressing the plugged and abandoned wellbores, the Division requires that you prepare schematics --

A. Uh-huh.

Q. -- for those wellbores and provide what you can find in public records and your own about the status of those P-and-A'd wells.

A. Right.

Q. When we look at the P-and-A'd wells, are you satisfied that those filings are complete, or is there supplementation you'd like to make?

A. There's only one note I want to make, and that's on page 29, there's a schematic there, and this is of the Atlantic Richfield Company B.C. Dickenson "B" Number 2 well. And if you just note there, there's a cement plug

that's drawn on the stub, the 7-inch casing stub, at 4788 feet, and it looks like there's a space between that cement top and the shoe of the -- the 9-5/8 shoe at 4726. In fact, that cement stub plug actually goes up into that 9-5/8 casing at 4670, and that's noted to the left there. The 50-sack plug is at 4670 to 4810, which covers the shoe and the stub, and that would be sufficient there.

The next page shows the data that was recorded and submitted to the OCD for this information.

Q. Any other additions or corrections?

A. I think that's it.

Q. Okay. Let's turn now, Mr. Brown, to the proposed recompletion of the Denton 11 for disposal purposes and have you take us through that procedure.

A. Well, the Denton 11 -- this Exhibit Number 13, this is also a wellbore diagram of what we propose and how do we -- how we propose to complete this as a Pennsylvanian open-hole injector only.

And it just shows there -- on the left side, the items in red show the tops of the Wolfcamp at 9115, and then below that the top of the Cisco -- or -- top of Cisco -- or -- which is a -- would be the top of the Penn, at 9642. So we would propose to run a 3-1/2-inch liner and cement it in place there, at least to the top of the Pennsylvanian, and thereby isolating any lower Wolfcamp

that would have been exposed in this open-hole deepening.

The next page is the -- the next two pages would be the "Denton Number 11 Application for Authrization [*sic*] to Inject", so the associated data in this outline, that would reflect these 3-1/2-inch casing changes, and that would be a correction to the C-108 that's on file right now.

Q. Anything else about Exhibit 13, Mr. Brown?

A. No.

Q. Let's turn now to Exhibit 14, and describe the revised plan for disposal into the Denton 5.

A. Well, this is a similar exhibit to the previous, it's just specific to Well Number 5, and we propose to put a 3-1/2-inch liner across the lower Wolfcamp proposed open hole to cover that Wolfcamp zone and isolate the proposed disposal into the Pennsylvanian open-hole zone. And so this would be an addition and a correction to what's on file for this well in the C-108 application.

The next two pages are also the associated changes for that well also.

Q. Let's turn now, Mr. Brown, to Exhibit 15. Show Mr. Jones why you're proposing to draw his attention to this exhibit.

A. Well, Exhibit 15, this is the -- a sundry notice by Hondo Oil and Gas for the -- what was -- what is the

Denton SWD Number 3 well. You can see that the B.C. Dickinson "B" is crossed out. This is for the Denton Number 3 disposal well. This was later in its life, and they had to do some remedial work, and this is an open-hole Wolfcamp-Pennsylvanian disposal well. And I just wanted to note on the next page the continuance of this workover information. The very bottom of the next page just shows that an open-hole acid job was done at least one time on this well. I did not find any other NMOCD sundry notices about injection or acid jobs in this well.

Q. This is the wellbore that AmeriCo was using for disposal in the far southwest-southwest --

A. Yes, southwest of Section 12, uh-huh.

Q. At one point in its history it had been acidized?

A. That's right.

And -- Exhibit 16?

Q. We're still back on 15, Mr. --

A. Oh, sorry.

Q. That acid job was done back in 1988?

A. Yes, that was a 1988.

Q. Is there any indication that any of the operators had to acidize that wellbore again?

A. I believe they've been acidized before, or since this time.

Q. This is the only filing you could find that

showed it?

A. This is the only filing we have in the OCD sundry notices records available. But when Merit Energy operated the SWD system, the Well Number 1 needed remedial work. And I believe it's still shut in, requiring some work. But at the time, Merit Energy pulled their proposal to work over Well Number 1 because they had been successful in maintaining injectivity in the other three wells by a periodic acid program, acid-stimulation program, which meant those two open-hole wells and the Number 5 perforated well.

So acid, I think, at least in -- with Merit Energy, was employed to maintain injectivity in the saltwater disposal system, and on a regular basis, although I don't have that evidence in well histories or sundry notices filed to that effect.

Q. Do you share the same concern that AmeriCo has that acid treatments would then be -- would not successfully clear these wellbores and you'd have to go to some type of fracture stimulation?

A. I don't think we will have to stimulate these Pennsylvanian open holes beyond just an acid treatment. And it's been done in the past; I think it can be continued effectively to maintain injectivity without fracture-treating at higher and above-fracture pressures.

Q. Let's turn to 16 then. Identify for us what you've shown here.

A. Okay, Exhibit 16 is a similar sundry notice for the Denton SWD Number 2 well, and this is at the time it was converted, the original conversion to the open hole, and this was done by Hondo Oil and Gas also, 1987. This is the original stimulation. Page 2 shows that there was an acid job done on this open-hole disposal in the Pennsylvanian.

Q. And this is an open-hole disposal well?

A. Yes. And so Exhibit 15 and 16, just to show that these wells, open-hole wells, have been acidized in the past at least once, from the records, and I believe more often than that in practice, and that we can continue that with success to maintain injectivity in our own open-hole Pennsylvanian injection.

Q. Mr. Brown, I'd like to direct your attention now to what is marked as Exhibit 17. This is a copy of an administrative approval order, SWD-998. It's approving a disposal well for Platinum, for a Devonian disposal well.

Can you go back to Exhibit Number 1 as a locator map and show us approximately where Platinum's disposal well is located on Exhibit Number 1?

A. Well, sir --

Q. I've carefully confused you.

A. -- I don't think this is --

Q. It's not on there.

A. It talks about -- I believe -- okay, well anyway --

Q. Let's start over. My purpose is not so much where the well is located, but it's approval of a Devonian well with conditions. Let's look with me over on page 2 --

A. Okay.

Q. -- and I'll represent to you that this is the currently utilized administrative approval form that the Division is using with its examining engineers to approve disposal wells. One of the points of approval is a control point, and it has to do with surface injection pressure limitations. The Division's current limitation is to establish a threshold of injection limitation not greater than .2 p.s.i. per foot of depth to the top perforation.

A. Right.

Q. If they continue to apply that and apply it to your wells, that would give you a surface pressure limitation of what?

A. Over 1900 p.s.i., and we have applied for a maximum allowable surface injection pressure of 1900 p.s.i. for all three of these proposed injection wells.

Q. As you understand it, are any of the currently approved disposal wells having to inject at pressures

approaching the limitation?

A. No, to my knowledge I believe none of them exceed a surface injection pressure of over 1000 pounds, and it's more like 800 pounds operating pressure, I believe.

Q. Are you aware of any kind of injection restrictions or difficulties the injection operators or disposal operators are seeing in the field that should concern the Examiner that we're in an area where pressures are rising and we need to monitor those limits?

A. I don't believe we have a problem with increased injection pressure required to dispose of these volumes in this Pennsylvanian zone, approaching pressures that would be near that .2 p.s.i. per foot. I believe we can operate substantially than that, in the 1000-p.s.i. range.

Q. Is it acceptable to Fasken to have the Examiner, should he decide to approve this Application, provide a procedure whereby Fasken can submit step-rate tests and other data to the Division in order to obtain increases in pressure if necessary?

A. Yes, I think that's a typical part of the order.

Q. And is it appropriate in this circumstance?

A. In this case I don't anticipate we would utilize that.

Q. When you look at page 2 of this order for Platinum, the operator, if approved, is required to take

certain actions and to make notifications to the District Office concerning those operations. Have you read through all these conditions of reporting and approval?

A. Yes, I've read through and see no reason that Fasken cannot comply with all these requirements also in our own order.

Q. The Division order proposes that the approved Applicant is going to be required to give notice to the District of any mechanical integrity tests, so they can be observed and inspected and witnessed?

A. Right.

Q. Is it your intent to do all these things?

A. Yes, it is.

Q. Are you aware of the monthly reporting requirements the Division Rules have with regard to disposal wells?

A. Yes.

Q. It will be your intent to comply and to timely report all the required information under the appropriate rules?

A. Yes, it is.

MR. KELLAHIN: Mr. Examiner, that concludes my examination of Mr. Brown.

In addition to his Exhibits 1 through 17 there are two notice exhibits. One is Exhibit 18, which

currently exists in your file, and it's Mr. Carlile's cover letter in which he sends you copies of his green cards for the original filings of the C-108.

In addition is my certificate, Exhibit 19, which attests to notification to those same parties pursuant to the Rules.

And with your permission, at this time we would move the introduction of all of Fasken's Exhibits 1 through 19.

EXAMINER JONES: Exhibits 1 through 19 will be admitted to evidence.

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

EXAMINER JONES: Okay, are you going to have another witness?

MR. KELLAHIN: I think not, unless you have questions for Mr. Carlile. He's here to testify if required. Mr. Carlile prepared and submitted the C-108, but we've relied on Mr. Brown's engineering expertise to explain what we think are the technical issues that you would be concerned about.

EXAMINER JONES: Okay, I guess we can continue forward here, unless you want to take a break.

MS. MacQUESTEN: I'm all right.

EXAMINER JONES: Okay, we'll just ask Mr. Brown

some questions.

EXAMINATION

BY EXAMINER JONES:

Q. The -- I had a bunch of questions written down. You guys have answered some of them, and some of them -- new ones maybe have arisen. But on your C-108, the latest version in here of the C-108, which is Exhibit 12, your water analysis back in the back, can you point out which one is the Devonian and which one is the Wolfcamp? I think I've got it figured out, but --

A. Well, okay. Page 34 is from our Denton 17, which is Devonian producer.

Q. Okay.

A. It's not noted on there, is it?

Q. So that's a Devonian?

A. Yes. And then the next page, 35, is an analysis from our Denton Number 8. It shows the -W there as a sample point. It's a Wolfcamp well, so it's a Wolfcamp.

Q. All right, that was my guess. I wanted to make sure. But you have no sample from the Pennsylvanian at this time?

A. Well, it's a lost-circulation zone, and it's been hard to --

Q. Oh.

A. -- get a sample. In fact, the original drilling

of our Devonian 3 and 9 that was on this Exhibit 7, I did not -- did not show you, but there was a point of lost circulation when they drilled through those, the Pennsylvanian, and they lost the returns on their drilling.

Q. Okay, where on the Pennsylvanian?

A. A couple hundred feet below the top of the Pennsylvanian in each of those --

Q. Still the Cisco?

A. Yes, it's the Cisco-Pennsylvanian, and that's where they lost it. And that's why the wells have been utilized for disposal, because it was troublesome to drill through that zone.

And I only know of one area that this well was -- this zone was tested, and it's on your cross-section. It's that Denton Number 1, the SWD well, that shows inactive perforations in the Pennsylvanian itself, but I don't have any data on what was recovered. I didn't think to research that more extensively. I can provide it for you if you'd like --

Q. No, thanks.

A. -- whatever I can locate.

Q. It looks like that's a really good injection zone, with your rates for some of the wells and the life of the wells that have already been out there.

A. Yeah.

Q. There is a Pennsylvanian oil pool about a mile and a half to the southwest of there, so I -- you're not worried about any production at all in the Pennsylvanian?

A. No.

Q. When you deepen these wells, will you have a mudlogger on location?

A. Did not expect to, no. I expect to lose circulation in the zone 2, possibly. That's why we recommended to put an open hole packer on our liner, to, you know, allow us to cement the liner properly.

Q. Okay. Are you going to log the open hole with electric logs?

A. I had anticipated possibly a -- just a neutron density log of some sort, but I had not --

Q. Open-hole logs?

A. Right, no, I guess we'd have to identify exactly the tops, but not an extensive logging program, no, but one at least, a resistivity log -- no, excuse me, a porosity log is what we -- I would anticipate.

Q. Do you have to use a real drilling rig for this deepening, or you can use a workover?

A. We can do a workover rig.

Q. Otherwise you might be out of luck for a while, huh --

A. That's right --

Q. -- with the availability of --

A. -- it's difficult.

Q. -- rigs. We don't have our logs on file for the Denton 11 and Denton Number 5, so I would ask that instead of me having to put it in any order, if you guys can supply that to Paul Kautz in Hobbs and make sure they get it scanned -- or you don't have to make sure they scan it, just send it to them with the right API number and all that.

A. Okay.

Q. And any new logs that you run, they would need to be sent, of course, to Hobbs.

This business about running a 3-1/2 liner, we normally require people to have an annulus, so we may require you to have tailed your injection tubing -- the smaller injection tubing, in the lower part of this well so that you can put a packer down inside your liner within 100 feet of the top -- of the bottom of the liner.

A. Within 100 feet of the top of the --

Q. -- of the bottom --

A. Of the bottom of the liner?

Q. Yes. So if that's palatable -- if that's not palatable, you might consider a flush joint liner or something like that, some -- a bigger liner, whatever you can get in there. I was concerned about the Wolfcamp also

when I looked at this originally, and also the C-108 that we had showed Wolfcamp -- some lower Wolfcamp-Pennsylvanian injection zone proposed, but the notice in the paper only said Pennsylvanian, so now I see you've remedied that.

Q. Yeah. Well, the notice was -- you know, we looked at the Number 1 and, you know, it was --

Q. The --

A. -- overlooked on that -- the open hole, the deepening wells.

Q. Speaking of that, which well is the one you'd try first?

A. We will rig up and attempt a Devonian -- restored lower Devonian production in the Number 1.

Q. The cased well?

A. Yes. And if we're successful there we would have to consider one of the other two deepening wells for a disposal candidate.

Q. Okay, but you want all three permitted; is that correct?

A. Yes, just to prevent delay --

Q. Yeah.

A. -- once we get into our program, and we can go --

Q. I understand.

A. -- efficiently utilize our time and the rig availability.

Q. Yeah, we have a one-year, you know, down time limit on a permit, so you would have to start injection within a year of the issuance of the permit in any of these three wells. Otherwise, the permit is going to lapse or go away. But you -- with the injectivity out here, you only anticipate needing one well; is that correct?

A. Well, that was the -- The main goal was to at least -- establish at least one disposal well out of these three candidates. And I never anticipated that we would have two open-hole disposal wells side by side. It would be one or the other, and possibly Denton Number 1 and the Wolfcamp deepening opening-hole well. That would be two at the most, would be our ultimate, I think, in this case. But our goal was to, you know, provide at least one.

Q. Okay. When you drill into this Devonian, if you have to go -- or even if you recomplete in the Number 1 well, do you anticipate it standing pressure to the surface, water to the surface?

A. No, in fact we've done a similar work in our Well Number 7, which is in the location to the east, one location east. We did drill out a retrievable bridge plug and open -- re-establish lower production, and I believe the fluid level was about 4000 feet from the surface, from the lower zone --

Q. From the lower zone?

A. -- from the lower Devonian zone.

Q. 4000 feet from the surface?

A. Right.

Q. Okay, what about the Pennsylvanian? Do you anticipate the Pennsylvanian standing fluid to the surface?

A. No, I anticipate that to be on, you know, a lost-circulation zone.

Q. Even after all this injection has gone on in the Pennsylvanian?

A. I'm interested to see what the pressure is on that. There's been a lot of water in it, of course, but still in all these injectors it's quite permeable. I believe a larger part of the surface injection pressure on the wellbore, on the surface wellheads, is friction. You know, you're putting 8000, 9000 barrels a day through 3-1/2 tubing, to 9000, 10,000 feet, it's going to be largely friction pressure at the surface.

Q. If you -- If we approve this with a small-tail-size injection tubing, do you anticipate the friction pressure making you apply for higher than a .2 p.s.i.-per-foot injection pressure --

A. Well --

Q. -- limit?

A. -- I'd have to see how that does. Of course, that's only a small part. We want to have 3-1/2-inch

injection tubing to the top of the liner, and you're asking for a piece of tail pipe, another --

Q. Two inch?

A. -- another -- well, about 670 feet -- 600 feet additional. So that is a smaller ID and a restriction. I'd have to do some calculating on that. But that would be a -- if that's required from the OCD we can live with it, and our injectivity -- we'll have to abide by whatever we can put in the well under the conditions that are stipulated pressurewise, so...

Q. Of course you can always run a step-rate test if you need to?

A. Yes.

Q. That's what we normally put in there. We would -- We've been requiring the operator to gauge the pressure in the injection zone prior to starting injection within the last year or so, and that's -- the reason for that is, that's one of the most important points, the first pressure point for calculating any zone of endangering influence that may need to be done in the future, so with -- if a permit is issued in this case, that would be added to it.

A. That would be very simple to acquire that information.

Q. You could almost do it from a fluid level.

A. Yes.

Q. Okay. If it's a nonchanging fluid level.

And also on the Number 1 well we would require a bridge plug within 200 feet of the lowest perforated interval, which shouldn't be a problem, should it?

A. Okay, you mean in the 5-1/2 casing?

Q. Yes.

A. Oh, that would be easily done.

Q. Okay. Who are the owners in the Denton Wolfcamp, or the operators in the Denton Wolfcamp? Because we talked -- you talked already about the potential loss of -- or damage to their injection -- or their production, I'm sorry.

A. My understanding, this is a recent -- a new lease acquired by Platinum and AmeriCo together. I'm not sure if they're partners on Section 12, and that's to the east of us.

Q. Northeast. Straight east.

A. Well, directly --

Q. Straight east.

A. -- east of us, and they're -- according to the operations manager at Platinum, who I have talked with personally about it, they're going to re-enter -- either re-enter and possibly have some horizontal Wolfcamp production over there.

And so naturally with us having an open-hole

Wolfcamp zone in our proposal, that was a red flag to them, and I understand that. And so this is our remedy for this concern that Platinum expressed to us.

Q. Sounds like the operators in this area have watched this Application pretty closely.

To the northeast, do you know who the operator is in that section to the northeast?

A. Section 3? Northeast, I'm sorry. Section 1?

Q. Okay, in that Unit M, there -- it falls within your area of review -- do you know who the operator or the leasehold operators would be?

A. I do not know that.

Q. That might be a question for Mr. Carlile.

A. There's not a wellbore in that unit.

Q. I think -- There's not. However, the associated question with that would be, who is the -- does the owners in the Pennsylvanian, the proposed Pennsylvanian injection zone, are they the same owners in the Wolfcamp, or are they the same owners in the Devonian, or are they separate owners in this area?

A. As to the Pennsylvanian zone?

Q. Yes.

A. I would doubt seriously that there's a separation in the existing leases.

Q. I saw in our state records where the section to

the north and east is fee land, and it's -- it shows AmeriCo as the leasee, so --

A. That's what on our map on page 12 of our C-108 Application --

Q. Okay.

A. -- is -- they may affirm that, that's their lease.

Q. Okay, and they were notified. The -- I guess there still is a question, and it's probably a redundant question, but is the Pennsylvanian owners the same as the owners in the Wolfcamp and the owners in the -- and the -- And that would relate to, did you notify all the correct people in this case?

MR. KELLAHIN: We'll double-check that, Mr. Jones. It's our belief that they're the same --

EXAMINER JONES: Okay.

MR. KELLAHIN: -- that there's not a separation in ownership, but Mr. Carlile would have the -- he could check that for you --

EXAMINER JONES: Okay.

MR. KELLAHIN: -- and we'll report to you.

EXAMINER JONES: Okay, and as far as -- and that reminds me, I was going to ask Gail, what is the *ex parte* rules in this case concerning communication with AmeriCo, considering --

MR. KELLAHIN: Well, as a matter of courtesy, we'll simply give them the information.

EXAMINER JONES: Okay.

MR. KELLAHIN: I don't want to --

MS. MacQUESTEN: That would be the safest --

MR. KELLAHIN: I don't want to fuss over that.

EXAMINER JONES: Okay.

MR. KELLAHIN: It's public information, and then we could pay to send it to them.

EXAMINER JONES: So any communication, even from AmeriCo, should go -- also through Fasken. If they communicate things back to the Examiner for additional data that's required --

MS. MacQUESTEN: Mr. Kellahin has volunteered to --

MR. KELLAHIN: We've volunteered to --

MS. MacQUESTEN: -- to share that information.

EXAMINER JONES: Okay.

MR. KELLAHIN: Everybody's got e-mail, we're happy to click it again.

Q. (By Examiner Jones) Okay, I think -- Normally we require the -- after wellbore -- after-conversion wellbore diagram. Now, in your conversion -- your wellbore diagrams here don't include the tubing in them, but I think that's okay in this case.

A. On the 5 and the 11? I have included -- or let's see, I'm sure if I noted that. Yes, in the red -- on Exhibit 14?

Q. Yeah.

A. 13 and 14?

Q. Yeah, 14 and 13.

A. On the right-hand side, the topmost note in red --

Q. Okay.

A. -- is "Proposed 3 1/2" IPC tubing". That's what I've noted there.

Q. Okay, so that pipe going up, the smallest diameter, is your tubing?

A. Yes.

Q. Okay.

A. And that would be sealed into a sealed-bore receptacle at the top of that liner --

Q. That's your proposal?

A. -- and we had -- Yes --

Q. Okay.

A. -- and we had anticipated a little bit of tail pipe, just to, you know, get into the factor there --

Q. Okay.

A. -- had not anticipated all the way to the base of that liner that you're talking about.

Q. So your testimony is, you're not worried about any damage to the Devonian by this injection?

A. That's right.

Q. And you're not worried about any damage to the Wolfcamp?

A. That's correct.

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

MS. MacQUESTEN: I don't have any questions, thank you.

THE WITNESS: Clarify one other thing. We were talking about our permit request on 11 and 5 being next to each other. I never thought we would utilize both of them. However, that's not out of the realm of possibility, if we get into a development program where we see we need additional, and that permit is available on the next well next to us, you know, it's not impossible that we would consider those two side by side, but --

Q. (By Examiner Jones) Okay, we normally use one year as our limit.

A. Yeah.

Q. What -- Are you requesting a longer limit for the --

A. No, I'm not requesting anything. It's just -- I mentioned that -- in testimony here, that I didn't anticipate to have two injectors side by side.

Q. Okay.

A. I don't anticipate it, but I don't want to say that that's an impossibility.

Q. You want three permits?

A. Yes.

MR. KELLAHIN: Yes, sir.

EXAMINER JONES: Okay. I think that's all my questions. Thanks a lot, Mr. Brown.

MR. KELLAHIN: Examiner Jones, in addition to the log information, was there anything else that Mr. Carlile needed to provide?

EXAMINER JONES: Just checking whether the Pennsylvanian is owned by the --

MR. KELLAHIN: The ownership.

EXAMINER JONES: -- same owners.

MR. KELLAHIN: Okay, got it.

EXAMINER JONES: And we'll ask for statements, any other statements --

DR. BAYAT: Yes.

EXAMINER JONES: -- in this case?

DR. BAYAT: Yes, well, thank you very much. Again, for the record, my name is Ghasem Bayat, representing AmeriCo.

I just refer to the document we sent you on December the 7th. The last sentence of this paragraph, the

last paragraph of this document, says, AmeriCo will attend the above hearing scheduled for December 15, 2005, and present its case for objecting to Fasken's proposal. AmeriCo will be represented at this hearing by -- my name, myself, Ghasem Bayat, and Mr. Oscar Nosrati.

So we thought that that was amply clear that these were those that are going to be here and are going to present the case, and the document is signed officially by us on behalf of AmeriCo. So we didn't think there was any misunderstanding as far as our intent to be present here and make a case.

And prior to sending that document, we thought we communicated to your office -- myself, in fact -- and we asked whether it isn't just an administrative matter, we shouldn't even bother to come, and we were assured that that wasn't the case and that if we come we would be able to present the case. This was our understanding.

MS. MacQUESTEN: Mr. Bayat, just for future reference in other cases, you certainly can come and appear and represent AmeriCo, but what we would need under the Rules is a sworn and notarized statement to that effect, and that would solve the problem.

DR. BAYAT: That is correct. However, because we submitted this on the 7th to you, we would have appreciated a note saying that that was a requirement. We were not

aware that that was a requirement, otherwise it would have not been a hard thing to do.

But I would like just to make several statements without going through any of the -- any of the statements that my colleague, Mr. Brown, has made, or Mr. Kellahin has made here.

The first statement is that AmeriCo inherited the operatorship of this project. We'd be happy to operate it, but this just operates by consensus of all the parties. Therefore none of the actions that have taken place prior or even taking now is AmeriCo. AmeriCo is actually an agent doing it with a pretty small stake in this project.

With regards to our relationship with our partners here in the Denton project all together, is that we are not objecting to people injecting water here. In fact, we encourage that very much because more than anybody else we are aware of the limitations of the present jointly owned disposal system. And to prove that, we agreed and have no objection, for example, to Brothers doing that. At the same time, we objected to Platinum, who is also a partner with us on this project, we do, to inject water exactly adjacent to the leases that we are going to operate. So we have been very consistent.

The heart of the matter is this, that we do not think it's a good idea to inject water crestally on this

structure.

What was missed from all the presentations -- and probably my colleagues may like to comment on that -- is that all the water that's been injected in the Pennsylvanian here, with the exception of a very small amount that gets into the 5, which is sitting just to the north of the Fasken operation, which only takes anywhere from 4000 to 6000 barrels of water -- the bulk of the 30,000 barrels actually gets injected into three wells that are located on the flank of this structure, if you refer to Exhibit 1.

That's the policy that we've been pursuing, the injection of water in large quantities that is going to take place and, in fact, is going to become a lot more and more, should take less on the flank of this structure, rather than being almost crestal or mid-crest.

And based on that, I was in my document explaining that AmeriCo and Platinum are planning to invest anywhere from $30 to $50 million in horizontal wells in those leases, trying to develop reserves of the six Devonian formations that are located here. And injection of water very close to them, in my document I categorically said, in the first instance is harmful to Fasken itself, you will see from my notes, because as Mr. Brown said, it would actually kill their own wells.

Then it would be harmful to us as -- AmeriCo, as well as to Platinum, because we are drilling horizontal wells which are far more susceptible to being short-circuited by water injected almost crestally on this structure.

So these were the points that I just wish to make to you, that the ideal solution would have been to have been finding and completing wells off this structure, either as an individual operators or as part of this joint-owned system. That would have been the, if you like, course of action that would have been pursued.

I just limit my comments to these, and I would like the document that I've submitted to you to stay on record, and perhaps in your deliberations, although I didn't get a chance to present a lot more detail than what is there, will be something that you bear in mind while you look into this Application.

Thank you very much for your time.

MS. MacQUESTEN: Mr. Kellahin, did you have any questions for Mr. Bayat?

MR. KELLAHIN: No, I -- No, I think we've addressed their concerns in Mr. Bayat's comments through Mr. Brown's testimony, and we'll leave it up to Examiner Jones to make a decision. We think the AmeriCo technical concerns are unreasonably founded, and there's no

justification to limit us or preclude us from injection in a manner that's already being allowed by other operators.

MS. MacQUESTEN: Will, did you have any questions for Mr. Bayat?

EXAMINER JONES: I was going to ask Mr. Brown questions about this injection on the structure, and apparently AmeriCo's wells are mostly off the structure, except for -- there's a well --

DR. BAYAT: Not AmeriCo's wells. Denton-owned, AmeriCo-operated wells are off the structure, all of them with the exception of Denton Number 5.

EXAMINER JONES: With the exception of Number 5.

DR. BAYAT: And Denton Number 5 is a very small injector, 4000 to 6000. In fact, often a lot less than that.

And those would have been the type of wells that we have been recommending for all operators to come together, to arrive at, at the periphery of this structure, the flank, not on the crest of the structure.

We approved -- or have removed our objections to Brothers because they were too far from us to influence this major investment we are just starting to make. But nevertheless, we don't think what they're doing is good. But it's up to them, it's not affecting us.

But the strategy we would follow is, on a huge

structure like this, with these very high porific formations within the Devonian, to go on the flanks of the structure rather than mid-structure.

EXAMINER JONES: Are you only concerned about the Devonian, not the Wolfcamp?

DR. BAYAT: At the moment I was talking about Devonian, because despite all the assurances that my colleague here offered -- and I respect his views absolutely -- my concern remains that injection of large quantities of water, as we just heard, something like 20,000 barrels of water eventually, at least in two wells, going there, will find its way. And it's a very different case than on the flank of the structure.

On the flank of the structure, even if that happens, it's of no consequence because the structure is supported by water coming from the flank.

But on the crest of the structure it would be very harmful to horizontal wells, which is the next technology we are -- that Platinum is employing to develop the reserves here.

And we felt also that was bad for the State of New Mexico, not just for the operators here, because the reserves --

EXAMINER JONES: The conduit -- How would the conduit happen?

DR. BAYAT: Take place? In two methods.

One would be, as appears in my notes, that cementing, despite all the assurances that as engineers we provide, very often are not perfect, and therefore if water through the Pennsylvanian moves along through these very short distances -- because these wells that are considered are all twinned wells -- if it moves along, it would move along the imperfections or breaches in the cementing. Very often as you cement, yes, you bring up a sheet of cement coming out, behind it would remain muds, in some cases. And as a result, the cement would not necessarily totally displace the mud, and therefore, that would be very soft materials to gradually over time, with water -- to be influenced. So the water will find one way into the Devonian through breaches in the cement.

The other alternative, as I've mentioned -- and I'm glad my colleague Mr. Brown commented on it -- has to do with the injection -- difficulties we have with our injectors. We operate the system, and very often we are very reluctant to go over 1400 or so. In fact, when we get there we get very concerned, and at times we have actually cut the rest of the operators, including ourselves, to produce less water, because we do not want to go above.

It's because very often the water is produced through various operators; they have different degrees of,

if you like, control over the produced water quality. And this water comes through a common system, and this common system carries with it a great deal of scale and debris. Very often we have carry-overs, actual oil materials, coming through the system, and that's why we have to skim that very regularly within our tank system to try to isolate it from the water. But nevertheless, it still is limited. These will begin to fill the open hole, as indeed these open holes happen.

But acidizing would do some of the job, and that's what we have been doing ourselves, and before us Merit and Devon and others have done that. Acidizing would do some of the remedy.

But in case of severe plugging of these open-hole completions, very often individuals, either inadvertently or by error -- we are talking about possibilities, that's why we wanted to excluded possibilities -- they could raise the injection pressure, and it could create frac. And of course as soon as these fracs are created, all the debris would rush into it.

So I wasn't suggesting that we would do propping of these. The propping would take naturally as a result of these materials, loose materials, getting into the fracture system. And the next time the same problem comes it keeps extending. And I'm concerned that this water is somehow,

either through fracture planes, conduit, or through the imperfections or breaches, maybe failures of the cement in the future, finds its way into the Devonian. And if it does, the consequence is what I've said in my notes.

I believe the first company to suffer from it would be Fasken, because their wells will water out. So then you have to find out what they are going to do. How are they going to go and fix the watering of those? Are they going to go and shut in those injectors? I do not know of a mechanism that you can go and stop that water that's already beginning to come.

So the only solution for them would be to shut in those injectors or basically ignore those producers, just shut them in. If they shut them in, the problem doesn't go away. The water continues to go to the deeper Devonian. If they go and shut the injectors in order to save the producers, well, then they're going to come back and ask for more injection permits.

So as you see, I felt in my document -- it was technical comments to my colleagues, really; it wasn't written in the format that probably you're used to receive here -- that it's not good for them, it's not good for us. It's particularly dangerous to us because of the large investment we are going to make in horizontal wells.

So I've explained the two mechanisms that are

possible.

EXAMINER JONES: The wells should have been cemented with cement that's resistant to sulfates, unlike the current cement that will soon be used in the United States, which may or may not have resistance to sulfates.

DR. BAYAT: We're just talking about possibilities. My understanding was that at this hearing we were going to explore the possibilities that this could be harmful.

EXAMINER JONES: Is there a pressure differential between the Devonian and the --

DR. BAYAT: I believe so. Devonian has been produced since 1950, substantial volumes of it. And one of the concerns, again, in my technical jargon -- I placed it there for you; I'm not sure it was absolutely clear -- is that the fracture gradient is also related to the stress in the reservoir, which relates to pressure.

So when a formation is depleted, that formation is more susceptible to being frac'd, frac'ing, and creating these fracs within them.

Therefore I do believe that these differentials, plus the fact that the Pennsylvanian itself is low on pressure, make them a lot more susceptible to fracturing than otherwise would be natural fracturing caused by -- for example, cold water entering any formation would create

additional stress and makes it sometimes frac naturally, and this has nothing to do with frac gradients that, you know, convention, we talk about. You inject cold water into any system, any reservoir, and you begin to create microfracs around it. These microfracs are perfect locations for getting fills. And then subsequent to that, further water comes and further cracks and opens them.

So I don't wish to enter into a debate on these technical matters, although I'm a specialist in all these fields; that's what I've done for 30 years all around the world, including the US. But put all of these together, I'm not convinced that we have a foolproof system. We will have a system that somehow the water will find its way on the crest of the Devonian, and it would be harmful.

If I had the choice, I would have asked my colleagues to have looked for wells on the flanks of the field. I would have been happy to offer them anything they needed in that direction, whether our wells or anybody else.

In fact, almost two, three months ago, I made it my business to go around all the parties to ask if they had spare wells that would be on the flank of the structure that could be used for this purpose so that we could do it for the entire partnership, all the operators. Of course, I never received any response to that.

But if it is not too late, I still would like Fasken to consider developing these wells, and as very good Devonian wells, which I want to wish them luck, I think they're going to be good, the same way that we do, and find alternative flank wells.

But if this is not available to them, then I suggest that the last alternative would have been the well to the south of their unit. That would be -- this is the cased well, and I suggested that that well would be the least, if you like, risky in this. And the well that I referred to was Denton 1, and I regard the Denton 1 as the least risky well for that.

So it just shows -- We're not saying don't do it, we're just saying don't do it in a way that harms you and everybody else. That's --

EXAMINER JONES: Okay, thank you. Thank you very much.

Since 1982 the State of New Mexico has been applying pressure limits to injection. Before 1981 or 1982, all of those wells that were not -- that were permitted without a pressure limit were grandfathered. And so your wells -- it sounds like your wells are the older -- at least the ones you operate for these other owners are the older wells that were probably permitted under no injection pressure limit, where if we do grant these

permits for Fasken they will have a strict pressure limit.

DR. BAYAT: And I was explaining that the application of pressure gradient -- it's old technology and we've all used it. But this is not the whole picture. Injection of cold water into reservoirs that are 180, 200 degrees fahrenheit creates local stress cracking just by simply cooling and shrinking the formation. So there is nothing in the pressure gradient limits that you or I would apply that would solve that problem, unfortunately.

EXAMINER JONES: Okay, thank you very much.

DR. BAYAT: Thank you.

EXAMINER JONES: Thank you both for coming.

MS. MacQUESTEN: Mr. Kellahin, because Mr. Jones had further questions, do you have any other -- any questions for Mr. Bayat?

MR. KELLAHIN: No, I don't think so. I guess my position is, he's talking about possibilities, and while he may be an engineer, I think his statements were largely possibilities and were engineering speculations, and I think there's an absence of proof as to the reliability or the reasonableness of his speculations. And at this point you have a record before you where I have a witness under oath that's been cross-examined, that says he's doing nothing different than is currently being allowed by the operators. And we would like our approvals.

MS. MacQUESTEN: Okay. Mr. Nosrati, is that right?

MR. NOSRATI: Yes.

MS. MacQUESTEN: Would you also like to make a statement?

MR. NOSRATI: No, ma'am, I think Dr. Bayat has explained our position.

MS. MacQUESTEN: Thank you.

MR. NOSRATI: Thank you.

MS. MacQUESTEN: Mr. Jones, because Mr. Bayat has raised a number of issues, and we still do have Mr. Brown here, are there any questions that you would like to ask Mr. Brown?

EXAMINER JONES: Of Mr. Brown in this -- evidentiary questions?

Mr. Brown, I could ask you a couple of questions.

FURTHER EXAMINATION

BY EXAMINER JONES:

Q. Is there stress barriers between the Pennsylvanian and the Devonian, such as shales, such as higher stress rock, for any reason?

A. I believe the Mississippian sandstones and then the Woodford shale are sufficient fracture barriers.

Q. So the conduit -- possible conduit would be wellbores?

A. That's the way I -- Yes, I think that's Americo's main aversion to our Application, is behind-pipe cement-breach conduits down to the Devonian.

What I wanted to point out is that their Number 5 well has been active nearly ten years, say seven, eight years, with similar Devonian wellbores on either side of it within 500 feet, and no detrimental effects to this point.

Q. So injecting on the structure -- on the flanks of the structure, is that a better practice than injecting on top of the structure?

A. Well, on the crest of the Pennsylvanian, and if it's isolated in the Pennsylvanian itself and doesn't go above or below, I see no problem to any Devonian or Wolfcamp production operations. And it will stay within the Pennsylvanian, and it has, in that -- at least one well on the crest.

Q. Those wells have been enormously good injection wells in the Pennsylvanian. Do you think the water has stayed in the Pennsylvanian?

A. Yes.

Q. You don't think it's moved -- found some direct -- some line of conduit to move up or down into other formations?

A. Well, I would have to say the only zone that it's not in -- that's not in the Pennsylvanian is this southern

well, the Number 3, the Denton SWD Number 3 well. It does have some Wolfcamp open-hole. However, the volume of water that that well has taken is enormous, and I don't believe the offset operators have seen a detrimental effect of a massive amount of Wolfcamp flood-out water.

I believe the Wolfcamp is in the lower zone. Having an open hole of the Pennsylvanian in the same open hole, preferentially it wants to go in the higher-permeable Pennsylvanian rock. So I believe even in the open-hole section, most of the water stays in the Pennsylvanian. I think we'd have seen some problems with the offset operators in the -- from this well long ago, and that's been there since the 1960s.

Q. Is it true that the Wolfcamp production zone is up the hole several hundred feet, even above this well that you just mentioned, that would be injecting in the lower Wolfcamp and upper Pennsylvanian?

A. Yes, it would be a flank Wolfcamp well, yes, that's true.

EXAMINER JONES: Okay, I have no further questions. I think everyone -- the case has rested, and --

MR. KELLAHIN: We're ready to have you take it under advisement, with permission to supplement the record as you've requested with the log information to the District and with the information about the ownership for

the offsets.

EXAMINER JONES: Okay. With that, we'll take Case 13,601 under advisement.

And that was the last case in this docket, so Docket Number 40-05 is adjourned. Thank you.

(Thereupon, these proceedings were concluded at 11:03 a.m.)

* * *

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 WJD 1/12/06 _____.

_____, 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 17th, 2005.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006