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:
Case Nos. 23614-17, 23775,
24018-20, 24025, 24123.

HEARING

DAY 15

DATE: Thursday, April 24, 2025
TIME: 10:30 a.m.
BEFORE: Hearing Examiner Ripley Harwood
LOCATION: Remote Proceeding
New Mexico
REPORTED BY: Dana Fulton
JOB NO.: 7225926

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ALSO PRESENT:

Gerasimos Razatos, Chairman
Sheila Apodaca, Host
Nate Alleman, Witness
Larry Lake, Witness
Zack Chandler, New Mexico Department of Justice
Commission Council
Baylen Lamkin, Commissioner with OCD
Rachel Chaput, Panel
Madai Corral, Panel
David White, Panel
Ernest Padilla, Panel
Joe McShane, Panel

I N D E X

WITNESS(ES):	DX	CX	RDX	RCX
NATHAN ALLEMAN				
By Mr. Rankin	30		123	
By Ms. Hardy		39		
By Mr. Lamkin		89		
By Dr. Ampomah		93		
By Mr. Chandler		119		
LARRY LAKE				
By Mr. Rankin	157			
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E X H I B I T S

NO.	DESCRIPTION	ID/EVD
Exhibit A	Self-Affirmed Statement, Includes A1 Through A9	29/30

NO.	DESCRIPTION	ID/EVD
Goodnight:		
Exhibit E2	EMSU 679 Vertical Perm Barriers	27/27
Exhibit D2	Cross Section Showing Interval Embedded Anhydrites	27/27

P R O C E E D I N G S

THE CHAIRMAN: -- continuation of an evidentiary hearing that we have been carrying on all this week. This is for the consolidated cases by Goodnight Midstream and Empire New Mexico. This is for case numbers 24123, 23614 through 17, 23775, 24018 through 24020, and 24025.

Before we start everything this morning, there is an issue that has come up. Commissioners, I do want to ask for your opinion on this as well. There is a severe scheduling conflict for me for Friday, the 23rd of May. There is no way that I can attend the hearing on that particular day.

And so I have a counteroffer that we just move everything up by one day. So we meet on the 16th of May, which is Friday the 16th, and then carry on on the 19, 20, 21st and 22nd. Are you available, Commissioners, to be able to do that on the 16th?

Go ahead, Commissioner Ampomah.

DR. AMPOMAH: Yeah, Mr. Chair. So do we have a scheduled meeting on the 15th?

THE CHAIRMAN: No. We do have the 15th, do we not? Yeah, we do.

DR. AMPOMAH: Yeah. And our graduation is on that weekend. So that's going to be tough. I

think that is why I proposed that we start on the 19th, but if --

THE CHAIRMAN: It's just that it came up on the 23rd, and there's no way I can get out of it. I apologize. And so I'm trying to accommodate all the parties.

DR. AMPOMAH: So can we use 15 meeting to continue this?

MR. CHANDLER: They may consolidate -- virtual connectivity interruption --

DR. AMPOMAH: Okay.

THE CHAIRMAN: What was that, Mr. Chandler?

DR. AMPOMAH: Okay.

MR. CHANDLER: It is possible the parties may not use that day. So, and I think they're prepared to make some type of explanation to the HEARING EXAMINER. So that -- my recommendation would be to hear from the parties first before we deal with something that may not need to be resolved.

THE CHAIRMAN: Okay. Okay. We can do that. I just wanted to bring it to everyone's attention that Friday, the 23rd, May 23rd, I am not available. And I apologize for the inconvenience, but it's just one of those things. So my apologies for

that. So what we'll do is let's put this on hold for the time being, then.

Mr. Hearing Officer, I transfer everything over to you. And then we can tackle it through the scheduling as Mr. Chandler mentioned.

HEARING EXAMINER HARWOOD: Okay. Thank you Mr. Razatos. So just to remind you, at the end of yesterday, I asked the parties to confer. And the plan was to see if we could agree to timeframes that would bring this to a conclusion by Wednesday, the 21st. That would put two days in the bank including your conflict on the 23rd. So my understanding is -- at least from what I heard in conversation, is that there may be a preliminary matter by the parties.

So you want to start Mr. Wehmeyer?

MR. WEHMEYER: I do. First, for the part of Empire, we thank the commission for your patience and -- and for all the time that's been spent on this important matter. We've conferred at your invitation, and I think it was a very productive conferral. We have not -- I do not know that we have received official confirmation from Mr. Moander, but otherwise understand this is agreed.

What we have done is assumed six witnesses to come and built the time allotment off of

the six witnesses. There would be 2.25 hours allotted per witness to Empire for a total of 13.5 hours on air from here out for Empire. That -- that would be cross-examination or otherwise.

For the part of Goodnight, that would be 1.25 hours per witness for a grand total of 7.5 hours from here out to be spent on air by Goodnight. For the part of other examination, that would be 0.25 hours per witness times six witness, which would be 1.5 hours allotted for other examination.

That would come to a grand total of 22.5 hours, which would achieve this being completed by the Wednesday that we understood the Commission was shooting at yesterday. And that would also leave plenty of time for Commission questions and -- and certainly additional room in there within the time that you'd kind of back of the cocktail napkin estimated if -- if we're finishing by Wednesday.

And then the only other caveat that I understand to it would be for OCD's examination of its own witness. We would have some leeway in there that they would not be held down to the 0.25 for its own witness. And then there would be allowed banking and shifting of time as long as the grand total is observed.

So for example, if -- if Empire uses two hours instead of 2.25 hours in cross-examination today, the 0.25 could -- could be carried over. Or if it goes over, that would have to come out of another one.

But Empire would be locked in at 13.5 hours from here out. Goodnight would be locked in at 7.5 hours from here out. Other examination would be locked in at 1.5 hours from here out with OCD having some flexibility on its time for its own witness. And so if -- we would like to put that on the record and confirm agreement if -- if I'm correct that we do have that agreement.

HEARING EXAMINER HARWOOD: Okay. Well, thank you, guys. By my calculations, that builds in a cushion of about seven and a half extra possible hours, which I'm sure we'll chew through one way or the other. So having that cushion helps.

I have a couple of concerns. I don't want to keep track of people's time. So you guys are going to have to keep track of each other's time and, you know, alert us if that issue comes up.

MR. WEHMEYER: Absolutely.

HEARING EXAMINER HARWOOD: Mr. Razatos, your thoughts on this?

THE CHAIRMAN: Mr. Wehmeyer said that he had concurrence with Goodnight; right? Does Pilot and does OCD agree with that?

HEARING EXAMINER HARWOOD: Yeah, great question.

MR. WEHMEYER: OCD can absolutely work with that. I apologize. Unsurprisingly, my nose has been in the -- in the case, and I haven't looked up a whole lot. I think that should work. It accommodates what's needed, provides play in the joints to -- to take a turn of phrase and should work.

HEARING EXAMINER HARWOOD: Okay. Mr. Beck?

MR. BECK: Yeah, same for Rice. We're on board.

HEARING EXAMINER HARWOOD: Perfect. All right.

Pilot?

MR. SUAZO: Pilot also supports the proposal, Mr. Hearing Officer.

HEARING EXAMINER HARWOOD: All right.

MR. RANKIN: Great.

THE CHAIRMAN: Mr. Hearing Officer, I'm going to -- oh, go ahead, Mr. Rankin.

MR. RANKIN: Yeah, no. I appreciate

just -- just being able to have a word. No. I understood that our argument was based on the understanding that we had until Wednesday and that knowing that we have until Thursday, I understand that does provide us some cushion. There's really only one witness.

And I think both the commission and Empire and the division also have an interest in having sufficient time to examine Mr. McGuire, who will be Goodnight's final witness. And he is the final witness that we will be presenting. If all goes well, he should be the last witness that we present and likely would be when we reconvene in May.

So I just, you know, I believe that given the agreement, we should be able to bank the time that I can put on -- direct. But I just want to make sure that the Commission has enough time to ask all the questions that it wants of Mr. McGuire and with that extra time going into Wednesday, I think that's satisfactory given the time constraints.

HEARING EXAMINER HARWOOD: Okay. Well, Mr. Rankin, Mr. McGuire is still subject to the seven and a half overall amount of time that Goodnight has agreed to.

MR. RANKIN: That's my understanding.

And based on the banking and shifting, I believe that we can accommodate what's needed for us to put him on for direct.

HEARING EXAMINER HARWOOD: All right. Well, I'll leave you guys to, you know, do the internal juggling you need to do to meet your commitments.

THE CHAIRMAN: So I'm going to interject here, Mr. Hearing Officer. Since we're not going to be sitting here with the stopwatch and monitoring all of this, you guys are going to have to be on all with this; right? And you guys are going to have to be monitoring it.

I think the Hearing Examiner has been quite lenient in allowing flexibility and time and the ability to be able to ask questions and re-ask questions and re-ask questions. But I think for the sake of time, and time is money in this instance, we need to be on top of this and on top of our time.

So I'm going to urge all lawyers, all parties, to be absolutely on time with this, to mind your P's and Q's and dot your I's and cross your T's.

And Mr. Hearing Officer, I will also urge you to make sure that we stick on our timeframes as well and making sure that this is as successful as

we possibly can be.

And again, I apologize that I have to throw in the wrench in there, but this Wednesday is the day that we -- and I might have missed that part about Wednesday. I'm glad that we were able to get it to the Wednesday with a cushion through Thursday. I think that's great. So I think if we all can just stick on our timelines, we can be successful with it.

So I am urging all parties, please stick with these timelines. And that also includes us as commissioners as well. We want to make sure that our questions are pointed and are exactly what we are aiming for. And try not to get into the extemporaneous stuff if we don't have to.

So that's my urge to everybody. And I thank everybody for coming to a consensus with this. I think it's much easier than just trying to fight out motions than doing all that. So thank you for taking the time to talk this through.

Mr. Hearing Officer, I transfer it back to you.

HEARING EXAMINER HARWOOD: Thank you, Mr. Razatos.

Mr. Chandler, did you have any thoughts or comments?

MR. CHANDLER: Just as a lawyer that spends time preparing for oral closing, should we just say we're not going to do oral closing?

MR. WEHMEYER: That's a good question. I think given the time, that's worthy of discussion at this point. We are pretty tight, and OCD was one of the more vocal about having oral closings. And OCD is willing to transfer that over to written if there's a consensus.

MR. CHANDLER: You don't have to decide right now. But probably should think about that before we break so someone's not spending hours and then disappointed that they can't get their oral.

MR. WEHMEYER: For the part of Empire, we would feel strongly that we'd be allotted some amount of time for oral closing. We could be ready to do that on Wednesday. If we had to go to Thursday -- we're not asking for Thursday. But I just wanted Empire's position on the record if it pleases the Commission and the commissioners would find it helpful.

Additionally, on those time allotments, I just wanted to be clear. In our work amongst ourselves, looking at the grand total pool of hours between now and the Wednesday, we left many hours into

that for the commissioner's questions because ultimately these are the most important questions in the whole thing. We recognize that.

And so there was plenty of time built in on the other side of that to make sure the commissioners had time to ask theirs.

HEARING EXAMINER HARWOOD: Okay, thank you.

Mr. Rankin?

MR. RANKIN: As far as oral closing, I think, yeah, I think we should revisit as parties. And maybe we can see where we stand as we get towards the end of this week. We're there. And then confer between now and the next session. Let's see. I think that was all I had to say about the oral closing.

I think as we approach the end of this hearing, I think one other thing we just need to think about is scheduling the submission of findings of fact and conclusions of law. I think that would be very helpful for the record and for the Commission to have those. So just at my, just a request to consideration for what timeframe the Commission would like to have those submitted by the parties.

Thirty days from the close of the evidentiary record may be suitable. And that way

minimum time is elapsed between when the hearing is done and when we submit those to the commission.

HEARING EXAMINER HARWOOD: I'd like to have time to discuss that with the chairman and the commission members and Mr. Chandler. And, you know, we can let you know our thoughts on it.

Before we leave the issue of oral closing arguments, Rice, what's your position? Mr. Beck?

MR. BECK: I guess we can be ever the optimist. I'm not as optimistic as anyone else is that we'll have time for actual closings orally by all of the parties given the way this has gone unless we limit that to 30 minutes or an hour, which I don't know is effective. But if we get to that point, I agree with Mr. Rankin. It's something we should target and keep our eye on.

If we get to that point, obviously it would be nice to have oral closings. But, I mean, I think that ultimately the evidence for the commission is the most important part and should be the focus.

HEARING EXAMINER HARWOOD: Thank you, Mr. Beck.

Mr. Suazo for Pilot?

MR. SUAZO: Pilot would only have a

minimal closing statement, so I defer to the other parties in this proceeding.

HEARING EXAMINER HARWOOD: Okay. And I think what I said when this issue first came up is, you know, after the commission discussed the request, the thinking was if you guys allow yourselves enough time for oral closing arguments, you get oral closing arguments. If you don't, you don't. That's just how the cookie crumbles.

So we'll just have to build that into, you know, the good faith timeframes you guys have picked for yourselves and each other. And hopefully it'll leave enough time for what you'd like to do.

All right. Anything further from Empire?

MR. WEHMEYER: Not from Empire other than just with respect to the comment on timing. An hour closing would certainly be sufficient as far as we're concerned, if it pleases the commissioners.

HEARING EXAMINER HARWOOD: Mr. Rankin?

MR. RANKIN: I think that an hour is adequate for any closing.

HEARING EXAMINER HARWOOD: All right. And I'm just assuming the other parties can agree on, you know, splitting up perhaps an hour for between the

three of you. How does that sound to you, Mr. Moander?

MR. MOANDER: I think that should work.

HEARING EXAMINER HARWOOD: All right. Rice?

MR. BECK: Yeah, that, I mean, I think we're on the same page as Pilot, that ours will be brief.

HEARING EXAMINER HARWOOD: Okay. All right, great.

Pilot, just to round out the inquiry.

MR. SUAZO: That's fine with Pilot, Mr. Hearing Officer.

HEARING EXAMINER HARWOOD: All right. So let's see. That brings us to your first witness for today, April the 24th. Is it Mr. Alleman?

MR. RANKIN: Correct, Mr. Hearing Officer. There's one point of order, a housekeeping matter, that I'd like to just revisit this morning that I didn't return to at the end of yesterday's proceeding because we terminated a little early to discuss allocation of time.

But there are two documents that I had originally moved for admission that Empire had objected to and I'd like to re-move for admission of

those documents. One of them, and I'm happy to share them on my screen so that everybody is on the same page with what we're asking for.

The first is this document that was an excerpt of the fracture report from Dr. Lindsay provided by Empire to Goodnight as part of the discovery in the case. Mr. Knights had marked it up. To clarify, the basis for his opinions about the -- his contention that there is a permeability barrier in the intervals that he identified.

Empire had objected to it. And I would move for the admission of that at this point into the evidentiary record.

MR. WEHMEYER: May I reply briefly?

HEARING EXAMINER HARWOOD: Why don't we see both of them and then reply to both of them. I think we're all familiar enough with them, we can cut to the chase.

MR. RANKIN: The second document that I would ask for admission to the record is this one here entitled "Cross-Section Showing Interval Embedded Anhydrites." This is a document that Dr. Davidson put together. It's based on the well logs that we received from Ops Geologic that they provided to us one week before the hearing started.

It was based on their rebuttal testimony that we got on the 6th of February. We weren't able to get the materials or the underlying documents or data from their testimony for another, almost another week. So we didn't have the ability to prepare this in a time for Mr. Davidson's rebuttal or surrebuttal given that we didn't even have two weeks to prepare the surrebuttal as we had asked for.

And so Dr. Davidson prepared this. We provided it to Empire about two weeks in advance of his testimony. This is from the data that was Empire's own witnesses used. And it reflects Dr. Davidson's analysis of anhydrites across the EMSU. He testified to it. He laid the foundation for it, explained what he did, how he did the work.

Mr. Knights relied on it for his testimony to explain what he understood Dr. Davidson's basis for his determination that there are permeability barriers above where he had identified, himself, permeability barriers.

So again, I would remind the commission as well that documents and exhibits, or rather slides, from Dr. Buckwalter's [ph] presentation, for example, were admitted into the evidence that we hadn't seen until the morning of his presentation. And I would

ask that that this be part of the record.

Empire's counsel has made the argument that all evidence that's relevant should be admitted. It goes to the importance of this commission's decision relating to their determination about protection of correlative rights and waste, and evidentiary rules are a guide here. And my argument, Mr. Hearing Officer, is that there's no reasonable basis to exclude this from the evidentiary record.

HEARING EXAMINER HARWOOD: Was this one of the exhibits yesterday that you brought up that was objected to?

MR. RANKIN: Yes.

HEARING EXAMINER HARWOOD: I remember two. I just didn't specifically remember.

MR. RANKIN: This is the second one, Mr. Hearing Officer, the first being the six-page document referring to the core description and data that Mr. Knights relied on. And the second one being this document from Dr. Davidson's slide presentation.

HEARING EXAMINER HARWOOD: Okay. All right. Thank you.

Mr. Wehmeyer, you can make a record.

MR. WEHMEYER: Thank you very much for the opportunity to reply. We maintain our strenuous

objection to admissions of these. I think we should keep in mind the difference between substantive evidence that could come in versus demonstrative aids. They were used as demonstrative aids. That's a different thing than these coming in as brand-new opinions, which we object to.

With respect to the first one, this was a brand-new barrier analysis that was untimely under the scheduling order. We did not have an opportunity as a matter of due process to be able to prepare for it, offer counter testimony to it, be it written or oral. So it's unfair surprise.

Additionally, it's unreliable. If you look at the barrier analysis that Mr. Knights came up with overnight, there's actually 30 to 40 percent oil saturations in his barrier. So if you look at the actual core data, there's 30 and 40 percent oil saturations in the brand-new barrier that we've learned about. It's unreliable, it's untimely, we object on that basis.

Additionally, and again, it's been used as a demonstrative aid. That's fine, that's been done. It's not substantive evidence.

With respect to the second one, this is a brand-new analysis that came in untimely under the

scheduling order. So it's untimely, it's unfair surprise. As a matter of due process, our experts should have had an opportunity to prepare for it.

Additionally, it's unreliable as demonstrated in the core discussion yesterday with Mr. Knights and Dr. Ampomah's questions, there's no anhydrite reflected in the core analysis associated with the barriers that Mr. Knights picked.

And so the idea that now we're going to have an anhydrite brand-new barrier analysis from this paper, not only is it untimely, but it, additionally, is unreliable. Had we had this in a timely fashion, we could have prepared counter written testimony and counter oral testimony.

This will be an unending proceeding if we're going to allow these things in at this late stage. On their best day, they're unreliable demonstratives. They are certainly not substantive evidence. Thank you.

HEARING EXAMINER HARWOOD: Okay. Thank you, Mr. Wehmeyer.

All right. Well, my recollection is, based on the fact that these were overnight surprises, Empire was afforded a second opportunity to conduct cross-examination with the witnesses as to both

documents. So given that fact, I don't think there are any kind of due process constitutional issues here.

And the other thing is, you know, as I've pointed out to the parties, your audience here, the jury here, is a sophisticated consumer of this type of information. So given the fact that it's been exhaustively reviewed by both sides, I think that my ruling's going to be that the objection goes to the weight, not the admissibility of these exhibits.

And you can count on your jury to give it whatever weight it deems appropriate given the big picture view that the commission adopts of the case in its entirety.

So over your noted objection, Mr. Wehmeyer, these exhibits will be admitted. Do they have a number?

MR. RANKIN: Mr. Hearing Officer, the document titled EMSU 679 Vertical Perm Barriers will be marked as Goodnight Exhibit E2. And then the document titled "Cross Section Showing Interval Embedded Anhydrites" will be marked as Exhibit, I believe it's D2, which is associated with Dr. Davidson's testimony.

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(Goodnight Exhibit E2 and Exhibit D2 were marked for identification.)

HEARING EXAMINER HARWOOD: All right. They'll be admitted, and I'll rely on Goodnight to make sure the commission gets enough copies of each.

Are you ready to proceed with your next witness, Mr. Rankin?

MR. RANKIN: Thank you, Mr. Hearing Officer. Let me just make sure Mr. Alleman is on the platform. I see him there. Okay. And let me just make sure I have his presentation handy so I can move to it quickly.

HEARING EXAMINER HARWOOD: Mr. Alleman, while Mr. Rankin is doing that, if you'll raise your right hand, please.

WHEREUPON,

NATHAN ALLEMAN,

called as a witness, and having been first duly sworn by Ripley Harwood to tell the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

HEARING EXAMINER HARWOOD: All right. I haven't asked. It's pretty late. But Madam Court Reporter, I assume we're on the record.

THE REPORTER: Yes, we are on the

record.

HEARING EXAMINER HARWOOD: And we have been since 10:30 this morning?

THE REPORTER: Yes, sir.

HEARING EXAMINER HARWOOD: Okay. Thank you. Thank you for your presence.

DIRECT EXAMINATION

BY MR. RANKIN:

MR. RANKIN: Good morning Mr. Alleman. How are you today?

MR. ALLEMAN: Doing well, thank you.

MR. RANKIN: Will you please state your name for the record?

MR. ALLEMAN: Nathan Alleman.

MR. RANKIN: By whom are you employed? In what capacity?

MR. ALLEMAN: I'm employed by Ace Energy Advisors, and I am the owner and chief regulatory advisor.

MR. RANKIN: And have you previously testified before the Oil Conservation Commission or the division?

MR. ALLEMAN: Yes. I have previously testified before the division

MR. RANKIN: Have your credentials as

an expert in permitting saltwater disposal wells and UIC permitting been accepted and made a matter of record before the division?

MR. ALLEMAN: Yes, they have.

MR. RANKIN: Are you familiar with the applications filed in these consolidated cases by Goodnight Midstream?

MR. ALLEMAN: Yes.

MR. RANKIN: Is your CV attached as Exhibit A1 to your written statement?

(Exhibit A and Exhibits A1 Through A9 were marked for identification.)

MR. ALLEMAN: It is.

MR. RANKIN: Does it provide an overview of your education and work experience in SWD regulations and UIC permitting?

MR. ALLEMAN: Yes, it does.

MR. RANKIN: Does it show that you have permitted more than 200 saltwater disposal wells and more than 150 saltwater disposal wells in New Mexico?

MR. ALLEMAN: Yes, that's correct.

MR. RANKIN: Mr. Hearing Officer, at this time, I would tender Mr. Alleman as an expert witness in permitting of saltwater disposal wells and UIC or underground injection control permitting.

HEARING EXAMINER HARWOOD:

Mr. Wehmeyer?

MS. HARDY: It's me, Mr. Examiner. No objection. Thank you.

HEARING EXAMINER HARWOOD: Okay. Thank you, Ms. Hardy.

Mr. Moander?

MR. MOANDER: No objection. And I believe Counsel just stepped out for Rice, but I can't speak for him. Oh, there he is.

HEARING EXAMINER HARWOOD: There he is. Mr. Beck, any objection to Mr. Alleman being qualified as an expert in permitting of saltwater disposal wells and UIC injection wells?

MR. BECK: Thank you. No. Sorry

HEARING EXAMINER HARWOOD: Pilot?

MR. SUAZO: No objection.

HEARING EXAMINER HARWOOD: It will be so recognized.

(Exhibit A and Exhibits A1 Through A9 admitted into evidence.)

MR. RANKIN: Thank you.

DIRECT EXAMINATION

BY MR. RANKIN:

MR. RANKIN: Mr. Alleman, were you

asked to prepare or oversee the preparation of the C-108 applications for the six SWDs currently pending with the commission in the instant cases?

MR. ALLEMAN: Yes, I was.

MR. RANKIN: Have you prepared written testimony and exhibits that are marked as Exhibit A and Exhibits A1 through A9 that are attached to your testimony?

MR. ALLEMAN: Yes.

MR. RANKIN: Were those exhibits prepared by you or were compiled under your direction and supervision?

MR. ALLEMAN: Yes, they were.

MR. RANKIN: Any corrections or changes to the testimony or exhibits that were filed with the commission?

MR. ALLEMAN: No.

MR. RANKIN: Do you adopt the testimony in your self-affirmed statement marked as Exhibit A as you're sworn testimony today?

MR. ALLEMAN: Yes.

MR. RANKIN: Mr. Hearing Officer, I would move the admission into evidence of Mr. Alleman's direct testimony in Exhibit A and his Exhibits A1 through A9.

HEARING EXAMINER HARWOOD: Empire?

MS. HARDY: No objection.

HEARING EXAMINER HARWOOD: OCD?

MR. MOANDER: No objection.

HEARING EXAMINER HARWOOD: Rice?

MR. BECK: No objection.

HEARING EXAMINER HARWOOD: Pilot?

MR. SUAZO: No objection.

HEARING EXAMINER HARWOOD: Thank you. They'll be admitted.

BY MR. RANKIN:

MR. RANKIN: Mr. Alleman, we're on the clock. So I'm going to ask you to work with me to move through these. But at a high level, Mr. Alleman, will you please give us an overview as you refer to your slide here, summarizing the cases pending before the commission? Give us an overview of what Goodnight is seeking under its six applications now before the commission.

MR. ALLEMAN: Sure. And we will try to keep this brief and -- and timely so we can stick to our schedule here. Currently, Goodnight is requesting authorization for injection for four new saltwater disposal wells, the Doc Gooden, Hernandez, Hodges, and Seaver. And they're seeking a de novo review of the

application for -- for injection authorization for the Piazza SWD number one.

And they are seeking an increase in the permitted injection rate for the Andre Dawson SWD number one.

MR. RANKIN: Now, give us an overview, if you would, at a very high level, of what Goodnight's current existing operations are in and around the EMSU.

MR. ALLEMAN: Yeah. Goodnight's general plan of operations and strategy is to dispose of produced water into the San Andres Formation on the Central Basin Platform. They currently have 12 active injection permits for disposal into the San Andres Formation on the -- on the platform. And those have been approved by OCD between 2018 and 2023.

MR. RANKIN: Are you aware of other permitted SWDs in the San Andres on the Central Basin Platform within about 5 miles of Goodnight's proposed new SWDs?

MR. ALLEMAN: Yes. There -- there have been over 60 injection permits issued for disposal within 5 miles of the EMSU.

MR. RANKIN: At the time Goodnight filed its applications, were there existing commercial

disposal wells within the EMSU targeting the San Andres?

MR. ALLEMAN: Yes, there were.

MR. RANKIN: And are records indicating the presence and activity of all these SWDs that you just referred to publicly available for anyone to review and identify?

MR. ALLEMAN: They are.

MR. RANKIN: Just give us a brief overview, then, of Goodnight's existing operations within the unit.

MR. ALLEMAN: Yeah. So we've got -- there were -- there are four saltwater disposal wells within the EMSU that are in question here. The Andre Dawson SWD number one, the Ernie Banks SWD number one, Ryno SWD number one, and the Sosa. I believe that's actually the -- that might be a correction. The Sosa SA 17 number two.

MR. RANKIN: Okay. Now --

MR. ALLEMAN: -- correct that later.

MR. RANKIN: Okay. Well, we can confirm that if that's the incorrect name. We'll confirm that. Looking at your next slide here, this slide identifies an overview of the six applications currently pending before the commission. Were all

affected parties properly noticed with respect to each of those applications?

MR. ALLEMAN: Yes. They were all sent notices of -- of application.

MR. RANKIN: Were there any objectors other than Empire to those applications?

MR. ALLEMAN: No. None other than Empire.

MR. RANKIN: Was the State Land Office a notified party for each of those six applications?

MR. ALLEMAN: Yes, they were.

MR. RANKIN: And the State Land Office did not object; correct?

MR. ALLEMAN: That's correct.

MR. RANKIN: And how about the four original or existing SWDs that are currently injecting into the EMSU. Did the State Land Office object to those?

MR. ALLEMAN: The State Land Office objected to three of those four.

MR. RANKIN: Which are the three?

MR. ALLEMAN: The Andre Dawson, Ernie Banks, and Sosa.

MR. RANKIN: Notwithstanding the State Land Office's objection, did the division issue orders

approving those wells?

MR. ALLEMAN: They did.

MR. RANKIN: Did the State Land Office appeal to the commission the approval of those applications?

MR. ALLEMAN: No.

MR. RANKIN: Okay. Did the operator of the unit at the time object to those applications?

MR. ALLEMAN: No. They did not.

MR. RANKIN: Now, the next two slides, Mr. Alleman, give us an overview at a high level of the applications that are currently pending before the commission. Just at a very high level without going into details, if you would, just summarize what the information is that's contained in the application for each of these proposed SWDs.

MR. ALLEMAN: Sure. So this slide goes over the main high-level details of the -- five of the current applications, the Doc Gooden, Hernandez, Hodges, Seaver, and Piazza. And this provides their location, requested maximum injection rate, pressure, pool, and -- and such.

And all this information is available in my -- in the exhibits of the direct testimony and within the testimony, itself.

MR. RANKIN: So that's these two pages -- identifies all the affected parties, the location of the well, and necessary details for approval; correct?

MR. ALLEMAN: Yes, that's correct.

MR. RANKIN: Now, the next two slides here, slides 6 and 7, are specific to the Andre Dawson application. Can you explain what's different about this application than the others, and what is it asking for?

MR. ALLEMAN: Yeah. So we split this one out just 'cause it is -- it is a request for -- for an amendment to an existing approved permit. And this application, Goodnight is requesting that the maximum injection rate be increased from 25,000 to 40,000 barrels per day.

MR. RANKIN: And the details about that request are in your testimony. And then also the justification is in Mr. McGuire's testimony; correct?

MR. ALLEMAN: Yes, that's correct.

MR. RANKIN: Okay. Now, the last slide here gives us a summary overview of your testimony and what Goodnight is requesting. If you would, just give us a high-level overview of your request -- rather Goodnight's request, and your testimony.

MR. ALLEMAN: Did this go back to a previous slide?

MR. RANKIN: It may have. Sorry. There we go. Thank you.

MR. ALLEMAN: Yep. Yeah. So just as a -- as a brief summary, Goodnight is seeking authorization for injection for five new disposal wells that were stated in -- in this slide deck. And then seeking approval of a injection rate amendment for the sixth, which was the Andre Dawson.

These applications have been -- I managed the preparation of these applications. And they've been prepared in compliance with OCD regulations and requirements. Have been found to -- the well design and operations are not expected to impair correlative rights. And again, this is the same general form and process that we've used for lots of injection permit applications in New Mexico.

MR. RANKIN: And just for the benefit of the commission, and I think you basically stated this, that your job was to prepare the C-108 applications and manage the materials that are required for submission.

But in this particular case, especially where there's a contest and opposing parties, many of

the evidentiary issues that support the application are being addressed by other witnesses in this case; correct?

MR. ALLEMAN: Yes, that's correct.

MR. RANKIN: Okay. At this time, Mr. Hearing Officer, I have no further questions of Mr. Alleman. And I would make him available for cross-examination.

HEARING EXAMINER HARWOOD: All right, thank you Mr. Rankin.

Ms. Hardy?

MS. HARDY: Yes. Thank you.

CROSS-EXAMINATION

BY MS. HARDY:

MS. HARDY: Good morning, Mr. Alleman.

MR. ALLEMAN: Good morning.

MS. HARDY: I'm Dana Hardy. I don't think we've actually had a chance to meet.

Mr. Rankin, do you want to stop sharing your screen? And then I will share my screen hopefully.

Mr. Alleman, I want to be sure I have an accurate understanding of your role here. So I'd like to pull up your resume. Can you see my screen there?

MR. ALLEMAN: I can.

MS. HARDY: Okay. So you're an environmental and regulatory consultant; correct?

MR. ALLEMAN: That's, yep. That's generally correct.

MS. HARDY: And you have degrees in biology and environmental policy; correct?

MR. ALLEMAN: Correct.

MS. HARDY: So you're not a geologist; correct?

MR. ALLEMAN: Correct.

MS. HARDY: And you're not an engineer?

MR. ALLEMAN: That's correct.

MS. HARDY: Okay. And your resume states that you have performed audits on over 150 SWDs; is that accurate?

MR. ALLEMAN: Yes. That is what that states.

MS. HARDY: Okay. And when you perform an SWD audit, are you trying to determine whether there are any compliance problems with the well?

MR. ALLEMAN: In that description, that is what the -- that -- that's what the audit is referring to. It's kind of a general -- the scope changes from project to project. But generally my

portion of those projects has been reviewing the regulatory compliance aspect of the wells.

MS. HARDY: And when you're performing an audit, you would try to be thorough, I would imagine; is that correct?

MR. ALLEMAN: Yes.

MS. HARDY: Because operators are relying on what you tell them with respect to the well; is that fair?

MR. ALLEMAN: Yeah, that's fair.

MS. HARDY: And when you audit an SWD facility, do you review the agency orders that pertain to the well?

MR. ALLEMAN: Yes. For the saltwater disposal wells, that is something that we would want to take a look at is to make sure that they're properly authorized for injection.

MS. HARDY: And when you're doing that review, do you also look at orders issued by the governing agency that pertain to the injection interval in that area?

MR. ALLEMAN: Could you clarify that question, please?

MS. HARDY: Sure. When you are doing an audit or actually when you are applying for a

permit, do you review agency orders that govern that injection interval in the area where the well is located?

MR. ALLEMAN: So we would review the order, itself. So if there is an existing injection order, we would make sure that it was valid, make sure that the injection formation and depths were consistent with various records.

MS. HARDY: And what about orders that govern the area generally with respect to production and injection?

MR. ALLEMAN: We have -- whenever those -- whenever the data is available, we will -- so we review the injection permits against a lot of different components. So if it's -- if the data is -- or if these orders are known and available, then we would certainly seek those out and make sure that they weren't contradictory.

MS. HARDY: Thank you. And your testimony states that you've permitted over 200 SWDs; is that correct?

MR. ALLEMAN: So here it says "Mr. Alleman has managed the permitting of" -- I guess this on the qualifications "managed the permitting of 500 oil and gas wells, conducted due diligence audits

on over 2000 oil and gas production facilities and over 150 saltwater disposal wells." And then getting to the point, "managed the permitting of over 150 saltwater disposal wells." And I clarify the "managed" -- sorry, I didn't mean to step on your toes there.

MS. HARDY: Oh, no, go ahead.

MR. ALLEMAN: I just want to say I -- I clarify the managed or specifically include the word "managed" straight to your -- directly to your point previously that I'm not a geologist or an engineer.

And so the work is not done solely by me. It's a team of interdisciplinary experts, regulatory specialists, engineers, geologists, and such. But I manage and oversee that work and some of the components do, directly, myself.

MS. HARDY: Okay. And I think during your summary with Mr. Rankin, you stated that you have been involved in permitting over 150 SWDs in New Mexico; is that correct?

MR. ALLEMAN: Yes, that's correct.

MS. HARDY: Okay. Let me just pull up your actual -- oh, this is your testimony. This is your exhibit. Okay. When you do permitting work, that includes planning, site selection, well design,

seismic and geologic reviews, and coordination with regulatory agencies; is that correct?

MR. ALLEMAN: It depends on the specific effort. Some of our clients just need us for certain portions. Other clients -- so, you know, if the operator has their own in-house survey groups or engineers or, you know, well design, they have their own geologists, then they might handle certain portions of the application, themselves.

And in other cases, we might be the ones that handle it. So it's a project-by-project basis.

MS. HARDY: And I think this is clear, but I just want to make sure it's clear on the record. With respect to geology, you're not actually doing a geologic review; is that fair?

MR. ALLEMAN: Me, personally, no.

MS. HARDY: Okay. And in your role as a regulatory consultant, you stay up to date with current SWD regulations and permitting requirements; is that correct?

MR. ALLEMAN: Yes, that's certainly -- certainly the goal. Something we strive for.

MS. HARDY: Okay. And I think you actually state that here in paragraph 3 of your

testimony; is that correct?

MR. ALLEMAN: Can we show that just to confirm, but I believe you are correct.

MS. HARDY: Sure. I think it's that language there.

MR. ALLEMAN: Yep.

MS. HARDY: Okay. Thank you. And when you're advising a client about an injection application, do you think it's important to make sure they're aware of orders that may impact injection in that area?

MR. ALLEMAN: So yeah. We make sure that they're aware of a variety of regulatory and potential operational constraints. And that would -- the orders would fall into that category.

MS. HARDY: And as a regulatory consultant who stays up to date on permitting requirements, you're aware, aren't you, in New Mexico that underground waste includes the locating, spacing, drilling, equipping, operating, or producing of any well or wells in a manner to reduce or tend to reduce the total quantity of crude petroleum oil or natural gas ultimately recovered from the pool; is that correct?

MR. ALLEMAN: Can you -- do you have a

reference for that language?

MS. HARDY: Sure. To share this, I have to stop sharing and then reshare when I change formats. So there, I've pulled up section 70-2-3 of the Oil and Gas Act. And it defines waste, underground waste, there in the language that I've highlighted. And that was what I had read to you earlier. Do you agree that that's correct?

MR. ALLEMAN: I don't remember the exact words that you said earlier, but I do see the definition of underground waste. And it seems to align with what you had said as far as I can remember.

MS. HARDY: And as an environmental and permitting consultant, you're not an expert on residual oil zones, are you?

MR. ALLEMAN: No, I'm not.

MS. HARDY: And let's talk a little bit about your relationship or your work for Goodnight. How many wells have you permitted for Goodnight?

MR. ALLEMAN: I certainly don't have that number in front of me. I would say that there's -- I'm not exactly sure. I would say that we have prepared applications for over a dozen saltwater disposal wells. But I hesitate to try to put a specific number to the number that had been approved

or specific number that had been submitted for review.

MS. HARDY: And I think you stated this earlier, but you submitted the permit applications for each Goodnight well that's at issue in these cases; correct?

MR. ALLEMAN: So in the wells that were included in my summary slides, the direct testimony, yes. I did submit those applications.

MS. HARDY: So those include the new wells that Goodnight is seeking to permit here and the existing wells for which Empire is seeking to revoke permits; correct?

MR. ALLEMAN: Yes. I believe that that is correct as long as those are the wells that were limited to the wells in my slides.

MS. HARDY: Okay. And regarding the existing wells, if those applications went to hearing, you've testified at hearing for Goodnight; is that correct?

MR. ALLEMAN: Yes. I believe so. There's a chance that one or more was done via affidavit, but I can't recall exactly. But I would have testified as a regulatory expert on those.

MS. HARDY: And if they were done by affidavit, you submitted one of the affidavits; is

that correct?

MR. ALLEMAN: Yes. For those wells.

MS. HARDY: Can you recall a time when you ever told Goodnight that you would not submit one of their injection applications that they had asked you to complete?

MR. ALLEMAN: Give me just a second. Our history goes back a little ways. There -- I don't believe there's ever been a situation where we said we will not submit that. We do review locations, and there have been changes to locations, you know, surface hole locations, prior to preparing and then submitting the applications.

MS. HARDY: Okay. But you've never said to Goodnight night, "I don't think -- I'm not going to submit this application for you because I have concerns about whether injection is authorized" or you have some concerns about the application; is that fair?

MR. ALLEMAN: I can certainly say -- I'm not trying to be hard -- difficult here. I just want to make sure. Like, again, there have been situations where we moved the location of -- of a well for various reasons. But I do not recall a time where we said, where Goodnight was trying to, you know,

pressure us to submit an application and we -- where we had to say, "No. We will not submit this application." If that answers your question. Sorry.

MS. HARDY: It does. Thank you. And were any of the wells at issue here, were those locations moved or suggested to be moved? Do you recall?

MR. ALLEMAN: I really don't recall. The moves can be big, small. So there's always the potential that during our initial location evaluations, we move the location of the well just a little bit to avoid some regulatory or operational constraint. But I don't recall if any of these were wells that were moved prior to preparing and submitting the applications.

MS. HARDY: With respect to your review of this case, what exactly were you asked to do by Goodnight?

MR. ALLEMAN: So as a -- as the consultant who managed the preparation and submissions of the applications, my task here was to simply summarize what was being requested by -- by Goodnight, what Goodnight was seeking in each of these applications.

MS. HARDY: And did you speak with

Goodnight's Counsel in preparing your testimony?

MR. ALLEMAN: Yes.

MS. HARDY: About how many times? Do you recall?

MR. ALLEMAN: No. This case has been going on for quite some time. So no. I don't -- I couldn't put -- I wouldn't dare put a number to that.

MS. HARDY: And did you revise your direct testimony based on input from Goodnight?

MR. ALLEMAN: I do not believe my testimony has been revised after it was finalized and submitted as an exhibit. The -- prior to that, we did have drafts and iterations as we, you know, picked the language and made corrections to typos or whatnot.

MS. HARDY: And that's actually what I was asking about. I'm sorry if my question wasn't clear. I meant to ask if you revised your testimony based on Goodnight's input before it was filed in these matters. And it sounds like you did.

MR. ALLEMAN: I, yeah. I couldn't speak to exactly what those revisions were. But just as we noted on -- as I noted on the opening slide, the potential need to change/revise the name of the Sosa SWD, things like that, always come up whenever you have larger documents. So there were bound to be some

iterations.

MS. HARDY: And Mr. Alleman, earlier we discussed the fact that you would stay apprised of OCD requirements and orders within your scope as a regulatory consultant; correct?

MR. ALLEMAN: We discussed, you know, my testimony that says that we would -- that I stay up to date on the SWD regulations and requirements.

MS. HARDY: And orders; correct?

MR. ALLEMAN: There was discussion -- you certainly mentioned the orders. And I believe I mentioned that we would notify or we would let our clients know if we were aware of those. I can't say that I'm aware of every single order the OCD has ever issued.

MS. HARDY: Sure. I'm going to show you order number R7765, which was issued by the commission on November 7, 1984. And are you familiar with this order?

MR. ALLEMAN: Could we go up to the top just to make sure we're not missing any information there? Yes, I'm at least familiar with it.

MS. HARDY: And this is the commission's order approving Gulf Oil's application for statutory unitization of the EMSU; correct?

MR. ALLEMAN: Yes. That's what it looks like.

MS. HARDY: And here in paragraph 2, the order is recognizing that Gulf sought statutory unitization of the EMSU, and it lists the acreage here of 14,189.84 acres in a portion of the Eunice Monument Pool in Lea County; correct?

MR. ALLEMAN: That's correct.

MS. HARDY: And then if we look at paragraph 5 of the order, it states that the unit was approved by the BLM and the State Land Office; correct?

MR. ALLEMAN: Correct.

MS. HARDY: And paragraph 8 of the order talks about the unitized interval and states that the vertical limits of the unit would extend from the top of the Grayburg to the base of the San Andres; is that correct?

MR. ALLEMAN: Yes. That's correct generally.

MS. HARDY: And it doesn't bifurcate the San Andres into an upper and lower San Andres, does it?

MR. ALLEMAN: We at least haven't reviewed anything that said that.

MS. HARDY: Right. This paragraph doesn't state that, does it?

MR. ALLEMAN: That's correct.

MS. HARDY: And then let's look at paragraph 34. And this paragraph states that:

"During said period," which is the period of unitization, "it is expected that the unit operator will develop reservoir data from cores, well logs, test, and production, which might be used to better allocate production to the unit during any period of recovery of secondary and tertiary oil in excess of 64.2 million barrels." Did I read that correctly?

MR. ALLEMAN: Yes. I believe so.

MS. HARDY: And so this order approved the EMSU including the unitized interval; correct?

MR. ALLEMAN: Sorry. Can you restate that?

MS. HARDY: Sure. This order approves the statutory unitization of the EMSU including the unitized interval; correct?

MR. ALLEMAN: Yes. I believe so.

MS. HARDY: And this order is publicly available on OCD'S website, isn't it?

MR. ALLEMAN: I believe it is.

MS. HARDY: And it was available at the time you submitted Goodnight's injection applications for the wells at issue in these cases, wasn't it?

MR. ALLEMAN: Again, I don't specifically recall it being publicly available, but I -- I would expect that it was.

MS. HARDY: And let's look at order R7767. Have you seen this order before?

MR. ALLEMAN: Okay. Yes, yes. I have -- I have seen that.

MS. HARDY: Okay. And this is a commission order that was issued on November 7, 1984, on Gulf's application for pool extension and contraction in Lea County; correct?

MR. ALLEMAN: Yes. That's what it says.

MS. HARDY: Okay. And if we look at paragraph 3 here, it states that Gulf, which was the applicant, sought to extend the vertical limits of the Eunice Monument pool to include either the top of the Grayburg or to a subsea datum of minus 100 feet, whichever is higher.

And the concomitant amendment of the vertical limits of the Eumont gas pool by contracting its lower limits to either the base of the Queen or

subsea minus 100 feet, whichever is higher; is that correct?

MR. ALLEMAN: Yeah. Paraphrasing. That's generally what that says.

MS. HARDY: And in paragraph 4, the order states "The proposed amendment of the pool vertical limits is necessary to permit the applicant to successfully carry out secondary recovery operations within the full oil column underlining the unit"; correct?

MR. ALLEMAN: That's correct.

MS. HARDY: And this order is publicly available on OCD's website; right?

MR. ALLEMAN: I expect that it is.

MS. HARDY: And it was available at the time you submitted Goodnight's injection applications for the wells at issue in these cases, wasn't it?

MR. ALLEMAN: I -- I would expect so.

MS. HARDY: Okay. I'm going to show you another order, which is R7767A. Do you recall seeing this order previously?

MR. ALLEMAN: Yes.

MS. HARDY: Okay. And this is an order issued on August 22, 1990, on Chevron's application for pool extension and contraction; correct?

MR. ALLEMAN: Yes.

MS. HARDY: And let me get to ordering paragraph 2. In this paragraph, and I'll paraphrase here so I don't have to read it all, but it states that the vertical limits of the Eunice Monument; Grayburg-San Andres pool were amended to be from 100 feet below sea level or the top of the Grayburg, whichever is higher, to a lower limit at the base of the San Andres Formation. And then it provides the geologic markers; is that correct?

MR. ALLEMAN: Yes, that's correct.

MS. HARDY: And this order is publicly available on OCD's website, isn't it?

MR. ALLEMAN: I expect so.

MS. HARDY: And it was available at the time you submitted Goodnight's injection applications for the wells involved in these cases; correct?

MR. ALLEMAN: I would expect so.

MS. HARDY: And Goodnight's existing wells that are at issue in these cases inject into the San Andres Formation; right?

MR. ALLEMAN: The pool is the SWD; San Andres.

MS. HARDY: And we'll get to that in a minute. But the applications actually state that they

are injecting into the San Andres Formation, don't they?

MR. ALLEMAN: Yes. It lists the formation as San Andres and then follows up with the pool information.

MS. HARDY: And that's true of the existing wells also that Empire seeks to revoke authorization to inject on; correct?

MR. ALLEMAN: That's correct.

MS. HARDY: And the San Andres Formation is included in the EMSU unitized interval; right?

MR. ALLEMAN: Yes, it is.

MS. HARDY: And of the wells you've permitted, all of the SWDs you've permitted, do you know how many inject into another operator's unitized interval?

MR. ALLEMAN: I -- I don't specifically know a number right off the top of my head.

MS. HARDY: And -- oh, sorry.

MR. ALLEMAN: I was just going to say I don't know of others that I have personally managed the permitting on that do that.

MS. HARDY: And is that something that you would investigate when you're submitting an

injection application?

MR. ALLEMAN: The unit agreement boundaries is something that we do review.

MS. HARDY: And did you review that information in these cases before submitting the applications?

MR. ALLEMAN: Yes, we knew that these -- the applications that -- I guess I'll say that we knew where they were respective to the boundaries of the -- of the EMSU.

MS. HARDY: And you knew that the wells would inject into the unitized interval?

MR. ALLEMAN: Yes. As the San Andres included per the unit agreement.

MS. HARDY: Okay. Let's look at some of the hearing exhibits for the existing wells. And these are the wells that, here, that Empire is seeking to revoke the permits on. I'm going to show you the hearing exhibits from case number 21569, which was for the Andre Dawson well. And these are from the January 21, 2021, hearing. Do you recall testifying at hearing or submitting an affidavit in support of this application?

MR. ALLEMAN: Yes.

MS. HARDY: And I will scroll down here

to the application. And you had submitted this on Goodnight's behalf; correct?

MR. ALLEMAN: That's correct.

MS. HARDY: And when we look at -- this is the checklist for the application. I will scroll down here to look at item 3B. And item 3B requires you to identify the name of the injection formation and, if applicable, the field or pool name; correct? I can scroll up, actually, to --

MR. ALLEMAN: Yeah. If we can go up to the C-108 portion, that would be great.

MS. HARDY: There. There's 3B.

MR. ALLEMAN: Yes, that's correct.

MS. HARDY: Correct. Okay. Okay. And then let's go down, and I will show you what the application said. And this was the part that Goodnight completed or that was completed on behalf of Goodnight; correct?

MR. ALLEMAN: The entirety of the application was completed on behalf of Goodnight. But the geology picks, themselves, and characteristics were provided by Goodnight.

MS. HARDY: And so here, the injection formation name is identified as San Andres. And then you've got the pool name SWD San Andres and the pool

code 96121; correct?

MR. ALLEMAN: Correct.

MS. HARDY: Okay. And the application -- well, let me ask this first. The application does not identify anywhere within it that the well was within the boundaries of the EMSU; correct?

MR. ALLEMAN: It -- it does. It -- it doesn't say that specific phrase, but the -- in the unit agreement as we scrolled through, it had the legal locations included in the EMSU. And our application and the unit agreement also includes the unitized intervals and the formations.

And this application, if you'll scroll up to the top of the -- of this page, I believe. Yeah. In number 3A(1), we have the footage calls and legal location. And then as you pointed out previously, scrolling down just a little bit, we do have the -- we have the formation, itself. And so we -- it gives all the information that would identify as -- identify it as being within the EMSU.

MS. HARDY: It doesn't say anything about the EMSU, though, does it?

MR. ALLEMAN: Nor is it required to.

MS. HARDY: Well, I understand it's

your opinion that it's not required to. But just to be clear, it doesn't say anything about the EMSU, does it?

MR. ALLEMAN: Like, yes. Just to get to that point. It does not specifically say those words.

MS. HARDY: Okay.

MR. ALLEMAN: That it was within the EMSU.

MS. HARDY: And unfortunately my screen just rebelled, so let me get back. Sorry about the technical.

MR. ALLEMAN: -- pretty good, but there are limits.

MS. HARDY: Not sure what happened there. That looks better. Okay. And I want to look at the -- you look at the area of review maps when you're completing an application; correct?

MR. ALLEMAN: Yes, that's correct.

MS. HARDY: Okay. And here are the maps for the Andre Dawson application. And I'm really looking at pages, go to 19 through 2021. These are the land maps, the minerals. You don't anywhere identify the EMSU; correct? There's no outline of it shown on these maps.

MR. ALLEMAN: Correct. There's no outline of it.

MS. HARDY: Well, let's go back up to the pool here. So with respect to the pool that's included in the application, there are actually two pools within this area; isn't that correct? Based on the orders that we looked at, order R7767?

MR. ALLEMAN: As the -- I would have to take a look at all of the -- every well in that area before I could say that for certain.

MS. HARDY: Your R7767 extended the vertical limits of the Eunice Monument pool; correct?

MR. ALLEMAN: Where does it say that? Okay, I see it there, EMSUs.

MS. HARDY: Okay. And that pool also exists in this area where the Andre Dawson well was permitted; correct?

MR. ALLEMAN: Yes. That is correct.

MS. HARDY: Okay. But the application doesn't identify that pool, does it?

MR. ALLEMAN: No. It does not identify that specific pool because it's not applicable to the -- to this saltwater disposal well at that location.

MS. HARDY: And I understand your

opinion that it's not applicable, but that pool does exist in the same area; correct?

MR. ALLEMAN: The Eunice Monument -- the -- yeah, the Eunice Monument pool?

MS. HARDY: Yes.

MR. ALLEMAN: Yes. That is present in the same area.

MS. HARDY: If we look here, and I'm looking at Roman numeral 8 of the application. Actually, it's 7, "Proposed Operation," and subparagraph 5 here states that "The proposed SWD will be injecting water into the San Andres Formation, which is a non-productive zone known to be compatible with formation water from the Bone Spring, Delaware, and Wolfcamp"; correct?

MR. ALLEMAN: Yes. That's what that says.

MS. HARDY: And did you perform any independent evaluation to determine whether that statement was correct?

MR. ALLEMAN: I did not personally, no.

MS. HARDY: Were you relying on information from Goodnight?

MR. ALLEMAN: Yes. That would have been out of my purview. So we would have relied on

Goodnight's experience in the area for that.

MS. HARDY: And are you aware that there are water chemistry differences between the Bone Spring, Delaware, and Wolfcamp-produced water and the San Andres water?

MR. ALLEMAN: Yes, I am.

MS. HARDY: Let's talk about notice for a minute, because I think your summary slides talked about how notice was provided to the parties of these SWD applications. And I saw in your testimony or your summary, actually, that I think you stated that there were green card receipts for the injection applications; is that correct?

MR. ALLEMAN: Yes.

MS. HARDY: Okay. Okay. And so this is the notice information that was included in the C-108 for the Andre Dawson, does that look correct to you? That this is the notice information for this well?

MR. ALLEMAN: Yes, it does.

MS. HARDY: Okay. And I'm looking here, this is page 34 of the hearing exhibits, which is a notice list. And then I will scroll down. And these are the certified mail white cards; correct?

MR. ALLEMAN: We call them the green

sheets, but they are the certificates of mailing for certified mail.

MS. HARDY: And these are what you would obtain when you are sending out the notices; correct?

MR. ALLEMAN: Yes, that's correct.

MS. HARDY: Okay. And I see this one is here for XTO on page 35 of the PDF; correct?

MR. ALLEMAN: Correct.

MS. HARDY: And there's actually no proof of receipt, is there?

MR. ALLEMAN: That's correct.

MS. HARDY: This shows you sent -- okay. This shows you sent it to XTO, but it doesn't show that it was received; does it?

MR. ALLEMAN: That's correct.

MS. HARDY: And I don't see anywhere in the exhibits that there's proof of receipt by XTO; is that correct?

MR. ALLEMAN: Yes. I believe that's correct.

MS. HARDY: Okay. And then I'm going to look at the hearing notice information as well. So again, you submitted an affidavit, in this case a hearing. And the hearing notice information starts

here on page 91 of the hearing exhibits. Have you seen this before when you were submitting testimony in support of the Andre Dawson?

MR. ALLEMAN: Yes.

MS. HARDY: Okay. And the only party that was notified of the hearing application was the New Mexico State Land Office; is that correct?

MR. ALLEMAN: That looks like that was correct.

MS. HARDY: So notice of the hearing was not sent to XTO or any of the other interest owners of the hearing; right?

MR. ALLEMAN: Interest owners of the hearing? Can you clarify that, please?

MS. HARDY: Interest owners who were notified -- well, to whom notice was sent of the administrative application were not notified of the hearing; correct?

MR. ALLEMAN: Based on that document, it doesn't look like it. But I'm also not familiar with the legal side of the hearing notification requirements.

MS. HARDY: Okay. And are you aware that the division's rule on affected parties that it requires notice to the operator as shown in division

records of a well on the tract or if the tract is included in a division-approved or federal unit, the designated unit operator? Are you aware of that requirement in the OCD's regulations?

MR. ALLEMAN: Yeah. Again, for the administrative application, I'm familiar with those requirements. I just have to plead ignorance on the hearing applications.

MS. HARDY: Okay. And are you aware of anything in OCD's regulations that alters the requirement for hearing applications?

MR. ALLEMAN: I'm not specifically aware of that. No.

MS. HARDY: Okay. With respect to the Andre Dawson, are you aware that there was also an issue with the water samples that Goodnight had submitted?

MR. ALLEMAN: Can you clarify what the issue was?

MS. HARDY: Well, I'm pulling up a letter here regarding the Andre Dawson, and this part of it was sent by OCD to Mr. Rankin. But there's a letter lower down that I will get to that was submitted by Goodnight on June 13, 2023. Were you aware of this correspondence?

MR. ALLEMAN: I'm generally aware of it, but I would -- I don't know that -- I'll answer questions as best I can. But I wasn't directly involved in those -- in that -- the preparation of that correspondence.

MS. HARDY: Okay. And I pulled up page 2 here. And what I've highlighted states that "Goodnight acknowledged its failure to confirm before commencing injection, that sampling notifications and its admissions to the division were timely and proper." Is that what this says?

MR. ALLEMAN: Yes, that's what that says. Okay.

MS. HARDY: Let's look at the hearing exhibits for the Ernie Banks well, and this was case 21570. That was heard on January 21st of 2021. And you submitted testimony in this case as well; correct?

MR. ALLEMAN: That's correct.

MS. HARDY: Okay. And this was another one where you signed the application that was submitted -- have a Goodnight's; right.

MR. ALLEMAN: Correct.

MS. HARDY: Okay. Okay. And then I want to look here again at paragraph subsection 3B of the C-108. And again, this, just like the other

application, refers only to the SWD San Andres pool; right?

MR. ALLEMAN: That's correct.

MS. HARDY: Okay. And like the prior application, this one does not include identification of the EMSU anywhere in it; does it?

MR. ALLEMAN: Similarly, we -- it clearly states the legal location of the -- the SWD and the injection, interval depths, and the formation. But to get to the next question, no. It does not specifically outline the EMSU boundary or state that it's within the EMSU.

MS. HARDY: And again, this one states that -- and I'm looking at paragraph 75, again that there were no water compatibility issues and that it would inject water from the Wolfcamp and Bone Springs into the San Andres; correct?

MR. ALLEMAN: This says Delaware, Wolfcamp, and Bone Springs.

MS. HARDY: Right.

MR. ALLEMAN: That's correct.

MS. HARDY: And like the other -- thank you. Sorry. Like the other application, was this information you obtained from Goodnight?

MR. ALLEMAN: Yes.

MS. HARDY: And let me get to the area of review maps here. And like the prior application, these maps don't identify anywhere the outline of the EMSU; correct?

MR. ALLEMAN: We haven't gone through all the maps yet, but yes. That's going to be correct.

MS. HARDY: Okay. And let's look at the notice information for this case as well. Again, here's the list on page 34 of the PDF of the parties who were sent notice of the application. Is that accurate?

MR. ALLEMAN: Yes. It looks to be.

MS. HARDY: Okay. And that includes XTO; right?

MR. ALLEMAN: Correct.

MS. HARDY: And there is a notice that mail was transmitted, but there's no certified receipt in this file, either, is there?

MR. ALLEMAN: That's correct.

MS. HARDY: And then when you look at the hearing notice information, again -- and I'm looking at pages 89 through 91 of the hearing exhibits that were submitted for Goodnight, only the State Land Office was notified of this hearing as well; correct?

MR. ALLEMAN: Yes. Based on that document, that appears to be correct.

MS. HARDY: And let's look at the Ryno SWD application. And this one was approved administratively; right?

MR. ALLEMAN: Yes.

MS. HARDY: Okay. And like the other applications, this one does not identify -- it doesn't talk about the EMSU, and it does not provide an outline of the EMSU anywhere within it; is that correct?

MR. ALLEMAN: Yeah. Similar answer applies that the location and formation was provided that would allow somebody to easily locate it. But the boundary or statement that is within the EMSU is not included.

MS. HARDY: Okay. And this one also only identifies the one pool; right? The SWD pool?

MR. ALLEMAN: Correct.

MS. HARDY: And the notice information on this one, like the others, does not include any certified mail receipts; is that correct? I can scroll to it if you'd like to see it.

MR. ALLEMAN: You might as well.

MS. HARDY: Pages 29, 30, 31 of those

exhibits do not include certified receipts; correct?

MR. ALLEMAN: That's correct. They just include the certificates of mailing.

MS. HARDY: Okay. And let's look at the Sosa hearing exhibits. And this is case number 20721, which was heard by the division on September 19, 2019; correct?

MR. ALLEMAN: Yes.

MS. HARDY: Okay. And this is one that you also signed and submitted on behalf of Goodnight; right?

MR. ALLEMAN: For the administrative application?

MS. HARDY: Yes.

MR. ALLEMAN: Yes.

MS. HARDY: Okay. And like the others, this one does not include identification of the EMSU anywhere within it; right?

MR. ALLEMAN: Can we copy and paste answers to move this along?

MS. HARDY: What? Can we copy and paste answers?

MR. ALLEMAN: So again, the location and formation are readily available and easily identified and stated. But the boundary of the EMSU

and the statement that is within the EMSU is not included.

MS. HARDY: Okay. And this one also only identifies one pool, the SWD pool; right?

MR. ALLEMAN: That is correct.

MS. HARDY: Okay. And again, once we go to the notice information on pages 29 through 31 of the PDF, and this was for the administrative application, there are no certified mail receipts showing that notice was actually received; correct?

MR. ALLEMAN: Yes. I expect that will be correct.

MS. HARDY: Okay. And then when you look at the hearing notice information again -- oh, sorry, this was just an administrative application; right?

MR. ALLEMAN: Right.

MS. HARDY: For Sosa, was that noticed hearing?

MR. ALLEMAN: So it was the Ryno that was the administrative that I think we just, we went through last.

MS. HARDY: Yes. So Sosa went to hearing. The administrative application does not include any certified receipts showing notice was

received; right?

MR. ALLEMAN: Not -- not that I'm seeing.

MS. HARDY: Okay. And then with respect to the hearing application for the Sosa, again, notice was only sent to the State Land Office; right?

MR. ALLEMAN: Yes. That appears to be the case from that document.

MS. HARDY: Okay. Okay.

MR. ALLEMAN: Hold on. Can we go back just a second?

MS. HARDY: Sure. Where?

MR. ALLEMAN: Just stay right there.

MS. HARDY: Okay.

MR. ALLEMAN: I'll orient you. You -- I think you just asked or mentioned that there was no statement that it was -- that the hearing notice was received?

MS. HARDY: Well, actually, I think the hearing notice was only sent to the State Land Office; correct?

MR. ALLEMAN: Correct. I just wanted to make sure that I -- I'm not trying to call you out on something. I'm trying to make sure that I answered

correctly. I thought you had asked for the hearing notice, was there any statement or confirmation that it was received. But as you were scrolling, I just see there that it says "Your item was delivered." But yes. You're correct that it only shows as being sent to the State Land Office.

MS. HARDY: Right. Okay. So there is confirmation it was delivered to the State Land Office, but it wasn't sent to anyone else; right?

MR. ALLEMAN: Yes. That seems to be the case from that document. Yes.

MS. HARDY: Okay. I request that the commission take administrative notice of Goodnight's hearing exhibits in case numbers 21569, 21570, and 20721 and Goodnight's administrative application for the Ryno SWD. Those are all public records maintained by the division.

HEARING EXAMINER HARWOOD: Objection Mr. Rankin?

MR. RANKIN: Zero objection.

HEARING EXAMINER HARWOOD: OCD?

MR. MOANDER: [Unintelligible response.]

HEARING EXAMINER HARWOOD: Rice?

MR. MOANDER: Well, listen. I'm still

a little confused about the relevance of this. I'm trying to see where it's going and giving some leeway. So I'd object on relevance because I'm pretty sure we're here about ROs or a lack thereof and then OCD's concerns about injection, not the underlying hearing.

HEARING EXAMINER HARWOOD: Okay. Objection noted.

SHEILA APODACA: Rice?

MR. BECK: No objection.

HEARING EXAMINER HARWOOD: Pilot?

MR. SUAZO: No objection.

HEARING EXAMINER HARWOOD: All right, Ms. Hardy, you want to respond to OCD's objection, and then we'll break for lunch?

MS. HARDY: Sure. It's absolutely relevant. These are permits that Empire is seeking to revoke. And Goodnight has taken the position throughout the hearing that XTO had notice of the applications. And Mr. Alleman has testified that they were properly issued and met all of OCD's requirements. So they're absolutely relevant.

HEARING EXAMINER HARWOOD: Okay. Well, we have a broad standard for relevance here. And since they're part of OCD's records, they'll be admitted. The objection goes to wait, not

admissibility.

(Goodnight's Hearing Exhibits in Case Numbers 21569, 21570, and 20721 and Goodnight's Administrative Application for Ryno SWD were admitted into evidence.)

MS. APODACA: So, Mr. Chairman, what's your pleasure for the length of our lunch break? When would you like us to come back?

THE CHAIRMAN: We've been consistent. Let's go to 1:15. It is twelve o'clock right now, so that gives us an hour and 15.

HEARING EXAMINER HARWOOD: All right. All right. Thank you, everybody. We'll see you at 1:15.

THE CHAIRMAN: Thank you, everyone.

(Off the record.)

THE CHAIRMAN: What's up from the back of the room, Madam Court Reporter? Are you back with us?

THE REPORTER: I'm here.

THE CHAIRMAN: All right. Let's see. It looks like we're still waiting for Mr. Rankin.

Are you ready to proceed, Mr. Rankin?

MR. RANKIN: Yes.

THE CHAIRMAN: Let's see. We had a witness. Now he's off screen. There you are. Okay.

Mr. Alleman, I'll just remind you you're under oath.

Are you ready, Ms. Hardy?

BY MS. HARDY:

MS. HARDY: Yes. Thank you.

THE CHAIRMAN: All right.

MS. HARDY: Okay. Let me go back to sharing my screen here. Okay, Mr. Alleman, with respect to the notices that were sent to XTO, there are a couple of different addresses, and I wanted to ask you about that. Here, we're looking at the Andre Dawson, and that was sent to an address on West Illinois Avenue in Midland.

And then when you look at, say, the Sosa notices, those were sent to 200 North Lorraine Street for XTO. Do you know why there are different addresses used for XTO?

MR. ALLEMAN: Can we take a look so I see the -- we're on the Sosa right now. That was 2019. Can we -- could you go back to the Andre Dawson one, please?

MS. HARDY: Can you see that? Yeah.

MR. ALLEMAN: Yeah. So we try to use

the best available address. And the first thing that we check on that is the addresses listed on OCD's data for the -- yeah, for that company. And if there -- are numerous addresses listed for XTO, and they've changed over time.

So I don't know the exact reason why from one year to the next why that address was changed on the notices. But they were both from OCD's data. Yeah, OCD-listed addresses.

MS. HARDY: Okay. And with respect to the wells that are located within the area of review for these applications, let me see if I can get to those. And I don't know if it's shown on there or not. But what I wanted to ask you about is Goodnight's testimony during this case has been that there was an SWD existing in the unit or in the unit acreage prior to approval of the unit. Have you heard that testimony?

MR. ALLEMAN: Yes, I have.

MS. HARDY: And do you know what well that was? Can you identify it?

MR. ALLEMAN: I believe there was a -- I don't recall exactly which well it was. But I believe Rice had a well in the unit.

MS. HARDY: Okay. So you believe

that's a Rice well?

MR. ALLEMAN: That's my understanding. But that -- I don't have that document in front of me to confirm the name, API number, or operator.

MS. HARDY: Okay. And do you recall where generally in the unit that well was located?

MR. ALLEMAN: I -- I couldn't say right now.

MS. HARDY: Okay. Okay. Let's talk for a minute about the new applications of Goodnight for which approval is requested in this case. And I just want to be clear. So there are applications now for new wells that include the Doc Gooden, the Hernandez, the Hodges, the Seaver. And then there's the Piazza well that's on de novo hearing and then the Andre Dawson injection increase request; correct?

MR. ALLEMAN: That's correct.

MS. HARDY: Okay. And you prepared all of those applications for Goodnight; correct?

MR. ALLEMAN: Yeah. I -- I managed the preparation of those applications. Yes.

MS. HARDY: Okay. And all of them are attached to your direct testimony; correct?

MR. ALLEMAN: Yes.

MS. HARDY: Okay. And you testified

earlier during your summary that Empire was the only party that objected to those applications; is that correct?

MR. ALLEMAN: Yes, that's correct.

MS. HARDY: And the applications don't propose to inject into any other operator's unitized interval, do they?

MR. ALLEMAN: No, they don't.

MS. HARDY: Okay. And we can go through all of the applications, but in the interest of time, I'd rather not do that.

But is it correct that, as with the prior applications that we went through, none of the applications that are attached to your direct testimony for the proposed new wells and injection increase include an identification anywhere that the wells would inject into the EMSU unitized interval?

MR. ALLEMAN: I appreciate the efficiency and will try to follow suit there. We would have followed the same general permitting practices on the more -- the most recent applications as we did on the previous ones that we went through application by application.

Where the legal location of the SWD is clearly stated, the injection interval is clearly

stated in terms of the depths and the formation and the proposed pool code.

MS. HARDY: Okay. And so they only -- oh, sorry.

MR. ALLEMAN: Sorry. I was going to try to just get to your next question. So to -- but yes. They do not specifically state that they are within the EMSU or include the boundary of the EMSU.

MS. HARDY: And they only identified the SWD pool; correct?

MR. ALLEMAN: Well, in terms of identified, we proposed that the pool code would be the -- yes, the SWD San Andres Pool code.

MS. HARDY: Right. Okay. And regarding the Piazza well, let me just get to that order. Okay. And this is division order R22869A, which is attached to your testimony as Exhibit A3. And this is the order that addressed Goodnight's application for the Piazza well; right?

MR. ALLEMAN: Yes.

MS. HARDY: Okay. And if we look at paragraph 11 of the order, and it's actually ordering paragraph 11, so let me just get there. Your testimony attachments are pretty long, Mr. Alleman, so don't want to miss it. Okay. So paragraph 11 that

I've highlighted here.

States that "Empire has provided sufficient evidence for continued assessment of the unitized interval for potential recovery of any additional hydrocarbon resources remaining in place." Is that what that paragraph says?

MR. ALLEMAN: Yes.

MS. HARDY: And then it goes on to state approval of the proposed well would contradict the responsibility of the OCD:

"To prevent the drowning by water of any stratum or part thereof capable of producing oil or gas or both oil and gas in paying quantities and to prevent the premature and irregular encroachment of water or any other kind of water encroachment that reduces or tends to reduce the total ultimate recovery of crude petroleum oil or gas or both oil and gas from any pool."

Did I read that correctly?

MR. ALLEMAN: Word for word. Yes.

MS. HARDY: Okay. And so based on that determination, the division denied Goodnight's application for authorization to inject into the Piazza well; correct?

MR. ALLEMAN: Yes. Based on that

finding that there was sufficient evidence for continued assessment. They -- yes. That was the -- that was the finding that they were kind of leaning on to deny that application. To give the additional time for assessment.

MS. HARDY: Okay. Well, actually, they just denied the application; right? I mean, that's the outcome of the order?

MR. ALLEMAN: Yeah. Two and a half years ago, they did deny it to give additional time for assessment.

MS. HARDY: Okay. And let's talk for a minute about surface use. And when you submit an application for authorization to inject, do you review surface use agreements for the wells?

MR. ALLEMAN: So that -- the standard question. That depends. It's going to depend on whether the surface is owned by -- is fee ownership, state ownership, or federal ownership. And we will review that and discuss that with the -- with our clients and kind of what that means.

'Cause each one has different permitting implications. In the case where there is a -- if it's fee ownership, meaning private, we don't specifically ask to see or review the -- a surface use

agreement.

MS. HARDY: And why not? Why is it different if it's fee?

MR. ALLEMAN: So the purpose of us providing additional guidance for the state or federal ownership -- I apologize as I -- I'm trying to think through this answer here.

The -- if it's, again, if it's state or federal ownership, there are different permitting requirements, either having to get easements or right-of-ways through -- through the State Land Office or right-of-ways or APDs or drill permits from the Bureau of Land Management.

If it's fee, then the -- both the injection permit and the drill permit will be submitted to and approved by OCD. So that's really the limit of the guidance or input that we have regarding surface ownership.

MS. HARDY: Have you reviewed the surface use agreements for each location where Goodnight proposes its wells here or currently operates its wells?

MR. ALLEMAN: I can't recall ever specifically seeing the surface use agreements.

MS. HARDY: Did Goodnight represent to

you that it has or had valid surface use agreements for the locations of these wells?

MR. ALLEMAN: I can't point to a specific conversation where they specifically stated that they that. It might have come up, but I don't recall them specifically making that statement.

We -- whenever we start off the applications, we will start by asking them, asking our client -- not just Goodnight, anybody, what surface ownership they're looking to permit on.

In this case, Goodnight had pretty specific, you know -- they did their own geology as we discussed and had pretty specific locations in mind. And we mapped those and noticed that they were on, for the most part, on fee owner, fee surface. And all of the ones that are at issue in this hearing were on fee surface.

MS. HARDY: And it sounds like you didn't do anything to independently investigate Goodnight's surface use agreements for the locations of these wells; is that correct?

MR. ALLEMAN: Correct. We didn't do anything to, yeah. On the surface use agreements themselves, that's not our, usually within our purview to review the agreements themselves.

MS. HARDY: And so you don't know how many acres they cover; correct?

MR. ALLEMAN: No. I do not specifically know, off the top of my head anyways.

MS. HARDY: And you haven't done any evaluation to determine whether Goodnight's injection fluid has migrated beyond the acreage allotted by the service use agreements; have you?

MR. ALLEMAN: Having not known what the boundaries of the surface use agreement were, I'd have to say no. We haven't made that evaluation.

MS. HARDY: And you haven't made any evaluation whether Goodnight's injection fluid will migrate beyond the acreage allotted by the surface use agreements or how quickly that will occur; correct?

MR. RANKIN: Mr. Hearing Officer, I'll object to this line of questioning. It's getting into subsurface trespass pore space issues, which is outside the jurisdiction or authorization of the commission and is irrelevant to the scope of the hearing.

HEARING EXAMINER HARWOOD: What is the relevance?

MS. HARDY: Mr. Examiner, I think it's relevant because Mr. Alleman has represented that the

applications meet the requirements for approval, which would imply that they have a legal right to be on the land in the first place. I don't have many more questions on this topic anyway.

MR. RANKIN: Ms. Hardy has indicated she understands that there is a service use agreement authorizing them to be on the location. And that is the extent of what is necessary.

HEARING EXAMINER HARWOOD: Yeah, I'm going to sustain the objection.

BY MS. HARDY:

MS. HARDY: Okay. Mr. Alleman, other than these Goodnight wells that you've submitted applications for or that have already been approved by the division, have you ever, to your knowledge, permitted a well or obtained a permit for an SWD that injects into an operator's unitized interval?

MR. ALLEMAN: No. We have -- to my knowledge, I have not personally managed the permitting of any such SWDs that injected into another operator's unitized interval.

MS. HARDY: Thank you. Those are all of my questions. I appreciate your time.

MR. ALLEMAN: Thank you.

HEARING EXAMINER HARWOOD: Thank you,

Ms. Hardy.

OCD, cross-examination of Mr. Alleman?

MR. MOANDER: No questions for this witness, Mr. Hearing Officer.

HEARING EXAMINER HARWOOD: Rice Operating, Mr. Beck?

MR. BECK: No questions.

HEARING EXAMINER HARWOOD: Pilot, Mr. Suazo?

MR. SUAZO: No questions.

HEARING EXAMINER HARWOOD: All right. Then we're to the commission. Mr. Razatos, let me start with you.

THE CHAIRMAN: No questions for me. Thank you.

HEARING EXAMINER HARWOOD: All right.

So Mr. Lamkin?

CROSS-EXAMINATION

BY MR. LAMKIN:

MR. LAMKIN: Good afternoon, Mr. Alleman. Thank you for your testimony. Do you know what would constitute a water incompatibility, if there's a threshold for that?

MR. ALLEMAN: So the water compatibility is outside of my purview as -- in terms

of what I would address. I'm not an expert in water compatibility. So I wouldn't be the one to answer that specific question.

MR. LAMKIN: Can you remind me why the original Devonian interval was abandoned in the Ryno SWD?

MR. ALLEMAN: If it so pleases the commission, I'd prefer to pass that to -- to defer to Mr. McGuire on that. I think he would have better, more accurate input. 'Cause I was not associated with Goodnight during the Devonian portion of that. We just were asked to do the re-permitting.

MR. LAMKIN: Okay. Do you know how or when the SWD San Andres pool was created?

MR. ALLEMAN: No. I don't know. I don't know when or how it was created. I know that there are numerous, numerous SWDs on the Central Basin Platform and within the EMSU, itself, that proceeded Goodnight's applications that used the -- that were assigned. I guess that's something to clarify. And you're likely familiar with this.

The applicant does not -- we don't assign a pool name and pool code any more than we assign a maximum injection rate. We propose a maximum injection rate. And we propose a pool code and pool

ID based on -- or pool name and pool code based on other SWDs in the area and the applicability of the pool codes.

And in this situation with the previous saltwater disposal wells having the same SWD San Andres pool code being assigned by OCD and being approved with those pool codes and including only the San Andres formation, which was the formation that was going to be our injection formation, and that it was specifically an SWD pool code as opposed to an oil pool code.

We had no -- we had zero hesitation that it was -- that was the correct pool code. But no. I don't know when, specifically it was assigned.

MR. LAMKIN: Were there any discussions between yourself and the OCD about whether or not the permitted wells were within the bounds of the established SWD pool?

MR. ALLEMAN: I didn't have any discussions directly with OCD on that topic.

MR. LAMKIN: Okay.

MR. ALLEMAN: That I can recall.

MR. LAMKIN: And have you heard of any other instances where a pool was vertically contracted for the purposes of injection?

MR. ALLEMAN: Can you clarify what you mean by that?

MR. LAMKIN: Well, and you know, an analogous instance to this where the lower end of the vertical bound was increased to accommodate injection in an interval that was previously deemed to be hydrocarbon bearing.

MR. ALLEMAN: And so by "injection," do you mean disposal?

MR. LAMKIN: Disposal. Yeah.

MR. ALLEMAN: Okay. Yeah, sorry. I just wanted to make sure I was clear on that. So we have that situation with the, as we've discussed, with the EMSU and the previously existing saltwater disposal well into -- that was permitted to dispose into the San Andres before the formation of the EMSU unit.

There's also in the, maybe as a, if I'm understanding your question correctly, and if I get off track, please let me know. But on the North Monument Grayburg San Andres unit, there are SWDs within the boundaries of the North Monument Grayburg San Andres unit. And that unit is also a Grayburg San Andres unit similarly set up to the EMSU.

And the -- there are disposal wells

with the pool code of SWD San Andres within the boundaries of that unit that are injecting into the San Andres. I don't know that it was -- I don't know that the -- I think my question on your question was just, like, was it -- I don't know that there was ever any contraction. Like any agreed contraction of the unitized interval.

But there were SWDs that were -- that are permitted into the formations that are included in that unitized interval.

MR. LAMKIN: Thank you. That's all my questions.

HEARING EXAMINER HARWOOD: Dr. Ampomah.

CROSS-EXAMINATION

BY DR. AMPOMAH:

DR. AMPOMAH: Thank you sir, for your testimony. And I will try to be very efficient with my questions so we can move on quickly. Can we bring up the slides that you went through? And I want to start with slide number 2. Okay. Yeah. And please, if I ask the question, and you feel like someone better can respond to that, please feel free to say that's so.

MR. ALLEMAN: Sure.

DR. AMPOMAH: So here you're saying

that you are applying to obtain permits, you know, for four additional injection wells. Now, my first question to you is why this location?

MR. ALLEMAN: So I will answer just briefly but will then have to defer. My understanding from discussions with Goodnight is that they deemed the subsurface characteristics.

So based on their own research and based on observations of other saltwater disposal wells outside the unit, inside the unit and their injection performance, they deemed that this was a good spot for saltwater disposal and that they would be able to inject the volumes that they were needing to inject and stay under their maximum allowable surface injection pressure.

But in terms of the -- in terms of what specific characteristics they were looking at and what evaluation was done to pick those locations, I would have to defer to Mr. McGuire on that.

DR. AMPOMAH: So if I ask you what if these locations were moved away from the unit, and Empire has suggested 2 miles away from their unit and they will not contest, has there been any consideration of that? Why not moving away from this particular unit?

MR. ALLEMAN: Yeah. I think that's going to fall in the geology analysis and the formation suitability. So again, I would have to, instead of trying to get out of my skis on that, I'd -- I need to defer to Mr. McGuire on what the implications of moving outside the unit as opposed to being inside the unit would be in terms of injection performance.

DR. AMPOMAH: So you testified to the commission that there are 60 injection permits into the San Andres. And I'm not sure about the boundary that you were characterizing, but I want to ask you how many of these are in the EMSU?

MR. ALLEMAN: So I just want a very, very small clarification that there have been 60 injection permits approved. As we know, sometimes the permits expire over time, et cetera. But there have been over 60 approved in total. And I don't know for sure how many of those are within the EMSU. We have -- so we have Goodnight's injection permits that are within the EMSU.

And I don't recall exactly how many are approved in the EMSU, but I'm aware or I believe that there are, let's see, four other active permits for San Andres injection within the EMSU today. But I

don't know how many have been approved off the top of my head. I don't know how many have been approved in total in history

DR. AMPOMAH: Now, so for the ones that you have a fair understanding on, do you know the average injection rate?

MR. ALLEMAN: No. I don't have -- I haven't looked that closely at their average injection rates to know, you know, what they are today versus what they -- what they've been historically. There are -- a couple of the wells have -- it's kind of -- it's been discussed a little bit throughout the hearing that a couple of the wells have put -- have disposed of a fair amount of water over time.

I believe it was the EME, has to be the number 21 that has injected 24 million barrels. And this is all stuff -- this is all -- would be available to double check on the OCD's data. But no. I don't specifically know the injection rates today or how those have changed over time.

DR. AMPOMAH: So on the same slide, there was a discussion about, let's say out of the four, it sounded like State Land Office objected to three of them. Is that a fair characterization?

MR. ALLEMAN: Yes. If we're talking

about the Andre Dawson, Ernie Banks, Ryno, and Sosa. Yes, that's correct.

DR. AMPOMAH: Can you share with the commission why?

MR. ALLEMAN: My understanding is that -- so at the time from a regulatory perspective, we knew that the State Land Office would object to -- would protest any applications that were within a half mile of their surface ownership. And these were within a half mile of their surface ownership. And they objected.

And we went to hearing. They did appear at hearing and didn't provide any witnesses to provide testimony. But they had an attorney that stated a statement that they stated on all of their -- all of those similar hearing cases of which I've been a party to numerous, basically just saying that they objected to the application due to its proximity to state lands.

But that's the -- that's really the extent of my knowledge there of why they objected. But they -- again, whenever the OCD approved -- after the hearing, OCD approved those injection permits. And the State Land Office did not appeal them.

DR. AMPOMAH: Okay. So if we can go to

slide number 4. On slide number 4, you presented a table. Yeah. So why did you not include the fracture pressure or it's not available at the time?

MR. ALLEMAN: Why did we not include it in the summary slide?

DR. AMPOMAH: The potential of fracture pressure?

MR. ALLEMAN: Just as a, you know, as a a general response to that, there's a lot of information that we didn't put in the summary slide just because -- just for the sake of brevity and the information, all of this information, is all in the testimony. And we were trying to be cognizant of the commission's time here.

And on the fracture pressure, itself, I don't personally know what the fracture pressure is. That would be a question for, again, for Mr. -- I hate to put everything on Mr. McGuire's shoulders. But being inside Goodnight, he would be more likely to be able to answer that question appropriately.

DR. AMPOMAH: Now, with that, I just want to understand your role when it comes to more or less putting these applications together. Can you summarize that briefly?

MR. ALLEMAN: Yeah, absolutely. In a

general sense for all of our clients that we work with and advise and prepare saltwater disposal applications, we help advise on the locations. Usually they have a location in mind, and we let them know if there are any what we call fatal flaws that would cause them to need to be moved.

And then we move along with review -- having the -- and this with Goodnight, having the geology evaluated and picking injection intervals and such. But with Goodnight, that information was done in-house with Goodnight and was provided to us. And we took that information and completed the AOR evaluations, the associated maps that come along with the applications.

And we adjust the -- we adjust our permitting procedure over time in accordance with what we see other operators doing and in accordance with what OCD seems to -- seems to prefer.

But so in this case, like, in terms of picking the maximum rates and the maximum pressures, the maximum pressures were at the OCD's default of 0.2 PSI per foot. And based on the injection performance of not only Goodnight's but other SWDs in the area, we did not see that being an issue to be able to achieve the rates that they were wanting to inject at and

staying under those permitted pressures.

And so we do advise on even items that they -- that our clients send over. We will advise if we see anything that kind of sticks out. But yeah, I can keep going. But if that answers your question.

DR. AMPOMAH: So do you review the materials for completeness? And then also, do you fill out the C-108 and all the forms that comes with the application?

MR. ALLEMAN: Generally we will fill out, so we'll complete. So, like, it's just 'cause it's easy, if we take the example with Goodnight.

They do their geology work, and, you know, we let them know what it is that we need that is required by OCD, both either in regulations in the C-108 or what we know that OCD wants to see and make sure that the information is prepared in a manner and is complete with the information that OCD is going to want to see.

So we do check it for completeness. Unless we're specifically asked on a technical side, we don't necessarily go over the geology or, you know, do an independent analysis of the technical items that they point out. But if something sticks out like a sore thumb, we'll let them know.

And then usually we also sign the -- so send out the affected party notices, do the public notice, and sign the C-108 form, itself, and the associated checklist. And sometimes the operator wants to sign that even if we completed a lot of the components. So it's really kind of dependent upon the specific project.

DR. AMPOMAH: Okay. Thank you for that. So Mr. Rankin asked you if there is any changes that you want to more or less change in your testimony. So I presume that these applications that have been submitted to the commission is final?

MR. ALLEMAN: Yes. I don't know of any -- I don't know of any changes that we would, even after hearing, you know, being a part of the proceedings here, I don't see anything that we would want to change with the application. But if some -- if Goodnight came up with something that they wanted to change, we would consider it. But that hasn't been discussed.

DR. AMPOMAH: Okay. Thank you for that. So there are two things. I'm going to go through one of the applications, you know, for the new request. And then also I'll go through one of the applications that has been approved. And there was an

order that was attached to that. So we can have some clarity on some of the things that I really want to discuss.

So there are some few questions that I'll ask you. So I'm looking at one of the C-108, and this one will be the Doc Godden SWD well permit. Doc Gooden SWD well permit. So if we can bring up the C-108, that would be wonderful. And I think that would be probably page 45 of the 323 of your testimony.

MR. RANKIN: Dr. Ampomah, which page was that?

DR. AMPOMAH: Forty-five.

MR. RANKIN: Forty-five?

DR. AMPOMAH: Yes.

MR. RANKIN: This page?

DR. AMPOMAH: Let's go to B. Okay. So I'm looking at the B. Now, so at B, number 5. It reads "Give the depth to and the name of the higher and next lower oil and gas zone in the area of the well, if any." Did I read that correctly, sir?

MR. ALLEMAN: Yes, that's correct.

DR. AMPOMAH: So then let's go down to 46, page 46. So let's look at number 5, your response to that. So you're saying that below are the

approximate formation tops for known oil and gas producing zones in the area. Now, when I read that -- is it your understanding that maybe OCD is referring to existing producing, actual producing zones?

MR. ALLEMAN: So there's a number of things in the C-108 that are subject to interpretation. So in that case, we do believe that they are looking for current, you know, current production. And so in some cases if there have -- and again, it's situationally dependent in some cases.

If there has been a lot of production from a specific zone, but maybe there's very little production within the region currently, we might go ahead -- we might go ahead and include that just to be conservative. We might go ahead and include that formation in this listing.

But it is our general understanding that they're wanting to know, you know, as of the time of the application, what are the productive formations above and below your injection interval.

DR. AMPOMAH: So as you said, it's subject to interpretation. So if I take it, and I asked you, Goodnight's experts are saying that there is a potential ROZ in the San Andres. You know, they've divided the San Andres into upper and lower.

So based on their testimony and based on their well log analysis, they are saying that there is a potential ROZ in the upper San Andres. So I'm asking you, do you believe that you've provided an accurate response to question number 5?

MR. ALLEMAN: Yeah. Can we go -- can we just -- can we go back up to B5 in the C-108 form, itself? Okay. Yeah. So it says "Next higher and next lower oil or gas zone in the area of the well." Okay. If we go back down -- sorry to make you keep scrolling. B5.

And so we look at, whenever -- so in this case with Goodnight, we were -- Goodnight provided us the depth of the -- the top of the Grayburg. But in terms of OCD's records, that was the next producing zone. The next higher producing formation was the Grayburg.

As a part of B5 to fulfill that requirement, we don't necessarily go in and do a full log analysis on every single formation to see if it might potentially at some point in the future through some method produce. But we do -- we look at -- we do look at current production to see what those zones are.

And this is also -- this information is

in our notices that get sent out to the affected parties. And so if the affected parties have a -- have an issue with that, which is why we're here today with the Doc Gooden, that one of the affected parties, in this case being Empire, effectively disagreed with that finding. Although they didn't state that specifically with B5.

But yeah, it's our understanding that there -- that OCD is wanting to know what the producing formations are currently that are known.

DR. AMPOMAH: So based on all the testimony that we've listened throughout multiple weeks, if the commission finds that there is oil in the San Andres, does that mean that this information that has been provided to the commission is not accurate or fully accurate?

MR. ALLEMAN: No. I don't think it -- I don't think it changes the accuracy of this information. We very specifically state that these are oil and gas-producing zones, not potential producing zones. But we -- we're -- I think OCD gets tired of hearing from me because I ask questions all the time.

So, like, in this situation, I would be inclined to gather OCD's input on this situation for

the application. Like how would you like us to address this? Especially if we were to do additional applications in similar situations. But based on since this -- so I'm not an engineer or geologist.

But I have -- I've been listening to most of the testimony, and it doesn't sound like there's production from that ROZ currently. And so as long as that's still the case, I think we would still probably leave it here, leave the data as it is. But the injection interval depths are clearly stated.

And if an applicant -- or sorry, if an affected party has a question about that or doesn't agree with us, then, again, they get provided this information. OCD gets provided this information. And they can -- the affected party can protest if they want to.

Or OCD can ask us to revise the application if they think we want to -- if they think that we should add additional information. That's totally within their purview.

DR. AMPOMAH: Yeah. That is good to know, too. Thank you.

Mr. Rankin, can we go to 44, page 44 and VII. And the VII. So the second point, you "have to provide attached data on the proposed operation

including whether the system is closed or -- whether the system is open or closed." So did I read that correctly, sir?

MR. ALLEMAN: Yes.

DR. AMPOMAH: So when we go down to page 46, page 47, yeah, 47.

MR. RANKIN: Where is that?

DR. AMPOMAH: Forty-seven.

MR. RANKIN: Oh, sorry.

DR. AMPOMAH: Right there. So under VII, "Proposed Operation," you are saying that a closed system will be used. Did you listen to most of the testimonies Empire experts and then Mr. Knights and Dr. Davidson? Did you listen to their -- and even Mr. Macbeth [ph] -- did you listen to their testimony?

MR. ALLEMAN: I did.

DR. AMPOMAH: They are telling the commission that the San Andres is more like open system. They don't know the boundaries of the San Andres. So are you still standing by your assertion that a closed system is used for this application?

MR. ALLEMAN: I do -- I understand where you're -- I do understand the question that you're asking. This is another one of those. I would

say that there's a fair amount of interpretation on what "closed system" means. Like, whenever we start an application for a client, we ask them whether it will be open or closed. There's been a lot of discussion on what that specifically means.

Some interpretations are, is it a closed -- is it, like, closed-loop drilling? Some interpretations are, is it a closed system in terms of your -- the generation of the produced water and the disposal? So some -- there's been some interpretation -- and when I say "interpretation," I mean just discussion. Not hearing findings and such.

But there's been some interpretation that a closed system relates -- would be related to a noncommercial disposal system where you're taking water from your own leases and injecting it into a disposal formation. And so the -- I -- I'm not trying to obfuscate or make this difficult. That's just another one of the -- another one of the points of the C-108 that is -- I haven't seen it clearly defined.

I will say that I can't specifically say that there aren't any C-108s out there that state that it's an -- that they will use an open system. But I will say that a majority of the applications state that it's a closed system. And it's almost

just, it seems like it's kind of become convention to state that.

I -- before you said it or before you made that statement, I haven't heard it interpreted as, like, a closed -- open or closed subsurface system. But that would be another interpretation that I think should be -- we should try to get some clarity from OCD on just to make sure that we -- we're using the right terminology and option going forward.

DR. AMPOMAH: Yeah. Well, certainly I'm an engineer. And I specifically asked about this question. What is the boundary condition that you are using in your analysis? And they keep on talking about how it is more or less like an ocean. There's no boundary to it, you know?

So I will ask OCD, and if OCD really confirms that it is a subsurface system that we're talking about, then the Commission will see how to more or less look into that.

MR. ALLEMAN: Yes.

DR. AMPOMAH: I appreciate that, though.

MR. ALLEMAN: I look forward to hearing the outcome of that discussion so we can have clarity on that as well.

DR. AMPOMAH: Okay, thank you. Now let me ask you. So you put the application together; right? So that is why I'm asking you these questions. And if you feel like someone else can respond to it, yeah, please do so. Now, why do you believe OCD is asking about -- or the form is asking about the source of the water and then also the formation water where the injection is going to happen?

MR. ALLEMAN: Yeah. That -- that's a really good question. And for that, can we scroll back up? So it's going to be section 7.5, 4 and 5. So 7 --

DR. AMPOMAH: Yeah. Right in number 4.

MR. ALLEMAN: And so just reading, starting with number four, it says "Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water." So one of the -- well, again, the interpretation and clarity on exactly what that means is up to -- is up to some amount of interpretation.

They say "reinjected produced water," but it doesn't really specify what "reinjected" means. Reinjected from the same formation? Reinjected from a different formation? But what our understanding of

what they're going for on number 4 is they're trying -- that's -- number 4 is for -- is -- was put in there -- again, this is our interpretation.

I'm not speaking for OCD, but our interpretation is that number 4 was put in there for enhanced oil recovery projects. So if you read it in the -- with the mindset of enhanced oil recovery, that says "Sources and appropriate of analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water."

So I think what they're getting at there is if you have an EOR project, and you are, you know, you've got a water -- you've got water supply coming from somewhere, and you're injecting that into your -- into the receiving formation, if it -- if that produced water didn't come from the receiving formation, they're wanting to know what the analysis is.

They're wanting water quality analysis of the water if it didn't come from that same formation. In other words, you're bringing outside water into this -- in -- into this productive, you know, productive depths, productive interval. And so, you know, OCD is tasked with the ensuring no waste of hydrocarbons and making sure to protect the

production.

And so that's -- whatever you think of it, at least, I guess, I would leave that to you if you have further questions or thoughts on that. But that's been our understanding is that number 4 is specifically asking for appropriate analysis of injection fluid. If you're injecting water that didn't come from that same formation in an EOR project.

Now, we go ahead, and we do provide the injection fluid. We include analyses of our -- of the injection fluid even though we don't really think this was the impetus for this number 7.4 when we're doing -- we're injecting for disposal. We don't believe that number 4 is really applicable to -- or even that OCD put it in there to be applicable, to our disposal operations.

However, just as a matter of convention and industry standard, pretty much every -- I haven't seen an application that doesn't have analysis of the -- in the injection fluid. So, like, the -- if it came from the Wolfcamp or the Bone Spring in the Delaware basin, then they're going to include a analysis of that water even though it -- we don't believe it actually -- that's actually really what OCD

is wanting.

But on OCD's check boxes, they have internal checklists for the applications. And there's a checkbox for it. And we want -- we like all of those boxes to be checked on the green side. Which means that you have it. And so that's why we go ahead and provide it.

And then number 5, if -- just reading it directly, "If injection is for disposal purposes into a zone not productive of oil or gas at or within 1 mile of the proposed well, attach a chemical analysis of the disposal zone formation water. It may be measured or inferred from existing literature studies, nearby wells, et cetera."

So in this case, this -- we believe number 5 is applicable to, like, commercial injection for disposal where they're wanting to make sure that the injection -- that the zone that you're injecting into is -- that the water quality is not so high that it would qualify as a USDW. And so we do provide that. We provide that chemical analysis as well.

DR. AMPOMAH: So sir, from my engineering point of view, when we say "compatibility," I look at it differently; right? And OCD is going to help us to more or less understand

that. Now, just to finish off on that, can we go to attachment number 4 and then attachment number 5? Let's start with number 4.

MR. RANKIN: Dr. Ampomah, which attachment is attachment 4?

DR. AMPOMAH: It's going to be the water analysis for the San Andres and then also that for the --

MR. RANKIN: Okay. This is the source water analysis?

DR. AMPOMAH: Yes, sir.

MR. RANKIN: Is this the one you want?

DR. AMPOMAH: Yeah. So let's go to 3. Let's check that. Okay, thank you.

So here, sir, I'm showing you the TDS. Can you identify the TDS tab column?

MR. ALLEMAN: Yes.

DR. AMPOMAH: Okay. So let's just pay attention to the numbers that we see and then also the chloride content, the bicarbonate content, and then the sulfate content. Now, when I talk of -- when I look at this, my understanding as an engineer is when we say "compatibility," my understanding is how the water that is coming in comparable to what is there.

So let's go to the other one. So this

one is the source. Let's go to the San Andres. Right there. Sir, can you also identify the TDS, the chloride, the bicarbonate, and then the sulfate content on this table?

MR. ALLEMAN: Yes.

DR. AMPOMAH: Does it look compatible to you or how -- let's say when you have these two dataset, what analysis do you do in terms of making some conclusions between these two dataset?

MR. ALLEMAN: So that -- that's where I -- on the compatibility analysis, that -- that's where I'd have to turn to our other experts. I believe Tom Tomastik is going to discuss the chemistry and compatibility.

DR. AMPOMAH: Okay. I'll appreciate that. So we've gone through the actual applications, and I've really tried to understand if all this information that has been provided to the commission is complete and accurate to the best of your knowledge. So let's go to page 302 of the same document. So this document is the Authorization to Inject, Authorization to Inject.

MR. ALLEMAN: Correct.

DR. AMPOMAH: So I'm looking at A. So if we can go to 303. Okay. So I'll wrap it up

quickly. So let's go to H instead. H on 311. 311. So, you know, I've gone through multiple information with you with regards to the permit. Now, under session three here, "OCD authority to modify permit and issues orders."

So I just want to reiterate some of the items. So under A, the first one, the permit, so A, "The OCD may amend, suspend, or revoke this permit after notice and an opportunity for hearing if it determines that," the first one, "the permit contains a material mistake." Did I read that correctly?

MR. ALLEMAN: Yes.

DR. AMPOMAH: So do you believe that the OCC, if we find out that there are some material mistakes that was presented in the application, this permit could be revoked?

MR. ALLEMAN: I wouldn't -- I think it'd be pretty presumptuous of me to know the -- what you guys -- what the commission is allowed to do. I don't know specifically.

But if you did -- if you -- if the commission did identify a material mistake that you felt, again, materially changed the proposed operation, then -- and again, this is where I don't know for sure if OCD would have to agree with you or

if they would just change it if that's what the commission requested.

But if there were a material mistake that significantly revised the proposed operation, then that authority is certainly there for the -- for OCD to amend the permit.

DR. AMPOMAH: So you submitted the application. So that is why I'm asking you these questions. Now, the second one, "Permittee made an incorrect statement on which OCD relied to establish a term or conditions of the permit or grant this permit." And let me read the other ones, and you can just respond to all of them. "Injected fluid is escaping from the approved injection interval."

And the reason why I'm picking on that point is that, you know, based on all the testimony that we've listened here throughout the whole weeks, Goodnight's expert is saying that this is an open system. It's not a closed system.

Now, on your application, you identified is a closed system subject to interpretation from OCD. Now, you know, we talked about if it is an open system, that fluid that you are injecting, where is it going? Or even the native fluid, where is it going?

You know, if it is a closed system, I don't think there is any argument here. But experts are saying it is open system. So we really, really need to know where that injected fluid is going. And then I will do the -- now the last, the VI. "Injection may cause or contribute to the waste of oil, gas, or potash resources or affect correlative rights, public health, and all environment."

And I do have the C. So with all of this that I've described here, do you believe you signed on this application and submitted to OCD. So if any of these items apply or if any of these items Commission finds this, do you believe the Commission will be in a position to revoke the existing permits?

MR. ALLEMAN: Again, I have to plead ignorance on the commission's authorities there. But certainly as it states here, OCD does have the authority, you know, to modify or suspend or revoke, as it says.

You know, if it is -- if those items are confirmed, that there's a material mistake that significantly changes the operation, if there is a material incorrect statement that OCD relied upon, and if it was confirmed that injection fluid was escaping the approved injection interval, I would agree there

that OCD does have that authority to amend, suspend, or revoke just as the permit says.

DR. AMPOMAH: -- here, and thanks so much for your time, sir.

MR. ALLEMAN: Thank you.

HEARING EXAMINER HARWOOD: How's that for a hot seat, Mr. Alleman?

MR. CHANDLER: Mr. Hearing Officer, can ask four questions before you take a break?

HEARING EXAMINER HARWOOD: Yeah, actually, and -- well, sure. I don't know how long you're going to go. I'm hoping we can also get redirect out of the way before we take a break. But go for it.

MR. CHANDLER: Four questions.

CROSS-EXAMINATION

BY MR. CHANDLER:

MR. CHANDLER: Sir, when did you first learn that there could be conflict between the two parties?

MR. ALLEMAN: Just a point of clarity. Who's -- who's speaking?

MR. CHANDLER: Yeah, this is Zach Chandler, New Mexico Department of Justice Commission Council.

MR. ALLEMAN: Okay. Sorry. I couldn't see you there. When did I first learn that there was conflict between the two parties? Did I understand that correctly?

MR. CHANDLER: When there could be conflict?

MR. ALLEMAN: The conflict is difficult to specify, but being the submitter of the application, we were notified of Empire's protests. And I don't know if that -- I don't know if that qualifies as conflict or not. Usually at that point, we turn -- for Goodnight, we just -- we notify -- we let Goodnight know of the protests. And they handle them from there.

We're not further involved in resolving it. So I don't know -- I don't know what those subsequent discussions were like with -- between Goodnight and Empire. Nor do I know when the term "conflict" would have been the appropriate characterization.

MR. CHANDLER: When did you first learn of the unitization order?

MR. ALLEMAN: I couldn't specifically put a particular date to it. But going into -- as we were submitting the applications, we were aware that

there was a -- that the applications were going to be within a unitized interval.

MR. CHANDLER: So there's lots of applications. Be precise. Which applications?

MR. ALLEMAN: I would have to -- let me -- the -- so I'm trying to think of which was the first SWD application that we submitted that was within the -- was within the interval. Or sorry, within the EMSU boundary. I don't recall right off if that was the Sosa or the Ryno.

I'm sure sure that Mr. McGuire would have a better, you know, being involved in that on a day-to-day basis, he would probably have a better understanding of which one was first.

MR. CHANDLER: Okay. What did you do once you were aware of the unitization order?

MR. ALLEMAN: So we had the discussions with Goodnight. And those discussions simply revolved around reviewing the unit agreement, yeah, the unit operating agreements. And then checking to make sure that there wasn't production, as it said, within a mile.

You know, looking at productive -- potential productive wells or looking at wells out within that mile to see where are there or are there

productive wells in our injection interval in that area. And that was our, yeah -- doing the production review was the next step just to make sure that we weren't going to be injecting into a zone that was currently producing.

MR. CHANDLER: Fourth and final question. I interpreted Ms. Hardy's questions to you to be that the unitization order is the smoking gun. And once good faith discovery of it, that was a game changer. How should the commission view the discovery by the parties of the unitization order?

MR. ALLEMAN: In terms of the -- I think I'm stumbling a little bit over the term "the discovery" of the unitization order. You know, we identified it as -- or Goodnight had identified it as they were picking their locations. And then we discussed it.

And in looking at the geology, Goodnight -- again, Goodnight preparing the geology, Goodnight had determined that there wouldn't be -- that the barrier existed, that the injection into the injection interval would not affect the production within the unit.

And again, that's obviously been discussed to the nth degree. But Mr. McGuire can

certainly expound on that as he would have been involved in those discussions and the geologic findings in that analysis.

HEARING EXAMINER HARWOOD: Okay. Thank you, Mr. Chandler. Give us an idea if you can, Mr. Rankin, how much redirect do you think you have?

MR. RANKIN: My intention is to be very efficient. But I do need to put together some documents. I think now would be a good time for me to do it during a break. But I think I probably, you know, would be within 10 to 15 minutes or so. I'm going to try to be very efficient. And I would be more efficient if I can just have ten minutes to pull together the documents I need.

HEARING EXAMINER HARWOOD: Why don't we come back at ten minutes till three. That will give you 15 minutes, then. All right.

(Off the record.)

MR. RANKIN: Thank you, Mr. Hearing Officer. I'm ready to resume.

Mr. Alleman, are you there?

MR. ALLEMAN: I am.

REDIRECT EXAMINATION

BY MR. RANKIN:

MR. RANKIN: Do you recall

cross-examination from Ms. Hardy regarding the nomenclature order R7767, addressing the change in the pool to the EMSU unit?

MR. ALLEMAN: I do.

MR. RANKIN: Do you recall that she pointed you to paragraph number 4 of that order, R7767, that she read to you stating that the proposed amendment of the pool vertical limits is necessary to permit the applicant to successfully carry out secondary recovery operations within the full oil column underlying said unit?

MR. ALLEMAN: Yes.

MR. RANKIN: Mr. Alleman, she did not read to you the paragraph immediately preceding that in the order, did she?

MR. ALLEMAN: No. She did not.

MR. RANKIN: I'm sorry, let me share that screen. Thank you. I'm sharing my screen now. Mr. Alleman, apologize for not having done that before. So looking at paragraph 4, is that the paragraph I just read back to you?

MR. ALLEMAN: Yes.

MR. RANKIN: And she did not show you or read back to you the contents of the preceding paragraph number 3, did she?

MR. ALLEMAN: That's correct.

MR. RANKIN: And that paragraph reads: "The applicant seeks the upward extension of the vertical limits of the Eunice Monument pool to include either the top of the Grayburg Formation or to a subsea datum of minus 100 feet, whichever is higher.

"And the concomitant amendment of the vertical limits of the Eumont Gas Pool by contracting its lower limits to either the base of the queen formation or to a subsea datum of minus 100 feet, whichever is higher underlying said unit." Did I read that correctly?

MR. ALLEMAN: Yes.

MR. RANKIN: Are you aware that the purpose of the change of the vertical limits of the pool upwards was to enable the operator, Gulf in this case, to efficiently and effectively water flood the entire water column up into the Penrose?

MR. ALLEMAN: Yes.

MR. RANKIN: At the bottom of, let's see, at the bottom of this order, Mr. Alleman, are you familiar with this language? Is this a common provision in all commission and division cases, paragraph 4 of the order?

MR. ALLEMAN: Yes, certainly some

version of that.

MR. RANKIN: And it is your understanding that essentially means that the commission or division, depending on who issued the order, always retains jurisdiction to modify, amend, revoke, or change orders depending on changed circumstances; is that correct?

MR. ALLEMAN: Correct.

MR. RANKIN: That's your understanding?

MR. ALLEMAN: Yes.

MR. RANKIN: Okay. Now, on the Andre Dawson, Ms. Hardy asked you questions about the pool code that you obtained and used, identified in this application. Do you recall that testimony?

MR. ALLEMAN: I do.

MR. RANKIN: Okay. And she also asked you questions about whether you recall specifically the names of wells or locations of wells that pre-existed the applications filed by Goodnight, any of the applications at issue in this case? Do you recall that?

MS. HARDY: I object. I don't think that that's what I had asked. But I think --

HEARING EXAMINER HARWOOD: All right.

MS. HARDY: It's misleading.

HEARING EXAMINER HARWOOD: Maybe rephrase the question, Mr. Rankin.

MR. RANKIN: Okay.

Mr. Alleman, do you recall questions asking you about wells that predated, in the EMSU unit, predated Goodnight's wells that were filed with the division?

MR. ALLEMAN: I do. I recall not being able to precisely say the dates or the specific locations.

MR. RANKIN: Okay. Now, I've got this map. It's Goodnight Exhibit B47. Are you able to identify by looking at this map, which of the wells you recall were approved for disposal within the EMSU in the San Andres prior to Goodnight filing any of its applications? You can direct me to them by sections.

MR. ALLEMAN: Right.

MR. RANKIN: Or if you need to see the names, I can show you the legend, too.

MR. ALLEMAN: Yeah. I was going to say, the names would be helpful.

MR. RANKIN: Okay.

MS. HARDY: Mr. Rankin, I'm sorry, is this an exhibit?

MR. RANKIN: This is an Exhibit, B47 of

Goodnight's.

MS. HARDY: Thanks.

MR. RANKIN: You mentioned the EME 21 well.

MR. ALLEMAN: Right. So I -- so if we can zoom back in just a little bit. I believe in Section 14, that one is currently operated by Permian Line Service.

MR. RANKIN: And it's your understanding that that permit was filed and approved prior to Goodnight filing any of its applications?

MR. ALLEMAN: Yes. That was my understanding. I would -- yeah.

MR. RANKIN: And then do you recall any other wells that pre-existed, had pre-existing approvals prior to Goodnight filing its applications with the division?

MR. ALLEMAN: I believe the well in Section 22.

MR. RANKIN: Okay. And that, just as a refresher, that's a well operated by OWL SWD Operating; is that correct?

MR. ALLEMAN: Correct.

MR. RANKIN: Any other wells that you can recall pre-existed Goodnight's applications -- or

permits or approvals pre-existed Goodnight's applications?

MR. ALLEMAN: In Section 4, I believe the pink triangle is the -- that would be the EMSU number one that is operated by Empire.

MR. RANKIN: Okay.

MR. ALLEMAN: My understanding. And then I don't recall the name of it, but the -- in Section 21, the south-southwest corner.

MR. RANKIN: Okay. And that was a well, I believe --

MR. ALLEMAN: I thought that was --

MR. RANKIN: Yeah. It's identified here as Permian land surface. Is that the well you're referring to?

MR. ALLEMAN: Yes. I believe, yes.

MR. RANKIN: And in your response to Dr. Ampomah, you said you understood there were four wells within the EMSU, and those are the four wells you were thinking about?

MR. ALLEMAN: Those -- yes. Those are the ones I was -- had in mind.

MR. RANKIN: And each of those four wells had permits approved for disposal prior to Goodnight's filing its applications; correct?

MR. ALLEMAN: Correct.

MR. RANKIN: And do each of those four wells have an identification for the injection formation in the division's public database?

MR. ALLEMAN: Yes.

MR. RANKIN: And what is that?

MR. ALLEMAN: The identified formation is San Andres.

MR. RANKIN: And what's the injection formation pool identified?

MR. ALLEMAN: SWD; San Andres.

MR. RANKIN: Okay. And the basis for Goodnight identifying the pool in its applications, was it related to the assignment of those pools by the division?

MR. ALLEMAN: Certainly that -- sorry. Go ahead.

MR. RANKIN: I'm sorry. Is it your understanding that Goodnight's selection of the pool code and its applications was based on OCD's assignment of the pool code for those approved permit applications?

MR. ALLEMAN: Yes. That was certainly weighed heavily along with just the comparison of the formations and similarities of the injection

intervals.

MR. RANKIN: And just to be clear, each of those four were approved for injection into the San Andres within the exterior boundaries of the unit; correct?

MR. ALLEMAN: Correct.

MR. RANKIN: And did you look at the applications for the one that we identified as the OWL well and the Permian Line Service well?

MR. ALLEMAN: I've looked at them. I've looked at them briefly.

MR. RANKIN: Did they, in their applications, identify the same pool code that Goodnight identified? Or do you recall? If you don't recall, that's fine.

MR. ALLEMAN: I can't recall specifically. There was -- I don't remember which one it was. I think it was, I remember, like, sticking out to me that the P15. I don't recall seeing a pool code in the application, itself, which made me think -- and again, this is recollection, which made me think that OCD was the one that assigned it after, whenever they issued the order.

But I don't specifically recall seeing it in the application.

MR. RANKIN: Thank you.

MR. ALLEMAN: I -- if I can add onto that just very briefly. In OCD's records, it is listed. That's what OCD listed as as being the pool is SWD San Andres.

MR. RANKIN: Okay. Mr. Alleman, you recall being asked about whether you identified the unit specifically, the EMSU, in the application that was filed with the division?

MR. ALLEMAN: Yes.

MR. RANKIN: And are you aware of any regulation, rule, guidance, or requirement to do so?

MR. ALLEMAN: No, I'm not.

MR. RANKIN: In fact, is there any rule requirement to identify if a SWD is being proposed for within a producing well spacing unit or communitized area, exploratory unit, or any other producing area?

MR. ALLEMAN: I'm not aware of any such rule.

MR. RANKIN: And when you're giving notice of such application, SWD applications, are you required under the guidance in the C-108 to identify anything other than the location of the well and the injection formation?

MR. ALLEMAN: In terms of identifying

its proximity to a unitized interval, no. You're not required to state that.

MR. RANKIN: Under the division's regulations for administrative applications for SWDs for injection, what's your understanding of the requirement for notification?

MR. ALLEMAN: For the -- for administrative approval, we notify the surface owner, operators of wells within one-half mile. The -- if there's an operator of a unit within one-half mile area of review, you notify them. If BLM or the State Land Office is a mineral owner within your area of review, they get notification.

And the lack of a -- if there's -- I apologize. I'm not going -- I'm going by memory here, not reading through it sequentially. If there is not a leaseholder -- so you notify leasehold operators within one-half mile. If there's not a lease hold operator for a particular tract, then you would notify the mineral owner.

MR. RANKIN: And I've got up here on the screen Rule 19.15.26.8. I'm going to point you to B2. Are you familiar with this rule generally for administrative applications of injection wells?

MR. ALLEMAN: Yes.

MR. RANKIN: And I'm going to read it to you. "The applicant shall furnish, by certified or registered mail, a copy of the application to each owner of the land surface on which each injection or disposal well is to be located and to each leasehold operator and other affected persons, as defined in Subsection A of 19.15.2.7 NMAC, within any tract wholly or partially contained within one-half mile of the well." Did I read that correctly?

MR. ALLEMAN: Yes, you did.

MR. RANKIN: And based on that language where it says "The applicant shall furnish," is it your understanding that proof of receipt is required?

MR. ALLEMAN: There's nothing that states that proof of receipt is required.

MR. RANKIN: And so when you filed these applications on behalf of Goodnight, you furnished proof that notification was provided by certified or registered mail; correct?

MR. ALLEMAN: Correct.

MR. RANKIN: Now, in the same section of the code for administrative approvals, I'm going to read subpart C2.

"The division shall not approve an application for administrative approval until 15 days

following the division's receipt of form C-108 complete with all attachments including mailing as required." And it goes on to discuss that.

It goes on to say "If the division does not receive an objection within the 15-day period, and a hearing is not otherwise required, the division may approve the application administratively." Did I read that correctly?

MR. ALLEMAN: Yes, you did.

MR. RANKIN: So is it your understanding that if an objection is not raised within that 15 days, that objection is waived or potentially waived?

MR. ALLEMAN: Yes. At that point, it would be available for administrative review and approval.

MR. RANKIN: Okay.

MR. ALLEMAN: The application would be.

MR. RANKIN: Now, if an objection to administrative application is received by the division, I'm going to read the next portion of this rule. It says, under subpart D:

"Hearings. If a written objection to an application for administrative approval of an injection well is filed within 15 days after receipt

of a complete application, if 19.15.26.8 NMAC requires a hearing or if the director deems a hearing advisable, the division shall set the application for hearing and give notice of the hearing." Did I read that correctly?

MR. ALLEMAN: Yes, you did.

MR. RANKIN: Is it your understanding, then, based on this requirement of the rule, that if an administrative application is protested, that the applicant is not required to give notice of the hearing?

MS. HARDY: I object to this question. It's misleading, and it inaccurately states OCD's regulations that we've already gone through, specifically the adjudication rule. And I also showed that Goodnight did provide notice to some parties and not others.

MR. RANKIN: I'm getting there.

MS. HARDY: So I object. It's misleading.

HEARING EXAMINER HARWOOD: Well, it also calls for this witness to offer legal conclusions. You're asking him to provide opinions on the application of a regulation. So, you know, other people have gotten away with that so far with this

witness. And I'll let you have this one question, but let's not go there.

MR. RANKIN: Fine. I understand.

Mr. Alleman, you do this on behalf of -- you manage these on behalf of clients; correct? These applications; right?

MR. ALLEMAN: Yes.

MR. RANKIN: And you're familiar with the way the division manages administrative applications and objections; is that correct?

MR. ALLEMAN: Yes.

MR. RANKIN: And is it your understanding that based on this rule, it provides that the division is to give notice of hearings for objections; is that correct?

MR. ALLEMAN: Yes.

MS. HARDY: Same objection.

MR. RANKIN: I mean --

HEARING EXAMINER HARWOOD: Overruled. He said it's his understanding.

MR. RANKIN: Okay. So now, Mr. Alleman, I want to ask you another set of questions. Based on, nevertheless, its convention when a objection is raised for administrative hearing that the applicant will, in order to get on the

division's docket, file an application for hearing and provide notice of the application to the objector. Is that your understanding?

MR. ALLEMAN: Yes.

MS. HARDY: Objection to the extent I think it calls for speculation on what the division does generally and what other applicants do. I think he can only testify about what he has done.

HEARING EXAMINER HARWOOD: Overruled.

MR. RANKIN: You can answer the question, Mr. Alleman.

MR. ALLEMAN: Could you please restate the question? Sorry.

MR. RANKIN: Sure. Based on your understanding of the division's approach managing objections to administrative applications in order to get on the division docket, in order to be on the docket for a hearing, is your understanding, then, that the applicant of a contested administrative application will file an application with the division for hearing and give notice to the objector?

MR. ALLEMAN: Yes. That is my understanding based on --

MR. RANKIN: -- go ahead.

MR. ALLEMAN: I would say based on the

experience we've had with a lot of applications that went to hearing.

MR. RANKIN: And that would be not just Goodnight's applications; correct?

MR. ALLEMAN: That's correct.

MR. RANKIN: Okay. And when you're giving notice of application, when you're doing a C-108 application -- preparing it and putting together the area of review maps that identify tracts around the proposed injection, is there any requirement in the C-108 to identify anything other than the lease lines?

MR. ALLEMAN: For the line item that requests the -- you have to show leaseholders out, yeah, leasehold operators out to 2 miles, which would include the lines of the lease.

MR. RANKIN: And that's under big V; is that right? Part five. In other words, if I'm looking at the C-108, the requirement is to "Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well." Did I read that correctly?

MR. ALLEMAN: Yes.

MR. RANKIN: Okay. It doesn't specify

that you have to identify producing well units, communitization areas, statutory units, or expiratory units?

MR. ALLEMAN: That's correct. It does not.

MR. RANKIN: Have you ever known the division to require that?

MR. ALLEMAN: I have not. I have not seen that be required either in our applications or others.

MR. RANKIN: Do you recall Dr. Ampomah asking you if you recall the basis for the State Land Office's objection to the prior applications within the EMSU by Goodnight?

MR. ALLEMAN: I do.

MR. RANKIN: And do you recall that it was based on the fact that they were a surface owner?

MR. ALLEMAN: Yes. I stated that that was my understanding was that it was based on their surface ownership and its proximity to the SWD.

MR. RANKIN: Okay. I've got here what's, from the division records, it's case number 21569. It's the pre-hearing statement that was filed by the State Land Office in the Andre Dawson case. And I'll just scroll down, and I'll point out here,

and I'll read to you the basis for the State Land Office's concerns under their statement of the case.

States: "Application of Goodnight Midstream and Permian LLC for approval of a saltwater disposal well in Lea County, New Mexico. The proposed well is located less than 250 feet from New Mexico State Trust Lands and minerals." Did I read that correctly?

MR. ALLEMAN: Yes, you did.

MR. RANKIN: And then under the basis for their opposition, it goes on to say "The State Land Office," and I'm reading from the document, "is concerned with the proximity of the proposed well site to state trust lands and minerals and the potential negative impact and waste" -- let me rephrase that. "And the potential negative impact on and waste of New Mexico State Trust Minerals."

Did I read that correctly?

MR. ALLEMAN: Yes.

MR. RANKIN: Okay. And after the application was approved, did the State Land Office challenge this for a hearing at the commission?

MR. ALLEMAN: Sorry. Can you clarify that question?

MR. RANKIN: After the order for the

Andre Dawson was approved, did the State Land Office challenge that approval with the commission?

MR. ALLEMAN: No. They did not.

MR. RANKIN: To your knowledge, Mr. Alleman, had the State Land Office previously challenged previous orders before the commission?

MR. ALLEMAN: No. Not to my knowledge.

MR. RANKIN: You don't recall them filing de novo applications for any other applications that Goodnight had filed?

MR. ALLEMAN: Not that I recall.

MR. RANKIN: Okay. Do you recall Dr. Ampomah was asking you about water chemistries in the application that you prepared for the Doc Gooden, I believe it was?

MR. ALLEMAN: Yes.

MR. RANKIN: And I'm showing you on the screen here, this is the attachment for -- let me go back up to attachment 3, which is the source water analysis. Do you recall reviewing this with Dr. Ampomah?

MR. ALLEMAN: Yes.

MR. RANKIN: Now, for clarification of the record, will you explain whether these wells and these fluids are actually the wells and fluids that

were going to be handled for disposal under this application?

MR. ALLEMAN: No. These would not necessarily be the specific wells and fluids. They're representative of the representative samples, produced water samples from the formations that we would expect that the produced water would come from.

This was pulled from the -- this data was obtained from the GO-TECH website maintained by I believe it's New Mexico Tech and was not specific to individual wells that would necessarily be supplying water to Goodnight's SWDs.

MR. RANKIN: Okay. And now is it your understanding, Mr. Alleman, based on your work with Goodnight that Goodnight actually treats its water prior to disposal?

MR. ALLEMAN: Yes.

MR. RANKIN: And Mr. McGuire can address that treatment?

MR. ALLEMAN: Yes.

MR. RANKIN: Okay. Do you remember Mr. Chandler asking you about at what point you learned of Empire first having an -- let me not misstate his question. When you first learned that there was a potential conflict between the parties --

do you recall that question?

MR. ALLEMAN: I do.

MR. RANKIN: And you were not sure. You stated that you -- as I recall, you stated that you became aware of it when Empire filed an objection to Goodnight's applications?

MS. HARDY: Objection. Misstates the testimony.

MR. RANKIN: He can correct me.

HEARING EXAMINER HARWOOD: I don't Remember the specific question.

You understand the question, Mr. Alleman?

MR. ALLEMAN: I do.

HEARING EXAMINER HARWOOD: All right. Overruled.

MR. RANKIN: Do you recall -- go ahead.

MR. ALLEMAN: Yeah. I -- the first time that I became aware that there was a -- that there was a conflict between Empire and Goodnight -- again, the term conflict could be discussed, but it was whenever I -- whenever we received the notice of protest from Empire.

MR. RANKIN: And I'm showing here on Empire letterhead a letter dated September 21, 2021.

Do you see that?

MR. ALLEMAN: I do.

MR. RANKIN: It's addressed to Mr. Phillip Goetze at the OCD. Do you see that?

MR. ALLEMAN: Yes.

MR. RANKIN: And it states "Notice of Objection and Protest." Do you see that?

MR. ALLEMAN: Yes.

MR. RANKIN: And it's specific to the Piazza SWD number one well; correct?

MR. ALLEMAN: That's correct.

MR. RANKIN: And it goes on to state in the address the basis for Empire Petroleum Corporation's objection to the application. Do you recall seeing this letter before?

MR. ALLEMAN: Yes.

MR. RANKIN: Okay. And it's signed by Joshua Cornell, who's vice president of Land and Business Development at Empire New Mexico; is that correct? Is that correct?

MR. ALLEMAN: Yes, that's correct.

MR. RANKIN: And that goes on to carbon copy Mr. Thomas Pritchard, Mr. Michael Morrisett, Mr. Brian Weatherall, and Mr. Eugene Sweeney. Do you see that?

MR. ALLEMAN: I do.

MR. RANKIN: You don't know who those people are, do you?

MR. ALLEMAN: Not specifically, no.

MR. RANKIN: Okay. But that was the first time you became aware, on that date or when you received that letter, that Empire had an objection to Goodnight's proposed injections; is that right?

MR. ALLEMAN: Yeah. As I think I stated in my response previously, I wasn't sure of the exact date. But if that was the -- if that was their first protest, then that would be the first date that I became aware of it.

MR. RANKIN: Now, Mr. Chandler also asked you about when you first became aware of -- or Goodnight first became aware of the existence of the statutory unit, the EMSU. Do you recall that question?

MR. ALLEMAN: I do.

MR. RANKIN: And then he asked you, and I'm going to mangle the question, but he asked you about whether that was a concern, about whether additional wells should be authorized or whether Goodnight should have been aware of the existence. Do you kind of recall that discussion with Mr. Chandler?

MR. ALLEMAN: I do.

MR. RANKIN: Now, you also discussed with Ms. Hardy this order I've got in front of you here, it's order R7765, which is the unitization order creating the EMSU. Do you recall that?

MR. ALLEMAN: I do.

MR. RANKIN: And I think you told Ms. Hardy that you were generally aware of that order; correct?

MR. ALLEMAN: That's correct.

MR. RANKIN: Now, I know you probably haven't studied this, but are you aware of any provision in that order that would have terminated the authorization for any existing commercials SWDs that were prior existing injecting into the San Andres at the time this order was issued?

MR. ALLEMAN: I do not recall reading that in the order.

MR. RANKIN: Do you recall any language in the order precluding additional commercial SWDs within the San Andres portion of the unitized interval?

MR. ALLEMAN: No. I do not.

MR. RANKIN: And in fact, subsequent to issuance of this order, the division had approved at

least four other SWDs after this order was issued; correct?

MR. ALLEMAN: Correct.

MR. RANKIN: Okay. And just one other point I want to make sure I understand and the record is clear on. When you had this discussion with Dr. Ampomah, and I recognize we will need the division to weigh in on this, but just based on the language of the requirements under the C-108, under subpart Roman numeral seven, under number five, it states "If injection is for disposal purposes."

And I'll stop there. Each of the applications that Goodnight was filing here within the EMSU were for disposal purposes; correct?

MR. ALLEMAN: Correct.

MR. RANKIN: And it goes on to state "Into a zone not productive of oil or gas at or within 1 mile of the proposed well." Did I read that correctly?

MR. ALLEMAN: Yes.

MR. RANKIN: And Mr. Alleman, based on everything you reviewed, did you identify any wells within 1 mile of the proposed injection wells that were productive of oil or gas within the San Andres?

MR. ALLEMAN: No. We did not.

MR. RANKIN: So based on your understanding, this part five was applicable to each of the applications that Goodnight filed. Is that your understanding?

MR. ALLEMAN: Yes.

MR. RANKIN: Mr. Hearing Officer, I would like to make sure that I have requested administrative notice of the State Land Office's pre-hearing statement in case number 21569 to correspond with the administrative notice taken of the other elements of that application or that case before the division.

HEARING EXAMINER HARWOOD: Any objection from Empire, Ms. Hardy?

MS. HARDY: No objection.

HEARING EXAMINER HARWOOD: OCD?

MR. MOANDER: No objection.

HEARING EXAMINER HARWOOD: Rice?

MR. BECK: No objection.

HEARING EXAMINER HARWOOD: Pilot?

MR. SUAZO: No objection.

HEARING EXAMINER HARWOOD: Yes. So the commission will take administrative notice.

MR. RANKIN: Mr. Hearing Officer, I'm not entirely sure if it's part of the record. I'm

going to ask that the commission take administrative notice of each of the orders that govern operation of the EMSU. That'll be order number R7765, R7766, and R7767, and any applicable amendments to the EMSU.

HEARING EXAMINER HARWOOD: Objection from Empire?

MS. HARDY: No objection, but I believe those are attached to Mr. Wheeler's testimony.

MR. RANKIN: Yeah. I'm not sure if they all are, but I just want to make sure that it's part of the record.

HEARING EXAMINER HARWOOD: Okay. Thank you.

OCD?

MR. MOANDER: No objection.

HEARING EXAMINER HARWOOD: Rice?

MR. BECK: No objection.

HEARING EXAMINER HARWOOD: Pilot?

MR. SUAZO: No objection.

HEARING EXAMINER HARWOOD: All right. They will be administratively noticed.

MR. RANKIN: No further questions, Mr. Hearing Officer.

HEARING EXAMINER HARWOOD: Okay. Empire, may this witness be excused?

MS. HARDY: Yes. Thank you.

HEARING EXAMINER HARWOOD: All right.

Mr. Alleman, thank you for your time, and you're free to go or stay.

Mr. Rankin, who is your next witness?

MR. RANKIN: Mr. Hearing Officer, next witness will be Dr. Lake.

HEARING EXAMINER HARWOOD: Okay. All right. I see somebody standing up in the back, so I assume he's appearing in person.

MR. RANKIN: I wonder if I may just take five minutes to get my documents in order, and maybe that might help others as well. Just a quick five minutes to allow Mr. Lake to get situated. I can get him a glass of water. And then we can make sure we have everything we need for the documents.

HEARING EXAMINER HARWOOD: Sure. We'll pick up with Dr. Lake at 3:30.

MR. RANKIN: Thank you.

(Off the record.)

HEARING EXAMINER HARWOOD: Good afternoon, sir.

Please raise your right hand.

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WHEREUPON,

LARRY LAKE,

called as a witness and having been first duly sworn by Ripley Harwood to tell the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

HEARING EXAMINER HARWOOD: Thank you, sir.

Mr. Rankin.

MR. RANKIN: Thank you, Mr. Hearing Officer.

DIRECT EXAMINATION

BY MR. RANKIN:

MR. RANKIN: Good afternoon, Dr. Lake.

MR. LAKE: Good afternoon.

MR. RANKIN: I can hear you great. So that sounds good.

MR. LAKE: Okay.

MR. RANKIN: If at any time during the course of this proceeding, Dr. Lake, you need to take a break, just let me know or let whoever's examining, you know. And as long as I think a question's not pending, we can take a break; okay? So just make sure to let us know; okay? Dr. Lake, can you state your full name for the record, please?

MR. LAKE: Larry Wayne Lake.

MR. RANKIN: By whom are you employed and in what capacity?

MR. LAKE: University of Texas at Austin.

MR. RANKIN: And in this case, are you also serving as a consultant?

MR. LAKE: Yes, Austin Consulting Petroleum Engineers.

MR. RANKIN: Thank you. Have you previously testified before the New Mexico Oil Conservation Commission?

MR. LAKE: No.

MR. RANKIN: Is your CV or resume attached to your self-affirmed direct statement that was filed with the commission?

MR. LAKE: I think we've added one more reference, but yes.

MR. RANKIN: Got it. And your background experience, you're a reservoir engineer; correct?

MR. LAKE: Yes.

MR. RANKIN: And you have extensive experience working on CO2 and enhanced recovery; is that correct?

MR. LAKE: Yeah.

MR. RANKIN: Okay. So you're seeking to be qualified as a expert in reservoir engineering and CO2 enhanced recovery?

MR. LAKE: Yes.

MR. RANKIN: Okay. What were you asked to do in this case?

MR. LAKE: Well, two things. One was to sort of opine on the likelihood of success of the CO2 flood in the ROZ zone. And the second was to -- to estimate to what extent the CO2 flood would be compromised by fluid passing from the water disposal wells.

MR. RANKIN: Now, have you conducted a review of the information that Empire has made available regarding its proposed development in the San Andres ROZ at the EMSU?

MR. LAKE: Yes.

MR. RANKIN: What did you look at -- just generally, what did you look at to come to your opinions, if you can recall?

MR. LAKE: Oh, there's several spreadsheets that had pressure information in it. We had one spreadsheet that came from public sources for rates. A lot of testimonies. And I think at least

one, maybe two, published, publications, papers.

MR. RANKIN: And you also had some discussions with Goodnight personnel; correct?

MR. LAKE: Yes.

MR. RANKIN: And you also had some discussions with Netherlands Sewell, in particular Dr. Jim Davidson?

MR. LAKE: Indirectly.

MR. RANKIN: Okay. And you stated that you reviewed some of the testimony of some of the witnesses including Goodnight's witnesses in these cases?

MR. LAKE: I didn't understand that. Say it again.

MR. RANKIN: Sure. You reviewed the testimony of the witnesses including Goodnight's witnesses in these cases?

MR. LAKE: Yes.

MR. RANKIN: Okay. Have you prepared, written direct and rebuttal testimony in exhibits that are marked as exhibits G and G1 through G12 that provide your opinions and analyses?

MR. LAKE: Yes.

MR. RANKIN: Were the exhibits and figures included in your direct and rebuttal testimony

prepared by you or compiled under your direction and supervision?

MR. LAKE: Yes.

MR. RANKIN: Do you have any corrections to the testimony, figures, or exhibits that were filed with the commission?

MR. LAKE: Not that I know of.

MR. RANKIN: Okay. And do you adopt the testimony in your self-affirmed direct and rebuttal testimony that you filed with the commission that are marked as Exhibit G as you're sworn testimony today?

MR. LAKE: [Unintelligible response.]

MR. RANKIN: Was that a yes?

MR. LAKE: Yes.

MR. RANKIN: Okay. Now, Mr. Hearing Officer, I would -- I would tender Dr. Lake as an expert witness in Reservoir Engineering and CO2 Enhanced Recovery.

HEARING EXAMINER HARWOOD: Empire?

MS. HARDY: No objection from Empire.

HEARING EXAMINER HARWOOD: OCD?

MR. MOANDER: No objection.

HEARING EXAMINER HARWOOD: Rice?

MR. BECK: No objection.

HEARING EXAMINER HARWOOD: Pilot?

MR. SUAZO: No objection.

HEARING EXAMINER HARWOOD: You will be so recognized.

MR. RANKIN: Mr. Hearing Officer, I would also move the admission into evidence of Dr. Lake's direct testimony and rebuttal testimony marked as Exhibit G and attachments G1 through G12.

HEARING EXAMINER HARWOOD: Any objection from Empire?

MS. HARDY: No objection.

HEARING EXAMINER HARWOOD: OCD?

MR. MOANDER: No objection.

HEARING EXAMINER HARWOOD: Rice?

MR. BECK: No objection.

HEARING EXAMINER HARWOOD: Pilot?

MR. SUAZO: No objection.

HEARING EXAMINER HARWOOD: They'll be admitted.

(Exhibit G and Attachments G1 Through G12 were admitted into evidence.)

DIRECT EXAMINATION

BY MR. RANKIN:

MR. RANKIN: Okay.

Dr. Lake, have you been present --

well, not present, but have you listened to some of the testimony and cross-examination that was provided by some of Empire's experts during this proceeding?

MR. LAKE: Yes.

MR. RANKIN: Did you listen to Dr. Buckwalter's [ph] testimony?

MR. LAKE: I did. Most of it, yes.

MR. RANKIN: Okay. Did you hear any other witness testimony that relates to this case through the matters you're going to be addressing?

MR. LAKE: Today.

MR. RANKIN: Today?

MR. LAKE: Yeah.

MR. RANKIN: And did you prepare a summary of slides reflecting your opinions including any additional opinions based on what you learned from the testimony you heard?

MR. LAKE: Yes.

MR. RANKIN: At this time, Mr. Hearing Officer and Dr. Lake, I would like to walk through your slides.

And starting with this first one, you have some summary points. Walk us through what your summary is.

MR. LAKE: Yeah, I'm going to, first of

all, I probably should apologize. This presentation is academic, a little more wonky -- not wonky wonky, than some of the others I've heard. So if it seems like I'm talking too much or getting into too much of the weeds, please stop me. And Mr. Rankin is my slide advancer, so I'm going to save time to move forward.

Okay. First conclusion is that the disposal, San Andres, and the Grayburg formations are largely separate. And that is based upon three observations. Next. The pressure behavior. The next observation is physical separation. Third one is the lost circulation.

The next thing is that I -- I think the simulation that we referred to just now had too much residual water in it. And that means that there was -- had -- it had to -- water had to come from somewhere. And I think some of those somewhere is in the residual water saturation.

Next. And finally, the recovery prediction is well outside the range of observed CO2 floods.

MR. RANKIN: What does this next slide show?

MR. LAKE: Well, this is a -- this is a diagram of something called a repeat formation tester

on the left-hand side. It looks a lot better here than -- than when I looked at it before. This is something that was invented back in the 1960s. And it's used to measure pressure at different points along a wellbore.

The most recent manifestations of the -- of -- of this, it also can take fluid samples. And it can take other attributes of the fluids being produced, too. It basically is something that moves up and down the wellbore. And I have to use my hands here; okay? It moves up and down the wellbore here, and periodically, it punches the hole through the mud -- the mud cake.

And it samples pressure as a function of time and fluids if you need it. Now, pressure's the only thing we're going to talk about here. So it can be done in just a few minutes. So it can be done, moved up the wellbore, done, moved up the wellbore. And when you finish, you get a profile of a pressure.

So in fact, you get a time change of pressure. But I think we'll just talk about the spatial change of pressure here. And what is not shown on the right-hand side there is a -- is a picture of a typical pressure profile. And it works something like this.

You start at the surface. And as you move down with a straight line -- it's important it's a straight line, that indicates the density of the fluid. But if it passes through a zone that has no permeability or has no fluids, it goes kind of crazy for a while. And then it does it again if there's another zone that has a density of fluid, crazy again and then another one.

And you can tell what the identity of the fluids are, if you're lucky, from the -- from the slopes of the lines. But as important, if not more so, is you can tell which zones are potentially productive. It's pretty clever 'cause you can -- you can run it in a fairly short period of time. You can do a whole profile of pressures.

MR. RANKIN: Okay.

MR. LAKE: Okay.

MR. RANKIN: Next one?

MR. LAKE: Next one. Yeah.

MR. RANKIN: Okay. And you had a point here I guess, Dr. Lake, that I wanted you just to touch on. Why is it important to understand this RFT tool here in the context of this case?

MR. LAKE: Well, it tells you which parts of the zone are permeable, which parts are

fluids or not. And in -- in particular as you look at it as a whole, you get some idea of what -- what ports of the -- of the wellbore are isolated from each other.

MR. RANKIN: Okay. And why is it important to understand what's happening with the pressure in this case?

MR. LAKE: Well, pressure -- pressure to me is the most definitive aspect of barriers. And so if you can see things in the pressure, that's -- that's a barrier.

MR. RANKIN: What does this next slide show, and explain how it relates to your --

MR. LAKE: Yeah, this one is going just take a little while. But first of all, this is not my slide originally. So please, I'm not going to refer to any of the text on the right-hand side over there. On the left-hand side, just sort of a little background. Fluid pressure is measured in PSI or pounds per square inches.

But as important as the pressure is is the gradient or the slope of line, pressure versus depth or -- or distance. Because that's proportional to the -- the rate at which the fluid flows. And we've gotten so used to doing this that we report

gradients in kind of odd units.

It's -- instead of it being pounds per square -- instead of it being pounds per cubic feet or so, it's as it says right there "The gradient for water is 0.46 PSI per foot, and oil is 0.36" and so on and so forth. If I consider two points, two horizontal points in the reservoir, zero gradient indicates perfect communication between the two, the two points.

If I consider two points that are vertical like a wellbore, then the -- the vertical gradient should be equal to the density of the fluid. It's actually the reciprocal density, but we'll -- we'll go with that. And so if it is a -- a zone that is -- that there's -- is -- can flow fluids, that be -- should be a straight line.

And on the right-hand side over there, the -- the vertical axis is pressure. The horizontal axis, I think, I'd get that back. So the vertical axis is depth, the horizontal axis is pressure. And it's -- it goes up as you go deeper, which is what it should do. But it's not a straight line.

It's not a -- so I -- I think that's pretty firm evidence that there is at least a partial, if not a total barrier in -- in between the top and

the bottom of that zone. So next.

MR. RANKIN: Before I leave this Dr. Lake, just to be clear. When you're talking about not a straight line, you're referring to these points on the chart that have the black circle around them; correct?

MR. LAKE: Indeed. I would refer to them, if I could point to them.

MR. RANKIN: Yeah.

MR. LAKE: But -- points -- the points on the line there that -- that determine the curve.

MR. RANKIN: Okay. And I'm asking you this Dr. Lake only because there's going to be a written record, and I'll need to make sure the written record is -- is clear about what you're specifying you're referring to.

MR. LAKE: Fair enough.

MR. RANKIN: Okay.

MR. LAKE: Fair enough.

MR. RANKIN: Okay, next slide.

MR. LAKE: So anyhow.

MR. RANKIN: Yeah.

MR. LAKE: So pressure behavior indicates literally no communication between the disposal unit and the Grayburg.

MR. RANKIN: What does this next slide show, and explain how --

MR. LAKE: The next slide is -- is the second argument on the list of the first page there was physical separation. And the color codes are such that the green indicates the -- well, first of all, the bars there indicate the top and the bottom of the completion intervals. Green indicates an in-situ producer, and red indicates a saltwater disposal unit.

And the two figures, the one on the left and the one on the right, are the same thing. It's just they have different aspects of -- of the completions. And you can see with the exception of the one well that's sticking down there, right there, yes, they're all pretty separate of each other. So the second argument for them being isolated is just physical separation. Okay.

The third one, and this one is basically a little more involved. But when wells are drilled, they are drilled with something called "mud."

MS. SHAHEEN: Excuse me. Excuse me. Empire has an objection to this slide and the next two slides. Dr. Lake provided no testimony regarding lost circulation or mud losses in his written statements, he filed a direct testimony. There's no mention of

mud losses or circulation anywhere in his direct testimony.

Likewise, he was deposed, and there was no discussion of mud, of losses, or of circulation in his deposition. Finally, he also filed rebuttal testimony, and there, again, no mention of mud, of losses, or circulation. It's an unfair surprise, an undue prejudice to Empire. We received these slides late on Tuesday. We had no idea that Dr. Lake would be testifying about mud losses or loss in circulation.

There are other Goodnight witnesses who have testified about this. And we don't believe it is fair for Dr. Lake to all of a sudden be also testifying in that regard.

HEARING EXAMINER HARWOOD: Mr. Rankin? Mr. Rankin?

MR. RANKIN: Mr. Hearing Officer, Dr. Lake testified at length in both his direct and rebuttal testimony about the importance of pressures, about the difference in pressure regimes between these zones. And this is a example, it's a demonstrative, of what he's talking about.

How there's a demonstration of a difference in pressure regimes between the overlying zone and the zone in which Goodnight is disposing of.

He's simply using it to demonstrate the other elements of his basis for his opinions.

HEARING EXAMINER HARWOOD: The objection as to the exhibit, was this first provided to Empire only on Tuesday?

MR. RANKIN: No, no, Mr. Hearing Officer. This exhibit was filed with Mr. McGuire's direct case in August of 2024. This information was also provided to Empire as part of the discovery in this case. I can't even tell you what date it was, but it was months earlier. This information is not new.

In fact, as you saw just the other day, Mr. Hearing Officer, they put forward their own demonstrative showing the lost circulation across the entire EMSU. This is not a surprise. This is the core of the case. There's no surprise here. Dr. Lake has been discussing from the beginning of his testimony the importance of pressure.

HEARING EXAMINER HARWOOD: Okay. But I think the objection goes to its testimony about mud losses.

MR. RANKIN: Oh, I think Dr. Lake has listened to different discussions from the hearing. And I think it's fair for him to opine on what he's

learned based on the hearing.

HEARING EXAMINER HARWOOD: Okay. Ms. Shaheen, I'll hear from you on those points.

MS. SHAHEEN: Thank you Mr. Hearing Officer. Yes. Goodnight has other witnesses who have testified in this regard. Mr. McGuire is free to testify about these. But Dr. Lake, as I mentioned, has never once mentioned mud losses or circulation in any of his prior testimony.

And I think it's cumulative, if not prejudicial, to Empire at this point to have Dr. Lake testify on a subject on which he's not disclosed any previous testimony.

HEARING EXAMINER HARWOOD: So do you have any objection to him testifying about pressure as opposed to mud losses?

MS. SHAHEEN: I am fine with him testifying about pressure because that is in his testimony. But he did not, again, testify about mud losses or circulation.

HEARING EXAMINER HARWOOD: Are you okay with that? Are you going to end up with a problem if Preston McGuire has -- if he's actually going to testify about that, then you'll end up with cumulative objections with him.

MR. RANKIN: This is part of Mr. McGuire's testimony. I guess I would ask, can Dr. Lake explain some of the bases for his opinion about differences in pressure?

HEARING EXAMINER HARWOOD: Well, at your own risk.

MR. RANKIN: I'm not sure what the hearing officer is referring to, I guess.

HEARING EXAMINER HARWOOD: Well, what I mean is Ms. Shaheen is saying you have another witness teed up to testify about the relationship, apparently, between mud losses and pressure differential. So if you ask this witness about that and then ask another witness about that, I may start sustaining cumulative objections.

MR. RANKIN: Mr. Hearing Officer, I would point out that Empire had 11 witnesses, several of whom repeated over and over again about Mother Nature's water flood, how it started, where it went, the effect of Mother Nature's water flood. I made no objection to cumulative evidence. I don't --

HEARING EXAMINER HARWOOD: Okay. You could have. And all I'm telling you is they have the right to make that objection if you go there.

MR. RANKIN: Well --

HEARING EXAMINER HARWOOD: I'm going to allow it if you want to go there. And then we'll end up, we may end up in a problem with Preston McGuire.

BY MR. RANKIN:

MR. RANKIN: Dr. Lake, I would just ask you, rather than go into detail about mud losses, the nature of the mud losses, how it occurred, where it occurred, any information specific about mud losses, but I guess I think it's appropriate for you to testify about how the fact of mud losses in the EMSU has supported the basis for your opinion; okay?

So rather than getting into details about the specific exhibit here, I would just ask how in general your understanding of the fact that there were lost circulation underneath the EMSU and surrounding have informed your opinion?

MR. LAKE: Well, I think it's a pressure issue. So because the mud is supposed to go down the well, it's supposed to come up at the -- the outside of the tubing. And when it encounters a zone that is low pressure or a zone that's highly permeable, it -- it has a tendency to lose, to basically -- it'll flow into the formulation -- flow into the formation and not back to the surface.

It's called lost mud. So it is -- it

is a pressure issue. And the fact that they lost -- what was that? -- 22 -- bottom hole pressure started there at 4,295. Next slide.

MR. RANKIN: So Dr. Lake, rather than getting into too much detail about the mud losses, to preserve any issues or avoid any further issues, I'll just ask you, I'll skip down through these next few slides and ask you to explain to me at a high level your basis for why, in your opinion, there's a pressure differential between the Grayburg and San Andres.

MR. LAKE: Go back one slide. So lost circulation indicates low pressure in the San Andres, and it indicates high perm. In fact, I think there's other testimony that says how -- how low the pressure differences are. By the way, pressure is an elusive little fella 'cause there's so many different pressures around a reservoir. But this is speaking about the bottom hole pressure of circulating mud.

MR. RANKIN: What's this next slide show? And if you would, just explain to us what this next --

MR. LAKE: This goes to the third bullet. I talked about too much water, and this one is the wonkiest slide here. On the left-hand side is

a -- something called a -- a relative permeability curve. This is the one that came from a report by Cobb in, I think, the 1980s. Then onto the right, there's the same thing.

These are the curves that were used in Dr. Buckwalter's [ph] simulation results. These things represent, on the vertical axis, the relative mobility or permeability of the indicated fluids. That is a dynamic measure. Across the horizontal axis is the -- is a water saturation; that is a static measure.

And this is one of the things that we strive to do in petroleum engineering is to relate dynamic and static measures. I'll -- I'll refer to the one on the left, although both -- both of these are laboratory measurements. And there should be a bunch of little points around it, and they have been summarized with -- with curves.

But the curve that is decreasing from left to right is the oil relative permeability. And its most important feature is usually where that curve goes to zero. I think that's about 70 percent, isn't it?

MR. RANKIN: Yes.

MR. LAKE: And then the other curve,

the one that's increasing for right to left, is the water relative permeability. And that's about 20 percent or so. On the -- on the right-hand side, the same things that I've tried to indicate, the water residual saturation. The residual saturation is where the relative permeability goes to zero.

So I've got a blue area over here on the left-hand side of about 20 percent. And on the right-hand side -- and honestly, I can't read that. Is that 35 percent?

MR. RANKIN: Yeah. Oh, sorry -- Dr. Lake. Yeah, 35 percent.

MR. LAKE: Yeah. So -- so he starts off with a lot more water in the -- in the simulation than -- than what probably should be there. And he needs this so that you can make up the water that he sees produced at -- at the wellbore. So the claim is the modeling work starts with a residual water saturation that's too large.

This is falling back on experience. But with the San Andres cores that I've seen in other places, residual water saturation is 15 percent or so, much, much smaller than either one of these. Okay, next.

Okay. A little bit of background on

CO2 enhanced oil recovery. This -- this is by far -- well, first of all we inject CO2 in the reservoir. As the -- the cartoon there says, there's a -- a vertical well. Nearly all of the wells that have been done, CO2 -- have been done through vertical wells. There are some horizontals. And it's producing fluids to the second vertical well on the right-hand side there.

And you inject the CO2, and it brings about chemical changes in the oil. And those chemical changes, and it's represented by that -- that dark -- the red-blue area there on the right-hand side, can cause oil that was previously immobile to be mobile. And that can cause a bank to form. This is the most common form of enhanced oil recovery in the Permian Basin.

And with the exception of thermal EOR, this is the most successful form of an enhanced oil recovery.

Most operators inject it with water, and that's where the water alternating gas comes from. So they inject a little bit of CO2, a little bit of water, a little bit of CO2. And that's shown in the cartoon there on the right, that's alternating light blue and light green areas there. So the injecting water increases the volume of the reservoir that is

contacted.

And there's a lot of papers that would support that. But it also reduces the amount of CO2 that's required. And so as long as it doesn't compromise the flood too much, it's a good thing to do because you save expenses that way, too. Typically, the WAG ratio is about two barrels of water for every barrel of CO2 injected in there. And so that's CO2 enhanced oil recovery. Okay, next.

Now, this has been around since the 1960s or 1970s. This is the -- the paper that I'm showing you results from there is a top in -- . The title of this is "50 Years of Enhanced Oil Recovery." I should remember that. I was -- I was an author on that. And so it's -- it basically is a summary of the field experience.

Oh, and I should say this to make sure I don't -- when I think of it, I have to make sure I don't -- don't forget it later on. These are all conventional CO2 floods. They're not floods in ROZs. And so the -- the right upper figure shows the vertical axis. The CO2 recovered is a fraction of the hydrocarbon pore volume.

And across the horizontal axis is the total water plus CO2 injected as a fraction of the

hydrocarbon pore volume. The figure at the bottom is a figure that came from a paper that the testimony showed was used in calculating CO2 recovery for an ROZ zone.

And the -- the one on the left, the one on the bottom basically is just a simulation. But the one on the upper right is actual data. We got a really good data set from a consulting company. And so we plotted them all up. If you can see the -- the faint lines there, that's the behavior of the individual 20 some odd conventional CO2 floods that have been going on mostly in the Permian Basin, but occasionally outside of it.

The dotted lines represented plus or minus two standard deviations of the -- of the average, which is red. And the solid lines represent plus or minus one standard deviation. A lot of spread, a lot of scatter. And so I know that over here at the extreme right-hand side where it's injected four pore volumes, the average recovery is about 11 percent.

This is -- this is data. This is not just some simulation. And if I move down to the middle plot over here where they've injected four pore volumes, they're showing recoveries of about 18

percent, which is about twice as much as what the actual field did. In fact, 18 percent is basically two standard deviations above the mean.

And remind you again that these are conventional CO2 floods, and it is likely that ROZ floods would perform about a third as well as this. So it is my belief, and that's the next advance, is that our recovery prediction is too optimistic. So that's the summary.

MR. RANKIN: Thank you, Dr. Lake. Thank you very much.

Mr. Hearing Officer, before I release Dr. Lake for cross-examination, I just have a few more questions.

Dr. Lake, what's your opinion about Empire's proposal to develop a potential ROZ in the EMSU?

MR. LAKE: I don't think they'll make money.

MR. RANKIN: How about the proposal to develop a potential ROZ in the interval that Goodnight Midstream is disposing into?

MR. LAKE: I don't think they'll make money there, either.

MR. RANKIN: Is there any reason that

you're aware of that would prevent Empire from collecting additional data, itself, on the potential for an ROZ in Goodnight Midstream's disposal zone at this time?

MR. LAKE: Expense would be the only reason.

MR. RANKIN: In your experience, is four years enough time to acquire sufficient data to develop and plan to conduct an ROZ project?

MR. LAKE: Four years of data collection, is that what you said?

MR. RANKIN: Is four years enough time to collect data and develop a plan?

MR. LAKE: I think so. Yeah.

MR. RANKIN: What's your opinion about whether Goodnight's disposal injection is impairing Empire's EMSU operations?

MR. LAKE: Yeah. I -- I'm skeptical. And what I go back to is a publication about ten years ago by a fellow named Enick at the University of Pittsburgh who measured the CO2 oil phase behavior in the presence of freshwater and saltwater. And there was no -- no difference whatsoever. It's not a process that's considered to be sensitive to the salinity of the water.

MR. RANKIN: What's your opinion about whether Empire's producing zone and Goodnight's disposal zone are in communication?

MR. LAKE: We just -- we talked about that before. I don't -- I don't think there would be an issue.

MR. RANKIN: And what's your opinion about whether Empire can develop a residual oil zone in the EMSU while Goodnight continues to dispose of produced water into its disposal zone?

MR. LAKE: I think they can.

MR. RANKIN: Okay. Dr. Lake, based on your review, do you believe that there's enough data today to make a decision based on what you've reviewed?

MR. LAKE: I don't think so. There's a lot of uncertainties, a lot of missing things. So no, I -- I don't think so.

MR. RANKIN: Okay. What additional data do you think needs to be obtained in order -- and I guess the question is, is it your opinion that -- your opinion today is that there's enough information to know that there's not going to be impairment from Goodnight's injection; correct?

MR. LAKE: I think so, yes.

MR. RANKIN: Okay. But the question is whether there's enough information whether an ROZ could even work; is that right?

MR. LAKE: Yeah. I think -- partly why I answered that is that I've done some looking up of historic ROZ developments. There's almost no data in the literature about this. But the recoveries are very -- are very low. So I don't see reason why this would not be similar -- similar also.

MR. RANKIN: Okay. Thank you very much, Dr. Lake.

At this time, Mr. Hearing Officer, I have no further questions of Dr. Lake and make him available for cross-examination.

HEARING EXAMINER HARWOOD: All right. Thank you, Mr. Rankin.

Ms. Shaheen or Ms. Hardy I'm guessing.

MS. SHAHEEN: Thank you, Mr. Hearing Officer.

CROSS-EXAMINATION

BY MS. SHAHEEN:

MS. SHAHEEN: Good afternoon, Dr. Lake. We met virtually at your deposition.

MR. LAKE: Good -- good afternoon again. Yeah.

MS. SHAHEEN: Nice to see you. I understand from your CV that you've done some consulting work for Chevron and for Exxon; is that correct?

MR. LAKE: Let me see. Chevron for sure. Exxon, yeah. A long time ago, though.

MS. SHAHEEN: And in your opinion, do these companies perform good work?

MR. LAKE: In my opinion, yes.

MS. SHAHEEN: And you'd agree with me, then, that Exxon wouldn't represent the existence of an ROZ in its sale package if they hadn't performed enough analysis or have enough evidence to support that representation; is that right?

MR. LAKE: That's -- that's sort of the way they operate. But if it is, it is.

MS. SHAHEEN: Can you tell us what you were asked to do for Goodnight in this matter?

MR. LAKE: To estimate what I thought the feasibility of a -- of a successful ROZ flood and to the extent of which the -- the water disposal would compromise the CO2 flood.

MS. SHAHEEN: You weren't asked to determine whether there's an impermeable barrier between the Grayburg and the San Andres, were you?

MR. LAKE: I think so. We said no communication.

MS. SHAHEEN: And so have you given us an opinion that there exists an impermeable barrier throughout --

MR. LAKE: Yeah. Yeah. I -- I understand you. I'm sorry, I talked over you, sorry.

HEARING EXAMINER HARWOOD: Yeah, Doctor. Just I know you can anticipate the full question.

MR. LAKE: Yeah, I understand.

HEARING EXAMINER HARWOOD: For the sake of the court reporter and everybody's sanity, if you'll please wait for Ms. Shaheen, and just think of it as a radio transmission where you don't have to say over.

MR. LAKE: Yeah. Yeah.

HEARING EXAMINER HARWOOD: Thank you.

MR. LAKE: So a single barrier, probably no. But a collection of barriers -- in fact, that one slide that I showed that had the pressure versus depth, but thinking about how one could actually back out sort of the density of the barriers or maybe the -- the length of the barriers from -- from that. So I think the pressure indication is --

is definitely noncommunication. Probably not a single barrier.

MS. SHAHEEN: You weren't asked to determine whether a residual oil zone exists in the San Andres, were you?

MR. LAKE: I was not.

MS. SHAHEEN: And you, yourself, did not conduct a study to evaluate whether a residual oil zone exists in the San Andres, did you?

MR. LAKE: No.

MS. SHAHEEN: In your direct testimony, that was filed in August, on page 3 you speak of "the large injection rate and small pressure increase." Do you recall that testimony?

MR. LAKE: I do.

MS. SHAHEEN: When considering the small pressure increase, did you factor in the volumes of water that had been removed from the San Andres through the water supply wells for the water flood?

MR. LAKE: I've just -- just looked at what the data said. And so I just had the -- the injection volumes, which is in millions of barrels as I recall, and a very small pressure increase.

MS. SHAHEEN: So this slide, you can take a minute to look at it.

MR. LAKE: Okay.

MS. SHAHEEN: But what I understand it shows is the amount of water that was injected in the San Andres prior to 1986, before the unit was formed. And then the green on the right shows the water that was withdrawn from the water supply wells during the water flood.

And you can see there's a large dip there and kind of remains level for a while and then starts coming up fairly drastically there in the yellow part there since 2020 when Goodnight began its injection. Do you see that?

MR. LAKE: I do see that.

MS. SHAHEEN: And so did you take into consideration this exchange of water, if you will, when you offered your opinion about the small pressure increase and the large injection rate?

MR. LAKE: I think that's a dotted line, which indicates that it's an estimate.

MS. SHAHEEN: Yes. After 2025 going forward --

MR. LAKE: Right.

MS. SHAHEEN: -- that is a dotted line, and that is projected.

MR. LAKE: Yeah.

MS. SHAHEEN: But up through the yellow is actual water withdrawals up until 2024.

MR. LAKE: Yeah. I'm -- I'm very, very fuzzy on what -- where this slide comes from or -- or what -- or what this slide means. I just remember the spreadsheets that were in the testimony that showed very small pressure changes.

MS. SHAHEEN: This is from the OCD website, data from the OCD website and our rebuttal Exhibit B47. Are you aware that the injected water has effectively replaced most, if not all, of the previously removed water?

MR. LAKE: If you say so. I don't know. I didn't calculate those volumes.

MS. SHAHEEN: You didn't review that data and compare it?

MR. LAKE: I just misread it. I didn't -- one versus the other.

MS. SHAHEEN: Wouldn't you expect that the pressure will increase at a greater rate now given that any future withdrawal of water will be much less than Goodnight's proposed injected volumes?

MR. LAKE: It's a bit of a mystery because even without the withdrawal, it -- well, let me say it right. It's -- it's -- there's -- there's

some holes out there that's taking a lot of water. Which means that you could probably pull -- pull a lot -- a lot of water through there. And so I -- I guess -- I guess I forgot what the question was; so --

MS. SHAHEEN: The question is wouldn't you expect that the pressure will increase at a greater rate now given that any future withdrawal of water will be much less than Goodnight's injected volumes?

MR. LAKE: In -- in the normal case, yes. But not in this case. That's amazing. It injects with basically no pressure difference.

MS. SHAHEEN: Have you seen the fluid data, fluid level data, that Goodnight recently provided to Empire?

MR. LAKE: Have I seen that? I don't recall that I've seen that.

MS. SHAHEEN: On the right here, do you see this chart?

MR. LAKE: Uh-huh.

MS. SHAHEEN: It's somewhat of a spreadsheet. This data was provided to us about a week ago, fluid level data from Goodnight's injection wells. And over to the left is a graphic representation of that fluid level data.

MR. LAKE: The vertical axis is pressure?

MS. SHAHEEN: The vertical axis is fluid level from the surface.

MR. LAKE: Which is -- okay. Which is a surrogate for pressure.

MS. SHAHEEN: You agree that the fluid levels are rising in every well across the formation except for the Piper 2, which we understand has been shut in. Do you agree?

MR. LAKE: Not every well. And furthermore, I don't know what the uncertainty of these measurements are. It looks pretty constant to me.

MS. SHAHEEN: You're looking at -- it looks to me, and, you know, correct me if you see this differently. But I see at the bottom there, the dark blue line and the green line, and they progressively go up, level out a little bit, then they go up even more, and then they level out a little bit. But from February of 2022 to almost May of 2025, you wouldn't agree with me that those fluid levels have gone up?

MR. LAKE: I'm looking at 10 -- specifically, your question was over that time interval; right?

MS. SHAHEEN: I'm sorry?

MR. LAKE: Your question was over the time interval?

MS. SHAHEEN: Yes.

MR. LAKE: Yeah. Yeah. It -- it's -- it's gone up. But then it flattens out there about 10/23. That's four years.

MS. SHAHEEN: You would agree that rising fluid levels indicate that pressures are rising.

MR. LAKE: I agree.

MS. SHAHEEN: And you agree that pressure will continue to rise with the injection of large volumes of water; correct?

MR. LAKE: Oh yeah.

MS. SHAHEEN: I think you've viewed a number of variations of this slide, including your own, that reflects the repeat formation test pressure data. You're aware that this RFT, repeat formation test, performed in 1986 was before the water flood; right?

MR. LAKE: Okay. I didn't know that.

MS. SHAHEEN: And it was before any water supply well withdrawals as well. Are you aware of that?

MR. LAKE: Nope.

MS. SHAHEEN: Is it your opinion that these pressures do not support the conclusion that there's communication between the San Andres and the Grayburg?

MR. LAKE: Well, I think it does support the conclusion. But what it does not support is a single isolated barrier. So there's baffles or something there. There's -- there's something that's prohibiting movement.

MS. SHAHEEN: And you understand that as represented here in Empire slide 3, Empire applied a 0.43 gradient, PSI per foot, to calculate the San Andres pressure? You understand that?

MR. LAKE: That's -- yeah, that's common.

MS. SHAHEEN: And you understand that the blue line on the right side of this slide, right here where my cursor -- I'm going to try to put my cursor. There it is. That this blue line represents that calculation?

MR. LAKE: Yeah.

MS. SHAHEEN: And that pressure was calculated to be 1,527 PSI in the San Andres? Right here.

MR. LAKE: What was the question?

MS. SHAHEEN: The question is, you understand that they used that gradient to calculate San Andres pressure, original San Andres pressure, at 1,527 PSI?

MR. LAKE: Yeah. It -- it -- I understand your question now. It depends on where that line started. I mean, the gradient is correct, but I don't know where the lines start. You could shift that blue line to the left quite a bit and still -- and -- and still -- what am I trying to say here? And still to honor the gradient because it's the slope of the line, not the -- not the pressure, itself.

MS. SHAHEEN: Okay. But you agree that the pressure was calculated to be 1,527 PSI in the San Andres?

MR. LAKE: I agree that somebody calculated that. Yes.

MS. SHAHEEN: And you would agree that 0.43 is a reasonable gradient for a normally pressured reservoir; right?

MR. LAKE: Correct.

MS. SHAHEEN: And looking at your exhibit G4 -- I'll pull it up if we need to, but

there, you've actually used 0.46 PSI per foot as the gradient; is that right?

MR. LAKE: I think I didn't. Could you go back to that?

MS. SHAHEEN: Sure.

MR. LAKE: Yes. That gradient depends on water salinity, and so it depends. It's -- it's -- these are fairly saline, and so it's usually 0.433 to about 0.465. So, like -- but I didn't use that for any calculation. It's just there for illustration.

MS. SHAHEEN: But you agree, you're -- my understanding is you've recommended that 0.46 PSI per foot would be a reasonable gradient to use here; is that right?

MR. LAKE: To who did I recommend it? I don't understand the question.

MS. SHAHEEN: On your slide here, you're representing that water, the water gradient, should be 0.46 PSI per foot; is that right?

MR. LAKE: That's saltwater, yes.

MS. SHAHEEN: And you agree that this gradient will give you a higher pressure than 1,527 PSI that was calculated by Empire?

MR. LAKE: If it were a straight line, yeah.

MS. SHAHEEN: So you agree that the San Andres is under pressure; correct?

MR. LAKE: I do.

MS. SHAHEEN: How do you explain the lower pressure reading using your gradient?

MR. LAKE: I don't explain it at all. I -- it's a geologic factor.

MS. SHAHEEN: On page 4 in paragraph 8 of your direct testimony, you opine that significant pressure differences between the San Andres and the Grayburg "are conclusive evidence of lack of communication." Do you recall that testimony?

MR. LAKE: I think so.

MS. SHAHEEN: You didn't do any calculations on the pressure differences; right?

MR. LAKE: No.

MS. SHAHEEN: You rely on Preston McGuire; is that right?

MR. LAKE: Yes.

MS. SHAHEEN: On page 5, paragraph 9 of your direct testimony, you opine that the San Andres "used by Goodnight Midstream is separated from the Grayburg Formation by at least 200 feet, which includes impermeable zones and anhydrite layers." Do you recall that testimony?

MR. LAKE: I think so. That was a lot, though.

MS. SHAHEEN: You, yourself, did not perform any analysis or study to come to this opinion, did you?

MR. LAKE: No. Because I think I would explain my reasoning a little from -- from the other direction. I know that --

MS. SHAHEEN: Excuse me, if you'd just answered my question, that would be appreciated.

MR. LAKE: Okay. Can you do it again?

MS. SHAHEEN: Did you make any effort to determine the location of this purported impermeable barrier?

MR. LAKE: Did not.

MS. SHAHEEN: Am I correct in understanding that you relied on Goodnight witness Preston McGuire for this opinion?

MR. LAKE: Yes.

MS. SHAHEEN: On page 5, paragraph 11 of your direct testimony, you referred to the "low concentration of oil in the San Andres." Do you recall?

MR. LAKE: I think so.

MS. SHAHEEN: You, yourself, did not

perform a study on the concentration of oil in the San Andres; correct?

MR. LAKE: No.

MS. SHAHEEN: Am I correct that you relied on Dr. Davidson's testimony to support your opinion here?

MR. LAKE: I relied on the testimony -- the -- the -- I'm sorry. I did it again. I'm sorry. I -- I relied on the -- on the -- the published logs, the material that I reviewed.

MS. SHAHEEN: And you reviewed logs?

MR. LAKE: Didn't review logs. I reviewed the published logs, the reports of that.

MS. SHAHEEN: And which reports did you review?

MR. LAKE: It may have been Davidson's.

MS. SHAHEEN: Are you aware that Dr. Davidson testified he saw oil saturations all the way down to the bottom of the San Andres?

MR. RANKIN: Objection to mischaracterization of Dr. Davidson's testimony.

MS. SHAHEEN: Did you listen to Dr. Davidson's testimony in the hearing this week?

MR. LAKE: I did not.

MS. SHAHEEN: On page 9, paragraph 20

of your direct testimony, you opine that the San Andres is likely fractured and/or heavily karsted; correct?

MR. LAKE: Yes.

MS. SHAHEEN: What is the basis for your opinion?

MR. LAKE: Well, carbonate reservoirs, this is a carbonate, calcium carbonate, tend to be fractured because they tend to be a lot more brittle. And a little bit of stress will cause there to be a crack --

MS. SHAHEEN: Did you perform a study here? I'm sorry.

MR. RANKIN: Objection. He's in the middle of answering a question.

MS. SHAHEEN: My apologies.

MR. LAKE: I'm losing track of this, guys. What -- what was the deal? Oh, finish answering the question. Also, carbonates are -- are kind of reactive to water. So they have a tendency for water to -- to leach out in portions of it. It's pretty obvious in some places.

And -- and in -- in locations where carbonate by itself would be almost impermeable, the connection of karst -- the karst and the connection of

the karst can lead to a pretty high -- high permeability medium.

MS. SHAHEEN: Did you perform a study in this regard?

MR. LAKE: No.

MS. SHAHEEN: Have you reviewed Dr. Lindsay's fracture study?

MR. LAKE: I have.

MS. SHAHEEN: Wouldn't these fractures, these karsts, include vertical fractures?

MR. LAKE: I don't remember it that well.

MS. SHAHEEN: Well, just generally speaking, you opined on karsts and heavy fractures in the San Andres; right?

MR. LAKE: Yeah.

MS. SHAHEEN: And so my question is, wouldn't these fractures include vertical fractures?

MR. LAKE: If I think about this, fractures at depth are usually vertical. So yes.

MS. SHAHEEN: If there are fractures and karsting throughout the San Andres, how can the San Andres have a barrier in it that exists throughout the EMSU?

MR. LAKE: That's geology. I don't

know.

MS. SHAHEEN: Couldn't you conclude that there's communication between the San Andres and the Grayburg because of the large injection rate and small pressure increase?

MR. LAKE: Let's see. You mean small pressure? I'm having trouble visualizing that. Does small pressure increase in a large injection rate?

MS. SHAHEEN: Yes.

MR. LAKE: And so your -- your picture, is that -- everything is bleeding through to the -- to the Grayburg?

MS. SHAHEEN: I'm just asking hypothetically, couldn't you conclude that there is communication between those two formations --

MR. LAKE: Yeah.

MS. SHAHEEN: -- based on the large injection rate?

MR. LAKE: Yes. Okay.

MS. SHAHEEN: Have you reviewed water production data for the Grayburg wells?

MR. LAKE: No. I have not.

MS. SHAHEEN: Have you seen this graphic depiction of oil and water production data available from the Oil Conservation Division?

MR. LAKE: I have not.

MS. SHAHEEN: And you'll see here there are large bubbles, and there are smaller bubbles. And the blue here indicates the cumulative water production to date. And the green indicates the oil cumulative -- the cumulative oil to date. If there's no communication between the Grayburg and the San Andres, how do you account for the ratio of oil and water production evident here?

MR. LAKE: Well, one of the ways to account for it is the fact that he put -- into his simulation, he put in a lot of -- a lot of extra water. But another way to account for it is I think there's aquifers on -- on maybe both sides of this reservoir.

MS. SHAHEEN: If it's edge water, why don't the wells in the middle here have high water production?

MR. LAKE: Don't they?

MS. SHAHEEN: These smaller -- I'm trying to find my cursor here. These smaller circles here have more oil production and less water. So you can see here. So my question is, if it's edge water coming from either side, why don't these wells in the middle have high water production?

MR. LAKE: I'm not sure I understand your question because edge water means it's coming from the side. And most of the -- the big, blue dots are from the side over there. So that's where the water's coming from, off to the left side.

MS. SHAHEEN: Well, would that explain this big bubble right here?

MR. LAKE: Which big bubble right there? No, it's an anomaly. It's -- it's not -- not characteristic of the rest of it.

MS. SHAHEEN: Okay. But you're saying that edge water is coming from this direction?

MR. LAKE: No. To the left.

MS. SHAHEEN: You're saying edge water is coming from this direction?

MR. LAKE: Yeah.

MS. SHAHEEN: Have you performed a study in --

MR. LAKE: .I have not. No. I'm just going by --

HEARING EXAMINER HARWOOD: Doctor, again, please wait for --

MR. LAKE: Yeah, I'm sorry.

HEARING EXAMINER HARWOOD: -- Ms. Shaheen to finish her question. Thank you.

MR. LAKE: Sure.

MS. SHAHEEN: This, I believe, is your exhibit G3. One more question going back to the bubble map. Are you aware that the reservoir, the Grayburg reservoir, pinches out to the east?

MR. LAKE: I was not aware of that. No.

MS. SHAHEEN: And I believe this is your Exhibit G3. Do you recognize this exhibit?

MR. LAKE: That's a version of that exhibit. There are actually more on the exhibit than what's here.

MS. SHAHEEN: This is the first page of it; is that correct?

MR. LAKE: First page of what?

MS. SHAHEEN: Of your Exhibit G3.

MR. LAKE: Oh, you're talking about the original document?

MS. SHAHEEN: Yes.

MR. LAKE: Oh, okay. I thought you were talking about my presentation. Yeah. Okay.

MS. SHAHEEN: Okay. And you didn't create this exhibit, did you, Dr. Lake?

MR. LAKE: No.

MS. SHAHEEN: Who created it?

MR. LAKE: My colleague at Austin Consulting Petroleum Engineers.

MS. SHAHEEN: In your deposition, you stated that you got "tops and the bottom of the reservoirs from well data obtained from the subscription service IHS." Do you recall that testimony?

MR. LAKE: I believe so.

MS. SHAHEEN: And that's what information you used for Exhibit G3; is that right?

MR. LAKE: Yes.

MS. SHAHEEN: On page 5 in paragraph 11 of your direct testimony, you rely on NSAI's, that's Netherland, Sewell, I believe, on its analysis that "Empire's target San Andres ROZ below negative 700 feet total vertical depth subsea is in an aquifer with only scattered saturation above 20 percent." Do you recall that testimony?

MR. LAKE: That's in the Netherland, Sewell report?

MS. SHAHEEN: Yes. What witness from Netherland, Sewell did you rely on?

MR. LAKE: I don't remember that.

MS. SHAHEEN: Did you, yourself, conduct any study in this regard?

MR. LAKE: No.

MS. SHAHEEN: Did you verify Netherland, Sewell's opinions in this regard?

MR. LAKE: No.

MS. SHAHEEN: Have you reviewed the course from the EMSU-679 and the R.R. Bell number 4 to determine oil saturation?

MR. LAKE: No.

MS. SHAHEEN: Turning now to your rebuttal testimony. On page 3 of your rebuttal, you critique Mr. West's use of dimensionless curves from a 2009 SPE paper; is that right?

MR. LAKE: Could you show it to me?

MS. SHAHEEN: Yes, I will.

MR. LAKE: Okay.

MS. SHAHEEN: Well, oh, you want me to show you your rebuttal?

MR. LAKE: Yeah.

MS. SHAHEEN: Okay, let me see if I can pull that up. Okay. This is your rebuttal testimony. Page 3. I think it's this first full bullet here.

MR. LAKE: Yes.

MS. SHAHEEN: Do you see that?

MR. LAKE: I see it.

MS. SHAHEEN: So there, you appear to

complain that the dimensionless curves are not appropriate to use with respect to the EMSU because the curves relate to Wyoming and to determining CO2 demand and not oil recovery; is that accurate?

MR. LAKE: That's accurate, yes.

MS. SHAHEEN: Is this the paper that you're relying on?

MR. LAKE: Let me see. Yes.

MS. SHAHEEN: And it's entitled "Estimates of Potential CO2 Demand for CO2 EOR in Wyoming Basins"; correct?

MR. LAKE: Yes.

MS. SHAHEEN: Copyright 2009, SPE 122921. And here in this first highlighted place, I have highlighted "ExxonMobil operates one of the world's largest CO2 producing fields at the LaBarge anticline in southwestern Wyoming. Five Wyoming fields are currently under CO2 flooding using the CO2 supplied by a CO2 pipeline network that originates at ExxonMobil's gas plant at Shute Creek." Do you see that?

MR. LAKE: Yes.

MS. SHAHEEN: I believe you testified earlier that you believe Exxon knows what it's doing. Is that right?

MR. LAKE: Seems to.

MS. SHAHEEN: Here, the second highlighted part, can you see it? Should I make a bigger? I can make it a little bigger here.

MR. LAKE: I -- I can't.

MS. SHAHEEN: Is that helpful?

MR. LAKE: Where it says "The purpose of this study is twofold"? Is that what you're talking about?

MS. SHAHEEN: Yes.

MR. LAKE: Yeah. Okay.

MS. SHAHEEN: "First, to screen for Wyoming oil reservoirs that are technically suitable for CO2 flooding. And second, to provide a method that quickly estimates the potential CO2 demand for CO2 EOR candidate reservoirs. The resulting database and CO2 demand estimation should be used for CO2 suppliers to foresee the market volume for CO2 EOR in Wyoming basins"; correct?

MR. LAKE: Yes.

MS. SHAHEEN: Moving on. And then it says "The primary objective of CO2 EORs: To remobilize and dramatically reduce the post water flooding residual oil saturation and reservoir pore space"; correct?

MR. LAKE: Yes.

MS. SHAHEEN: You can skip that one. And then here it starts talking about the dimensionless curve. "The dimensionless curve obtained from the CO2 WAG flood in the 10 Sleep Reservoir of Lost Soldier is shown in figure 3 and is compared with the typical dimensionless curve from the CO2 wag floods in the San Andres reservoirs of West Texas." Do you see that?

MR. LAKE: I do.

MS. SHAHEEN: And so here, they've actually compared not only the Wyoming dimensionless curve but also a dimensionless curve from the San Andres reservoirs in West Texas; is that right?

MR. LAKE: Yes.

MS. SHAHEEN: And then this following sentence "For similar type of reservoirs using a same CO2 flood scheme, the dimensionless curve method could provide a quick assessment of potential oil recovery as well as required CO2 injection volume." Did I read that correctly?

MR. LAKE: Yes.

MS. SHAHEEN: And then here again in this highlighted section, it again talks about CO2 floods in the San Andres reservoirs of West Texas;

correct?

MR. LAKE: Yes.

MS. SHAHEEN: And then finally there's a figure, let me see how far down it is. Thank you for your patience. I should have made a note of which -- here we go. Here we have a figure that indicates both the dimensionless curve from Wyoming as well as the dimensionless curve from the San Andres formation in West Texas; correct?

MR. LAKE: Correct.

MS. SHAHEEN: And in the same rebuttal testimony, you complain that the source of the dimensionless curve for the San Andres in the SPE paper is unknown; do you not?

MR. LAKE: I'm sorry, say that again.

MS. SHAHEEN: You complain that the source of the dimensionless curve for the San Andres in the SPE paper is unknown. Do you recall that?

MR. LAKE: I do not recall that.

MS. SHAHEEN: Let's see, should I go back? Do you want me to go back to your rebuttal?

MR. LAKE: Sure. Okay.

MS. SHAHEEN: Do a quick search for curve here. Okay, well, I won't waste our time here, but I will show you the source of that dimensionless

curve here in my PowerPoint. Here it is. Are you aware that that dimensionless curve came from the Kinder Morgan screening tool?

MR. LAKE: No. I did not know that.

MS. SHAHEEN: In your slide 8 and in your testimony, you opine that Dr. Buckwalter's [ph] modeling work starts with residual water saturation that is too large, don't you?

MR. LAKE: Yes.

MS. SHAHEEN: What fields did you look at to come to this opinion?

MR. LAKE: Oh gosh, Sack Rock Watson or whatever, Seminole. All -- all those are conventional CO2 floods.

MS. SHAHEEN: Did you hear Mr. Knights' testimony yesterday?

MR. LAKE: Did not.

MS. SHAHEEN: He testified that none of the other ROZ fields are analogous to the EMSU. Do you agree with Mr. Knights?

MR. LAKE: I don't know whether to agree or not. The -- it's such an early -- early stage of development with the ROZ reservoirs. I would guess that he's probably right.

MS. SHAHEEN: With respect to residual

water saturation, did you look at the literature relating to the EMSU in this regard?

MR. LAKE: I did once, yes, but I don't recall.

MS. SHAHEEN: Have you reviewed the EMSU working interest owner meeting minutes from 1990?

MR. LAKE: No.

MS. SHAHEEN: Here, this indicates at the bottom here in the red box that initial water saturation was 30 percent. Would you agree that Dr. Buckwalter's [ph] number is much closer to the applicable literature?

MR. LAKE: For a residual water saturation in a Permian carbonate? No. I don't think so.

MS. SHAHEEN: You don't agree that Dr. Buckwalter's [ph] use of 35 percent is closer to the 30 percent that's identified here than your estimation of 15 percent?

MR. LAKE: Yeah. All I can say is what I've seen; so --

MS. SHAHEEN: And you haven't seen this before?

MR. LAKE: No.

MS. SHAHEEN: Just a few questions

relating to the testimony about mud losses. Have you ever seen mud losses used to predict tops of formations?

MR. LAKE: No, I haven't. That's what made it interesting.

MS. SHAHEEN: Did you review all of the drilling reports in all wells that penetrate the Grayburg and the San Andres to identify the locations of any and all mud losses?

MR. LAKE: Did you say all of the wells?

MS. SHAHEEN: Yes.

MR. LAKE: No.

MS. SHAHEEN: Are you aware of any literature that discusses the use of mud losses to identify barriers between formations?

MR. LAKE: No.

MS. SHAHEEN: When you have losses, do you know without a doubt what zone is taking the losses?

MR. LAKE: I think I'm going to have to ask you to explain that one. Do you mean the name of the zone or the location or what?

MS. SHAHEEN: I'd say the location.

MR. LAKE: Yeah, you --

MS. SHAHEEN: For example -- I'm sorry. Go ahead.

MR. LAKE: It's okay. Go.

MS. SHAHEEN: For example, could it be a shallow zone?

MR. LAKE: Oh, I see what you're asking. It -- if it were a shallow zone, it would have shown mud losses a little bit higher up in the formation.

MS. SHAHEEN: You really don't know with 100 percent certainty what zone is taking fluid; do you?

MR. LAKE: How to answer that? It -- I know where it's going in because I know when the mud is lost. And I know what the depth of the penetration is. So yeah, you do.

MS. SHAHEEN: Are you assuming that the zone that is taking fluid is the penetrated zone?

MR. LAKE: Yes.

MS. SHAHEEN: Could it be the lowest pressure zones in the well that is the upper Grayburg?

MR. LAKE: It would lose fluid there. Maybe I don't understand your question.

MS. SHAHEEN: Could I have five minutes to confer with my client? I think I might be done.

MR. RANKIN: Sure.

MS. SHAHEEN: Okay. Thank you. Thank you Dr. Lake.

MR. LAKE: Are we -- are we finished?

HEARING EXAMINER HARWOOD: Let's come back at 4:41.

MS. SHAHEEN: Oh, I understand I don't need a break. We are done. I pass the witness. Thank you.

HEARING EXAMINER HARWOOD: Oh, okay. All right.

Madam Court Reporter, false alarm.

THE REPORTER: I'm here.

HEARING EXAMINER HARWOOD: All right, thank you.

All right, Mr. Moander, cross-examination of Dr. Lake?

MR. MOANDER: No questions for Dr. Lake.

Thank you for coming today, Doctor.

MR. LAKE: You're welcome.

HEARING EXAMINER HARWOOD: Mr. Beck, cross-examination for Rice Operating?

MR. BECK: No questions.

HEARING EXAMINER HARWOOD: And

Mr. Suazo, cross-examination for Pilot Water Solutions?

MR. SUAZO: No questions for Dr. Lake from Pilot.

HEARING EXAMINER HARWOOD: All right. Then at this time, we'll start with Dr. Ampomah.

CROSS-EXAMINATION

BY DR. AMPOMAH:

DR. AMPOMAH: Thank you, Professor Lake, for being here today. I do have couple of questions for you. And I will really make it really, really simple. Hopefully I'll be done before five.

So you made mention in your testimony that you believe that there is this anhydrite, there is this impermeable layers within the San Andres. Do you, you know, based on all the testimonies that you've listened to, especially Mr. Knights' and then also Dr. Davidson's testimony, do you believe that this statement has been well established, you know, to the commission?

MR. LAKE: Okay, I go by the pressures. To me, the pressures are definitive. And so I think, based upon pressures, yeah, I think it's been well established.

DR. AMPOMAH: So when Mr. Knights was presenting to the commission, he showed us the core data from one of the wells, which is EMSU-679. And he tried to relate its low perm to some of the numbers that was in that report, specifically on the vertical permeability.

You know, from your experience, which I know you do have, do you believe that, let's say, 2 feet, 3 feet, 4 feet, less than 0.1 millidarcy can be established as a barrier zone?

MR. LAKE: Sure. Yes.

DR. AMPOMAH: Now, you talked about, in your testimony, there are karst, which could be fractures within the San Andres. Now, don't you believe that that more or less aligns with Empire's assertion that there could be a potential communication, especially now you're talking about this karst and then the fractures, could be a potential conduit for fluid movement?

MR. LAKE: It could be.

DR. AMPOMAH: So if Dr. Buckwalter [ph] utilized that assumption in this model, and you went back and forth with Ms. Shaheen on that one, do you believe that that assumption that he used in this model, and knowing for sure that we do have karst, we

do have potential fractures, that could be an option for modeling purposes? Do you believe that?

MR. LAKE: It could be. Yes.

DR. AMPOMAH: Let's discuss a little bit about the pressure. So based on all the information that you've reviewed, most experts from Goodnight's side is saying that San Andres is under pressured reservoir. Do you believe that?

MR. LAKE: Yes.

DR. AMPOMAH: And don't you believe that that reduction in the pressure also attributed to the water supply wells within the San Andres?

MR. LAKE: I thought about that, too. And you're saying -- I'm going to restate your question to make sure I understand it. That the reduction in the pressure was because of the water supply wells for the water flood, the upper water flood. I don't think the -- the volumes go around on that. I don't think there's enough of that to do it.

DR. AMPOMAH: No. I was saying that that also could have contributed to that reduction.

MR. LAKE: Yeah, I think so. Yeah.

DR. AMPOMAH: Now, so that pressure measurement that you went back and forth with Ms. Shaheen on. Within the San Andres where they

estimated the pressure, based on the hydrostatic gradient, was about 1,547 PSI, and that was reduced to about 1,200 PSI. Based on your experience, is there any way this could happen, assuming it is a hydrostatic pressure system?

MR. LAKE: Can -- say it again? I'm not sure I understood you.

DR. AMPOMAH: Okay. So looking at those pressure differences, you know, if you use hydrostatic, you are looking at about 1,500 PSI. And based on the data, it has reduced to about, let's say, 1,200 PSI. So I'm asking you, assuming there is no communication between the San Andres and then the Grayburg, is there any petroleum engineering principle that you know that could have contributed to that reduction in pressure? Still assuming we are in hydrostatic regime.

MR. LAKE: I still don't quite understand the question because if you're -- keep going.

DR. AMPOMAH: Okay. So assuming that we are in hydrostatic regime.

MR. LAKE: Okay.

DR. AMPOMAH: Pressure regime. And instead of recording 1,500 PSI, we are recording 1,200

PSI. So I'm asking you, based on your experience, is there any principle that could have allowed that to happen? You know, assuming also that there is no communication between both formations.

MR. LAKE: Boy, I still don't quite understand it, but I'll give it a shot; okay? The -- going -- going from gradients to pressures implies that you know where to start the line. And sometimes people start the line well down in the -- in the -- below the surface so that the actual gradient from the surface down to the point in question is going to be around 0.36 or something like that.

But the -- the gradient, the hydrostatic gradient, would be more like 0.433. I'm not sure I'm answering your question.

DR. AMPOMAH: Can we bring up slide number 3 from your presentation?

MR. RANKIN: One moment, Dr. Ampomah. I'll have it in just a moment.

DR. AMPOMAH: Okay. Thank you.

HEARING EXAMINER HARWOOD: And Dr. Ampomah, don't feel pressured to finish by five. This witness will be back tomorrow morning, I expect, so take your time. All right?

DR. AMPOMAH: No, I think we should be

good. Slide number 3. So Professor Lake, as I called you, and I know you are, so, you know, on this particular slide, so I'm just, we looking at the RFT measurements within the Grayburg.

Now, you know, and I appreciated your explanation on this, don't you believe that these pressure changes, even though they are not aligned with the gradient, could also be due to production history?

MR. LAKE: Production history from?

DR. AMPOMAH: From the Grayburg?

MR. LAKE: From the Grayburg?

DR. AMPOMAH: Yeah. The oil, gas, water production.

MR. LAKE: I -- I don't -- either -- either the answer is no or I don't understand your question. So one or the other. I don't know.

DR. AMPOMAH: So you were saying that this profile that you're looking at establishes some kind of a barrier?

MR. LAKE: Yeah. I'm going by the -- by the gradient, by the fact that it's not a straight line. In fact, so -- so it's a -- I'm writing out of words here. But if there's good communication, it should be a straight line.

DR. AMPOMAH: And I'm asking you that could the different levels of production recovery from several layers, would that not contribute to this type of behavior?

MR. LAKE: Aren't those above this plot here?

DR. AMPOMAH: They are right there on this plot.

MR. LAKE: They what?

DR. AMPOMAH: So you see those blue showing the pressure?

MR. LAKE: Yeah.

DR. AMPOMAH: So you are attributing -- when you look at this -- interpreting this one.

MR. LAKE: Oh, I -- I do see, yeah. It could be the production. Yeah, yeah, yeah.

DR. AMPOMAH: So if it could be, did you include that in your analysis?

MR. LAKE: Did not.

DR. AMPOMAH: In your conclusion to say that it is due to a barrier?

MR. LAKE: No, did not.

DR. AMPOMAH: So that could be an uncertainty in your analysis then?

MR. LAKE: It could.

DR. AMPOMAH: Thank you. Let's go to slide number 4. Slide number 4, please. So Dr. Lake, you know, we've heard about, from Goodnight's experts that -- specifically Mr. Knights, that lost circulation can be attributed to an impermeable barrier or something like that. I mean, based on your experience, do you agree to that?

MR. LAKE: I -- I think -- I think that's backwards. So lost circulation is just entering into a low-pressure zone. And the fluids go into that zone rather than back up the wellbore. So I think it's indicating a change of something.

DR. AMPOMAH: Well, that was what I was thinking. Like, if we are losing fluid, how does it become a barrier? But I think you are clarifying that, saying that there is something.

MR. LAKE: There is something, right,

DR. AMPOMAH: But not necessarily that it is a barrier?

MR. LAKE: But I think the other, the pressure data, speak to that.

DR. AMPOMAH: Okay. On slide number 8 from select, so you're criticizing Dr. Buckwalter's model, specifically on the --. Now, my question to you is, do you know for certain that this was the

final relative perm after his history matching?

MR. LAKE: Do I know if the ones on the right are the final relative perm after history matching?

DR. AMPOMAH: Yes.

MR. LAKE: Oh got you. I guess I don't know that. I just assumed he used them.

DR. AMPOMAH: I did not get your response.

MR. LAKE: I -- I don't know -- I thought they were the -- the final relative perms after history matching. I didn't know that there was any other.

DR. AMPOMAH: But I thought I heard from Goodnight's expert that he provided input data. So are you certain or you are not certain whether these were the final curves after his history matching of the oil in place?

MR. LAKE: No. I'm not certain of that.

DR. AMPOMAH: So then it's possible that he could have probably changed these endpoints as part of his history matching effort. Would that be a fair statement?

MR. LAKE: It's more than possible.

It's likely.

DR. AMPOMAH: So on slide number 10, you know, you discussed, you know, you're criticizing Mr. West's economic model, the CO2 economics model. So I don't need to ask, but I'm pretty sure you are familiar with the Kinder Morgan CO2 screen tool.

MR. LAKE: No, I didn't. The -- the first I heard of it was just now.

DR. AMPOMAH: Okay. Don't you believe that his analysis, Mr. West's analysis, is the first part in terms of the scoping process that we normally do when we are evaluating a field for a potential CO2 EOR project?

MR. LAKE: Yes.

DR. AMPOMAH: So then let me go back to, I'm going back to your direct testimony, page 6, item number 12. And I'll read. Hopefully you will get that. You're saying that "without detailed reservoir engineering and economic analysis, Empire cannot possibly claim that a viable ROZ project, which would require an investment, blah, blah blah." Please, do you get that?

MR. LAKE: Yeah.

DR. AMPOMAH: So don't you believe that Empire should be given the opportunity without any

restriction for them to fully do the detail engineering and then also the economic analysis to tell the commission if their project could be viable or not?

MR. LAKE: I think so.

DR. AMPOMAH: Dr. Lake, in your testimony, I've seen that you flagged that Empire is alleging that there is an ROZ. And I'm trying to look for one of them. So on page 4, on item 7, and I'll read portion of that. You presented in your Exhibit G2, saying it's a base map of the Eunice Monument South Unit. And on the next line, you said "Empire alleges that a large target of oil exists in the claimed residual oil zone, ROZ, in the San Andres below the historic core producing. That would be the Grayburg." Is that your statement?

MR. LAKE: Can you show that to me on the screen?

MR. RANKIN: Is that from the direct testimony?

DR. AMPOMAH: Yes, sir.

MR. RANKIN: Okay. One moment. Dr. Ampomah, while I'm pulling it up, will you remind me what page or --

DR. AMPOMAH: Yeah. That would be on

page 4, number 7.

MR. RANKIN: Would you mind reading to me -- number 7? Okay.

DR. AMPOMAH: Yeah. Goodnight Exhibit G2. So that will be on the initial response to Empire's claim San Andres ROZ right there. Thank you.

So the second line "Empire alleges that a large target of oil exists in the claim ROZ."

MR. LAKE: Okay.

DR. AMPOMAH: So based on all the testimony that we've listened to, we are in third week now, Dr. Davidson, who did the petrophysical analysis, he acknowledged that there is or could be an ROZ in the upper San Andres as he defined it. So from Goodnight's experts, they are acknowledging that. Would you still stand by your statement that there is no ROZ?

MR. LAKE: Actually, the -- the existence of this upper part of the San Andres was new to me. And so I probably would modify the statement and qualify that.

DR. AMPOMAH: So we listened to the experts from Goodnight. Mr. Knights made a statement about the description of the San Andres is not -- it's not well known. And this will probably support what

you are saying right now.

Now, if the description of the San Andres is not well known by Goodnight experts, and there has not been well-established boundaries that has been shown to the commission, we've seen some anhydrites, we've seen some perm barriers.

As of now, if you don't have a full understanding of the description of the San Andres, why should the commission really acknowledge the opinions from Goodnight saying that there's no potential issue with the injection on the production that is going on in the Grayburg, or let's say even there is any ROZ existence? I don't know if you can comment on that.

MR. LAKE: I kind of lost track of it. Could shorten it a little bit and try it again.

DR. AMPOMAH: Yeah. So the short part of it is that Goodnight expert, Mr. Knights, was saying that the San Andres is not fully characterized.

MR. LAKE: ?It's not really what

DR. AMPOMAH: Fully characterized.

MR. LAKE: Oh, oh. Yeah.

DR. AMPOMAH: And based on your statement, you said that even you got to know about the upper San Andres even based on the discussions

we're having.

MR. LAKE: Yeah.

DR. AMPOMAH: So I'm just asking if Goodnight's experts are telling us they don't really fully understand the geology in the San Andres, how convincing, you know, is your argument that the anhydrite and let's say the barriers actually really exist?

MR. LAKE: It's -- I -- I get your question now. So it's sort of like lateral reasoning. That this karstic fracturing exists in other carbonate reservoirs. In fact, in other San Andres reservoirs. And so barring any -- any reason for it not to be true in -- in this one, why -- why not? Why would it not? Why would it not exist?

DR. AMPOMAH: Dr. Lake, thanks so much for being here. I do appreciate your time.

MR. RANKIN: Thank you.

MR. LAKE: Thank you.

HEARING EXAMINER HARWOOD: Okay, Mr. Lamkin?

MR. LAMKIN: I do have just a couple questions for you, Dr. Lake.

MR. LAKE: Sure.

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BY MR. LAMKIN:

MR. LAMKIN: Thank you for your testimony. Are there best practices when performing an RFT?

MR. LAKE: Yes, there certainly are.

MR. LAMKIN: Do you know if those were carried out in the implementation of the RFT that everyone's basing their opinions on?

MR. LAKE: I'm only guessing, yes.

MR. LAMKIN: Okay. Thank you.

HEARING EXAMINER HARWOOD: Chairman Razatos, questions for Dr. Lake?

THE CHAIRMAN: I do not.

Thank you for your time, Doctor.

MR. RANKIN: Thank you.

HEARING EXAMINER HARWOOD: All right. I'm assuming, then, that you have a redirect examination, Mr. Rankin, and you'd probably prefer to begin it tomorrow morning?

MR. RANKIN: Yes, sir.

HEARING EXAMINER HARWOOD: All right. I'm not reading your mind in other words.

MR. RANKIN: I'm sorry. Did you not hear me? I know I said "yes, sir." Tomorrow morning

I think would be good to resume.

HEARING EXAMINER HARWOOD: Okay. All right. It seems like a logical place to stop. Are you in agreement, Chairman Razatos?

THE CHAIRMAN: I am. Just as a reminder to everybody that tomorrow we do need to end before 3 p.m. to accommodate Dr. Ampomah. So 3 p.m., please.

HEARING EXAMINER HARWOOD: Okay. Thank you, all. And we'll be off the record for today and back tomorrow at nine o'clock.

(Whereupon, at 4:58 p.m., the proceeding was concluded.)

CERTIFICATE

I, DANA FULTON, the officer before whom the foregoing proceedings were taken, do hereby certify that any witness(es) in the foregoing proceedings, prior to testifying, were duly sworn; that the proceedings were recorded by me and thereafter reduced to typewriting by a qualified transcriptionist; that said digital audio recording of said proceedings are a true and accurate record to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action. May 13, 2025

DANA FULTON
Notary Public in and for the
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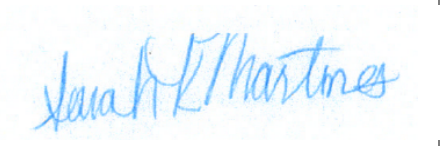

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