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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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10 ALSO PRESENT:

11 Gerasimos Razatos, Chairman
12 Sheila Apodaca, Host
13 Nate Alleman, Witness
14 Larry Lake, Witness
15 Zack Chandler, New Mexico Department of Justice
16 Commission Council
17 Baylen Lamkin, Commissioner with OCD
18 Rachel Chaput, Panel
19 Madai Corral, Panel
20 David White, Panel
21 Ernest Padilla, Panel
22 Joe McShane, Panel

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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

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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

1 think that is why I proposed that we start on the
2 19th, but if --

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

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

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

11 DR. AMPOMAH: Okay.

12 THE CHAIRMAN: What was that,
13 Mr. Chandler?

14 DR. AMPOMAH: Okay.

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

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

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

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

6 HEARING EXAMINER HARWOOD: Okay. Thank
7 you Mr. Razatos. So just to remind you, at the end of
8 yesterday, I asked the parties to confer. And the
9 plan was to see if we could agree to timeframes that
10 would bring this to a conclusion by Wednesday, the
11 21st. That would put two days in the bank including
12 your conflict on the 23rd. So my understanding is --
13 at least from what I heard in conversation, is that
14 there may be a preliminary matter by the parties.

15 So you want to start Mr. Wehmeyer?

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

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

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

5 For the part of Goodnight, that would
6 be 1.25 hours per witness for a grand total of 7.5
7 hours from here out to be spent on air by Goodnight.
8 For the part of other examination, that would be 0.25
9 hours per witness times six witness, which would be
10 1.5 hours allotted for other examination.

11 That would come to a grand total of
12 22.5 hours, which would achieve this being completed
13 by the Wednesday that we understood the Commission was
14 shooting at yesterday. And that would also leave
15 plenty of time for Commission questions and -- and
16 certainly additional room in there within the time
17 that you'd kind of back of the cocktail napkin
18 estimated if -- if we're finishing by Wednesday.

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

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

6 But Empire would be locked in at 13.5
7 hours from here out. Goodnight would be locked in at
8 7.5 hours from here out. Other examination would be
9 locked in at 1.5 hours from here out with OCD having
10 some flexibility on its time for its own witness. And
11 so if -- we would like to put that on the record and
12 confirm agreement if -- if I'm correct that we do have
13 that agreement.

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

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

23 MR. WEHMEYER: Absolutely.

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

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

4 HEARING EXAMINER HARWOOD: Yeah, great
5 question.

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

12 HEARING EXAMINER HARWOOD: Okay.
13 Mr. Beck?

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

16 HEARING EXAMINER HARWOOD: Perfect.
17 All right.

18 Pilot?

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

21 HEARING EXAMINER HARWOOD: All right.

22 MR. RANKIN: Great.

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

25 MR. RANKIN: Yeah, no. I appreciate

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

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

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

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

25 MR. RANKIN: That's my understanding.

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

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

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

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

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

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

1 we possibly can be.

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

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

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

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

22 HEARING EXAMINER HARWOOD: Thank you,
23 Mr. Razatos.

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

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

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

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

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

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

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

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

7 HEARING EXAMINER HARWOOD: Okay, thank
8 you.

9 Mr. Rankin?

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

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

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

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

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

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

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

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

22 HEARING EXAMINER HARWOOD: Thank you,
23 Mr. Beck.

24 Mr. Suazo for Pilot?

25 MR. SUAZO: Pilot would only have a

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

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

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

14 All right. Anything further from
15 Empire?

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

20 HEARING EXAMINER HARWOOD: Mr. Rankin?

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

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

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

3 MR. MOANDER: I think that should work.

4 HEARING EXAMINER HARWOOD: All right.
5 Rice?

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

9 HEARING EXAMINER HARWOOD: Okay. All
10 right, great.

11 Pilot, just to round out the inquiry.

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

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

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

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

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

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

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

14 MR. WEHMEYER: May I reply briefly?

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

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

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

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

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

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

1 ask that that this be part of the record.

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

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

13 MR. RANKIN: Yes.

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

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

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

23 Mr. Wehmeyer, you can make a record.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

25 //

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

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

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

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

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

16 WHEREUPON,

17 NATHAN ALLEMAN,
18 called as a witness, and having been first duly sworn
19 by Ripley Harwood to tell the truth, the whole truth,
20 and nothing but the truth, was examined and testified
21 as follows:

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

25 THE REPORTER: Yes, we are on the

1 record.

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

4 THE REPORTER: Yes, sir.

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

7 DIRECT EXAMINATION

8 BY MR. RANKIN:

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

11 MR. ALLEMAN: Doing well, thank you.

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

14 MR. ALLEMAN: Nathan Alleman.

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

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

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

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

25 MR. RANKIN: Have your credentials as

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

4 MR. ALLEMAN: Yes, they have.

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

8 MR. ALLEMAN: Yes.

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

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

13 MR. ALLEMAN: It is.

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

17 MR. ALLEMAN: Yes, it does.

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

21 MR. ALLEMAN: Yes, that's correct.

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

1 HEARING EXAMINER HARWOOD:

2 Mr. Wehmeyer?

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

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

7 Mr. Moander?

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

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

15 MR. BECK: Thank you. No. Sorry

16 HEARING EXAMINER HARWOOD: Pilot?

17 MR. SUAZO: No objection.

18 HEARING EXAMINER HARWOOD: It will be
19 so recognized.

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

22 MR. RANKIN: Thank you.

23 DIRECT EXAMINATION

24 BY MR. RANKIN:

25 MR. RANKIN: Mr. Alleman, were you

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

4 MR. ALLEMAN: Yes, I was.

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

9 MR. ALLEMAN: Yes.

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

13 MR. ALLEMAN: Yes, they were.

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

17 MR. ALLEMAN: No.

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

21 MR. ALLEMAN: Yes.

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

1 HEARING EXAMINER HARWOOD: Empire?

2 MS. HARDY: No objection.

3 HEARING EXAMINER HARWOOD: OCD?

4 MR. MOANDER: No objection.

5 HEARING EXAMINER HARWOOD: Rice?

6 MR. BECK: No objection.

7 HEARING EXAMINER HARWOOD: Pilot?

8 MR. SUAZO: No objection.

9 HEARING EXAMINER HARWOOD: Thank you.

10 They'll be admitted.

11 BY MR. RANKIN:

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

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

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

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

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

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

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

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

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

1 disposal wells within the EMSU targeting the
2 San Andres?

3 MR. ALLEMAN: Yes, there were.

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

8 MR. ALLEMAN: They are.

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

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

19 MR. RANKIN: Okay. Now --

20 MR. ALLEMAN: -- correct that later.

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

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

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

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

7 MR. ALLEMAN: No. None other than
8 Empire.

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

11 MR. ALLEMAN: Yes, they were.

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

14 MR. ALLEMAN: That's correct.

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

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

21 MR. RANKIN: Which are the three?

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

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

1 approving those wells?

2 MR. ALLEMAN: They did.

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

6 MR. ALLEMAN: No.

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

9 MR. ALLEMAN: No. They did not.

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

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

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

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

5 MR. ALLEMAN: Yes, that's correct.

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

11 MR. ALLEMAN: Yeah. So we split this
12 one out just 'cause it is -- it is a request for --
13 for an amendment to an existing approved permit. And
14 this application, Goodnight is requesting that the
15 maximum injection rate be increased from 25,000 to
16 40,000 barrels per day.

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

20 MR. ALLEMAN: Yes, that's correct.

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

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

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

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

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

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

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

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

4 MR. ALLEMAN: Yes, that's correct.

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

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

11 Ms. Hardy?

12 MS. HARDY: Yes. Thank you.

13 CROSS-EXAMINATION

14 BY MS. HARDY:

15 MS. HARDY: Good morning, Mr. Alleman.

16 MR. ALLEMAN: Good morning.

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

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

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

1 MR. ALLEMAN: I can.

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

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

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

8 MR. ALLEMAN: Correct.

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

11 MR. ALLEMAN: Correct.

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

13 MR. ALLEMAN: That's correct.

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

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

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

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

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

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

6 MR. ALLEMAN: Yes.

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

10 MR. ALLEMAN: Yeah, that's fair.

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

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

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

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

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

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

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

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

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

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

22 MR. ALLEMAN: So here it says
23 "Mr. Alleman has managed the permitting of" -- I guess
24 this on the qualifications "managed the permitting of
25 500 oil and gas wells, conducted due diligence audits

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

7 MS. HARDY: Oh, no, go ahead.

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

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

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

21 MR. ALLEMAN: Yes, that's correct.

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

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

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

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

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

17 MR. ALLEMAN: Me, personally, no.

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

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

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

1 testimony; is that correct?

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

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

6 MR. ALLEMAN: Yep.

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

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

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

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

1 reference for that language?

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

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

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

16 MR. ALLEMAN: No, I'm not.

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

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

1 or specific number that had been submitted for review.

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

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

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

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

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

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

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

1 that correct?

2 MR. ALLEMAN: Yes. For those wells.

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

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

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

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

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

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

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

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

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

25 MS. HARDY: And did you speak with

1 Goodnight's Counsel in preparing your testimony?

2 MR. ALLEMAN: Yes.

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

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

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

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

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

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

1 iterations.

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

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

9 MS. HARDY: And orders; correct?

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

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

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

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

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

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

8 MR. ALLEMAN: That's correct.

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

13 MR. ALLEMAN: Correct.

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

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

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

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

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

3 MR. ALLEMAN: That's correct.

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

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

14 MR. ALLEMAN: Yes. I believe so.

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

17 MR. ALLEMAN: Sorry. Can you restate
18 that?

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

22 MR. ALLEMAN: Yes. I believe so.

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

25 MR. ALLEMAN: I believe it is.

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

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

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

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

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

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

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

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

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

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

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

11 MR. ALLEMAN: That's correct.

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

14 MR. ALLEMAN: I expect that it is.

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

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

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

22 MR. ALLEMAN: Yes.

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

1 MR. ALLEMAN: Yes.

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

11 MR. ALLEMAN: Yes, that's correct.

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

14 MR. ALLEMAN: I expect so.

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

18 MR. ALLEMAN: I would expect so.

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

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

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

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

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

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

9 MR. ALLEMAN: That's correct.

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

13 MR. ALLEMAN: Yes, it is.

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

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

20 MS. HARDY: And -- oh, sorry.

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

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

1 injection application?

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

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

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

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

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

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

24 MR. ALLEMAN: Yes.

25 MS. HARDY: And I will scroll down here

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

3 MR. ALLEMAN: That's correct.

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

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

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

13 MR. ALLEMAN: Yes, that's correct.

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

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

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

1 code 96121; correct?

2 MR. ALLEMAN: Correct.

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

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

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

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

24 MR. ALLEMAN: Nor is it required to.

25 MS. HARDY: Well, I understand it's

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

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

7 MS. HARDY: Okay.

8 MR. ALLEMAN: That it was within the
9 EMSU.

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

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

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

19 MR. ALLEMAN: Yes, that's correct.

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

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

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

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

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

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

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

18 MR. ALLEMAN: Yes. That is correct.

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

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

25 MS. HARDY: And I understand your

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

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

5 MS. HARDY: Yes.

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

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

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

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

21 MR. ALLEMAN: I did not personally, no.

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

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

1 Goodnight's experience in the area for that.

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

6 MR. ALLEMAN: Yes, I am.

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

14 MR. ALLEMAN: Yes.

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

20 MR. ALLEMAN: Yes, it does.

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

25 MR. ALLEMAN: We call them the green

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

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

6 MR. ALLEMAN: Yes, that's correct.

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

9 MR. ALLEMAN: Correct.

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

12 MR. ALLEMAN: That's correct.

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

16 MR. ALLEMAN: That's correct.

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

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

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

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

4 MR. ALLEMAN: Yes.

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

8 MR. ALLEMAN: That looks like that was
9 correct.

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

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

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

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

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

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

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

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

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

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

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

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

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

6 MS. HARDY: Okay. And I pulled up page
7 2 here. And what I've highlighted states that
8 "Goodnight acknowledged its failure to confirm before
9 commencing injection, that sampling notifications and
10 its admissions to the division were timely and
11 proper." Is that what this says?

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

14 MS. HARDY: Let's look at the hearing
15 exhibits for the Ernie Banks well, and this was case
16 21570. That was heard on January 21st of 2021. And
17 you submitted testimony in this case as well; correct?

18 MR. ALLEMAN: That's correct.

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

22 MR. ALLEMAN: Correct.

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

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

3 MR. ALLEMAN: That's correct.

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

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

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

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

20 MS. HARDY: Right.

21 MR. ALLEMAN: That's correct.

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

25 MR. ALLEMAN: Yes.

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

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

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

13 MR. ALLEMAN: Yes. It looks to be.

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

16 MR. ALLEMAN: Correct.

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

20 MR. ALLEMAN: That's correct.

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

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

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

6 MR. ALLEMAN: Yes.

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

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

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

19 MR. ALLEMAN: Correct.

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

24 MR. ALLEMAN: You might as well.

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

1 exhibits do not include certified receipts; correct?

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

4 MS. HARDY: Okay. And let's look at
5 the Sosa hearing exhibits. And this is case number
6 20721, which was heard by the division on September
7 19, 2019; correct?

8 MR. ALLEMAN: Yes.

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

12 MR. ALLEMAN: For the administrative
13 application?

14 MS. HARDY: Yes.

15 MR. ALLEMAN: Yes.

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

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

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

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

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

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

5 MR. ALLEMAN: That is correct.

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

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

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

17 MR. ALLEMAN: Right.

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

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

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

1 received; right?

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

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

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

10 MS. HARDY: Okay. Okay.

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

13 MS. HARDY: Sure. Where?

14 MR. ALLEMAN: Just stay right there.

15 MS. HARDY: Okay.

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

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

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

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

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

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

12 MS. HARDY: Okay. I request that the
13 commission take administrative notice of Goodnight's
14 hearing exhibits in case numbers 21569, 21570, and
15 20721 and Goodnight's administrative application for
16 the Ryno SWD. Those are all public records maintained
17 by the division.

18 HEARING EXAMINER HARWOOD: Objection
19 Mr. Rankin?

20 MR. RANKIN: Zero objection.

21 HEARING EXAMINER HARWOOD: OCD?

22 MR. MOANDER: [Unintelligible
23 response.]

24 HEARING EXAMINER HARWOOD: Rice?

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

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

6 HEARING EXAMINER HARWOOD: Okay.

7 Objection noted.

8 SHEILA APODACA: Rice?

9 MR. BECK: No objection.

10 HEARING EXAMINER HARWOOD: Pilot?

11 MR. SUAZO: No objection.

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

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

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

1 admissibility.

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

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

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

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

16 THE CHAIRMAN: Thank you, everyone.
17 (Off the record.)

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

21 THE REPORTER: I'm here.

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

24 Are you ready to proceed, Mr. Rankin?

25 MR. RANKIN: Yes.

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

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

5 Are you ready, Ms. Hardy?

6 BY MS. HARDY:

7 MS. HARDY: Yes. Thank you.

8 THE CHAIRMAN: All right.

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

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

20 MR. ALLEMAN: Can we take a look so I
21 see the -- we're on the Sosa right now. That was
22 2019. Can we -- could you go back to the Andre Dawson
23 one, please?

24 MS. HARDY: Can you see that? Yeah.

25 MR. ALLEMAN: Yeah. So we try to use

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

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

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

19 MR. ALLEMAN: Yes, I have.

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

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

25 MS. HARDY: Okay. So you believe

1 that's a Rice well?

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

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

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

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

17 MR. ALLEMAN: That's correct.

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

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

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

24 MR. ALLEMAN: Yes.

25 MS. HARDY: Okay. And you testified

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

4 MR. ALLEMAN: Yes, that's correct.

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

8 MR. ALLEMAN: No, they don't.

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

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

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

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

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

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

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

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

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

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

20 MR. ALLEMAN: Yes.

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

1 I've highlighted here.

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

7 MR. ALLEMAN: Yes.

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

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

19 Did I read that correctly?

20 MR. ALLEMAN: Word for word. Yes.

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

25 MR. ALLEMAN: Yes. Based on that

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

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

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

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

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

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

1 agreement.

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

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

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

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

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

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

25 MS. HARDY: Did Goodnight represent to

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

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

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

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

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

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

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

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

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

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

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

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

22 HEARING EXAMINER HARWOOD: What is the
23 relevance?

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

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

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

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

11 BY MS. HARDY:

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

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

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

24 MR. ALLEMAN: Thank you.

25 HEARING EXAMINER HARWOOD: Thank you,

1 Ms. Hardy.

2 OCD, cross-examination of Mr. Alleman?

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

5 HEARING EXAMINER HARWOOD: Rice
6 Operating, Mr. Beck?

7 MR. BECK: No questions.

8 HEARING EXAMINER HARWOOD: Pilot,
9 Mr. Suazo?

10 MR. SUAZO: No questions.

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

14 THE CHAIRMAN: No questions for me.
15 Thank you.

16 HEARING EXAMINER HARWOOD: All right.
17 So Mr. Lamkin?

18 CROSS-EXAMINATION

19 BY MR. LAMKIN:

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

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

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

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

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

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

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

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

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

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

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

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

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

21 MR. LAMKIN: Okay.

22 MR. ALLEMAN: That I can recall.

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

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

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

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

10 MR. LAMKIN: Disposal. Yeah.

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

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

25 And the -- there are disposal wells

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

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

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

13 HEARING EXAMINER HARWOOD: Dr. Ampomah.

14 CROSS-EXAMINATION

15 BY DR. AMPOMAH:

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

24 MR. ALLEMAN: Sure.

25 DR. AMPOMAH: So here you're saying

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

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

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

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

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

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

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

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

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

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

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

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

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

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

25 MR. ALLEMAN: Yes. If we're talking

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

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

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

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

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

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

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

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

6 DR. AMPOMAH: The potential of fracture
7 pressure?

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

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

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

25 MR. ALLEMAN: Yeah, absolutely. In a

1 general sense for all of our clients that we work with
2 and advise and prepare saltwater disposal
3 applications, we help advise on the locations.

4 Usually they have a location in mind, and we let them
5 know if there are any what we call fatal flaws that
6 would cause them to need to be moved.

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

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

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

1 staying under those permitted pressures.

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

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

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

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

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

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

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

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

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

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

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

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

13 DR. AMPOMAH: Forty-five.

14 MR. RANKIN: Forty-five?

15 DR. AMPOMAH: Yes.

16 MR. RANKIN: This page?

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

22 MR. ALLEMAN: Yes, that's correct.

23 DR. AMPOMAH: So then let's go down to
24 46, page 46. So let's look at number 5, your response
25 to that. So you're saying that below are the

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

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

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

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

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

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

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

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

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

25 And this is also -- this information is

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

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

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

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

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

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

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

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

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

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

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

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

4 MR. ALLEMAN: Yes.

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

7 MR. RANKIN: Where is that?

8 DR. AMPOMAH: Forty-seven.

9 MR. RANKIN: Oh, sorry.

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

16 MR. ALLEMAN: I did.

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

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

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

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

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

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

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

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

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

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

20 MR. ALLEMAN: Yes.

21 DR. AMPOMAH: I appreciate that,
22 though.

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

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

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

13 DR. AMPOMAH: Yeah. Right in number 4.

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

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

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

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

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

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

1 production.

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

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

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

1 is wanting.

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

8 And then number 5, if -- just reading
9 it directly, "If injection is for disposal purposes
10 into a zone not productive of oil or gas at or within
11 1 mile of the proposed well, attach a chemical
12 analysis of the disposal zone formation water. It may
13 be measured or inferred from existing literature
14 studies, nearby wells, et cetera."

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

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

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

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

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

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

11 DR. AMPOMAH: Yes, sir.

12 MR. RANKIN: Is this the one you want?

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

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

17 MR. ALLEMAN: Yes.

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

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

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

5 MR. ALLEMAN: Yes.

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

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

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

23 MR. ALLEMAN: Correct.

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

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

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

12 MR. ALLEMAN: Yes.

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

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

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

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

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

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

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

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

1 You know, if it is a closed system, I
2 don't think there is any argument here. But experts
3 are saying it is open system. So we really, really
4 need to know where that injected fluid is going. And
5 then I will do the -- now the last, the VI.

6 "Injection may cause or contribute to the waste of
7 oil, gas, or potash resources or affect correlative
8 rights, public health, and all environment."

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

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

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

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

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

5 MR. ALLEMAN: Thank you.

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

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

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

15 MR. CHANDLER: Four questions.

16 CROSS-EXAMINATION

17 BY MR. CHANDLER:

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

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

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

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

5 MR. CHANDLER: When there could be
6 conflict?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

18 (Off the record.)

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

21 Mr. Alleman, are you there?

22 MR. ALLEMAN: I am.

23 REDIRECT EXAMINATION

24 BY MR. RANKIN:

25 MR. RANKIN: Do you recall

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

4 MR. ALLEMAN: I do.

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

12 MR. ALLEMAN: Yes.

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

16 MR. ALLEMAN: No. She did not.

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

22 MR. ALLEMAN: Yes.

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

1 MR. ALLEMAN: That's correct.

2 MR. RANKIN: And that paragraph reads:

3 "The applicant seeks the upward extension of the
4 vertical limits of the Eunice Monument pool to include
5 either the top of the Grayburg Formation or to a
6 subsea datum of minus 100 feet, whichever is higher.

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

13 MR. ALLEMAN: Yes.

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

19 MR. ALLEMAN: Yes.

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

25 MR. ALLEMAN: Yes, certainly some

1 version of that.

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

8 MR. ALLEMAN: Correct.

9 MR. RANKIN: That's your understanding?

10 MR. ALLEMAN: Yes.

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

15 MR. ALLEMAN: I do.

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

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

24 HEARING EXAMINER HARWOOD: All right.

25 MS. HARDY: It's misleading.

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

3 MR. RANKIN: Okay.

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

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

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

17 MR. ALLEMAN: Right.

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

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

22 MR. RANKIN: Okay.

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

25 MR. RANKIN: This is an Exhibit, B47 of

1 Goodnight's.

2 MS. HARDY: Thanks.

3 MR. RANKIN: You mentioned the EME 21
4 well.

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

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

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

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

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

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

23 MR. ALLEMAN: Correct.

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

1 permits or approvals pre-existed Goodnight's
2 applications?

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

6 MR. RANKIN: Okay.

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

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

12 MR. ALLEMAN: I thought that was --

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

16 MR. ALLEMAN: Yes. I believe, yes.

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

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

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

1 MR. ALLEMAN: Correct.

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

5 MR. ALLEMAN: Yes.

6 MR. RANKIN: And what is that?

7 MR. ALLEMAN: The identified formation
8 is San Andres.

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

11 MR. ALLEMAN: SWD; San Andres.

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

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

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

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

1 intervals.

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

6 MR. ALLEMAN: Correct.

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

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

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

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

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

1 MR. RANKIN: Thank you.

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

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

10 MR. ALLEMAN: Yes.

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

13 MR. ALLEMAN: No, I'm not.

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

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

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

25 MR. ALLEMAN: In terms of identifying

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

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

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

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

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

25 MR. ALLEMAN: Yes.

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

10 MR. ALLEMAN: Yes, you did.

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

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

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

20 MR. ALLEMAN: Correct.

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

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

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

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

9 MR. ALLEMAN: Yes, you did.

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

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

17 MR. RANKIN: Okay.

18 MR. ALLEMAN: The application would be.

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

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

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

6 MR. ALLEMAN: Yes, you did.

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

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

18 MR. RANKIN: I'm getting there.

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

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

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

3 MR. RANKIN: Fine. I understand.

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

7 MR. ALLEMAN: Yes.

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

11 MR. ALLEMAN: Yes.

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

16 MR. ALLEMAN: Yes.

17 MS. HARDY: Same objection.

18 MR. RANKIN: I mean --

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

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

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

4 MR. ALLEMAN: Yes.

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

9 HEARING EXAMINER HARWOOD: Overruled.

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

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

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

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

24 MR. RANKIN: -- go ahead.

25 MR. ALLEMAN: I would say based on the

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

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

5 MR. ALLEMAN: That's correct.

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

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

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

24 MR. ALLEMAN: Yes.

25 MR. RANKIN: Okay. It doesn't specify

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

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

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

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

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

15 MR. ALLEMAN: I do.

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

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

21 MR. RANKIN: Okay. I've got here
22 what's, from the division records, it's case number
23 21569. It's the pre-hearing statement that was filed
24 by the State Land Office in the Andre Dawson case.
25 And I'll just scroll down, and I'll point out here,

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

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

9 MR. ALLEMAN: Yes, you did.

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

18 Did I read that correctly?

19 MR. ALLEMAN: Yes.

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

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

25 MR. RANKIN: After the order for the

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

3 MR. ALLEMAN: No. They did not.

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

7 MR. ALLEMAN: No. Not to my knowledge.

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

11 MR. ALLEMAN: Not that I recall.

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

16 MR. ALLEMAN: Yes.

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

22 MR. ALLEMAN: Yes.

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

1 were going to be handled for disposal under this
2 application?

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

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

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

17 MR. ALLEMAN: Yes.

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

20 MR. ALLEMAN: Yes.

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

1 do you recall that question?

2 MR. ALLEMAN: I do.

3 MR. RANKIN: And you were not sure.

4 You stated that you -- as I recall, you stated that
5 you became aware of it when Empire filed an objection
6 to Goodnight's applications?

7 MS. HARDY: Objection. Misstates the
8 testimony.

9 MR. RANKIN: He can correct me.

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

12 You understand the question,
13 Mr. Alleman?

14 MR. ALLEMAN: I do.

15 HEARING EXAMINER HARWOOD: All right.
16 Overruled.

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

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

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

1 Do you see that?

2 MR. ALLEMAN: I do.

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

5 MR. ALLEMAN: Yes.

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

8 MR. ALLEMAN: Yes.

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

11 MR. ALLEMAN: That's correct.

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

16 MR. ALLEMAN: Yes.

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

21 MR. ALLEMAN: Yes, that's correct.

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

1 MR. ALLEMAN: I do.

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

4 MR. ALLEMAN: Not specifically, no.

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

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

14 MR. RANKIN: Now, Mr. Chandler also
15 asked you about when you first became aware of -- or
16 Goodnight first became aware of the existence of the
17 statutory unit, the EMSU. Do you recall that
18 question?

19 MR. ALLEMAN: I do.

20 MR. RANKIN: And then he asked you, and
21 I'm going to mangle the question, but he asked you
22 about whether that was a concern, about whether
23 additional wells should be authorized or whether
24 Goodnight should have been aware of the existence. Do
25 you kind of recall that discussion with Mr. Chandler?

1 MR. ALLEMAN: I do.

2 MR. RANKIN: Now, you also discussed
3 with Ms. Hardy this order I've got in front of you
4 here, it's order R7765, which is the unitization order
5 creating the EMSU. Do you recall that?

6 MR. ALLEMAN: I do.

7 MR. RANKIN: And I think you told
8 Ms. Hardy that you were generally aware of that order;
9 correct?

10 MR. ALLEMAN: That's correct.

11 MR. RANKIN: Now, I know you probably
12 haven't studied this, but are you aware of any
13 provision in that order that would have terminated the
14 authorization for any existing commercials SWDs that
15 were prior existing injecting into the San Andres at
16 the time this order was issued?

17 MR. ALLEMAN: I do not recall reading
18 that in the order.

19 MR. RANKIN: Do you recall any language
20 in the order precluding additional commercial SWDs
21 within the San Andres portion of the unitized
22 interval?

23 MR. ALLEMAN: No. I do not.

24 MR. RANKIN: And in fact, subsequent to
25 issuance of this order, the division had approved at

1 least four other SWDs after this order was issued;
2 correct?

3 MR. ALLEMAN: Correct.

4 MR. RANKIN: Okay. And just one other
5 point I want to make sure I understand and the record
6 is clear on. When you had this discussion with
7 Dr. Ampomah, and I recognize we will need the division
8 to weigh in on this, but just based on the language of
9 the requirements under the C-108, under subpart Roman
10 numeral seven, under number five, it states "If
11 injection is for disposal purposes."

12 And I'll stop there. Each of the
13 applications that Goodnight was filing here within the
14 EMSU were for disposal purposes; correct?

15 MR. ALLEMAN: Correct.

16 MR. RANKIN: And it goes on to state
17 "Into a zone not productive of oil or gas at or within
18 1 mile of the proposed well." Did I read that
19 correctly?

20 MR. ALLEMAN: Yes.

21 MR. RANKIN: And Mr. Alleman, based on
22 everything you reviewed, did you identify any wells
23 within 1 mile of the proposed injection wells that
24 were productive of oil or gas within the San Andres?

25 MR. ALLEMAN: No. We did not.

1 MR. RANKIN: So based on your
2 understanding, this part five was applicable to each
3 of the applications that Goodnight filed. Is that
4 your understanding?

5 MR. ALLEMAN: Yes.

6 MR. RANKIN: Mr. Hearing Officer, I
7 would like to make sure that I have requested
8 administrative notice of the State Land Office's
9 pre-hearing statement in case number 21569 to
10 correspond with the administrative notice taken of the
11 other elements of that application or that case before
12 the division.

13 HEARING EXAMINER HARWOOD: Any
14 objection from Empire, Ms. Hardy?

15 MS. HARDY: No objection.

16 HEARING EXAMINER HARWOOD: OCD?

17 MR. MOANDER: No objection.

18 HEARING EXAMINER HARWOOD: Rice?

19 MR. BECK: No objection.

20 HEARING EXAMINER HARWOOD: Pilot?

21 MR. SUAZO: No objection.

22 HEARING EXAMINER HARWOOD: Yes. So the
23 commission will take administrative notice.

24 MR. RANKIN: Mr. Hearing Officer, I'm
25 not entirely sure if it's part of the record. I'm

1 going to ask that the commission take administrative
2 notice of each of the orders that govern operation of
3 the EMSU. That'll be order number R7765, R7766, and
4 R7767, and any applicable amendments to the EMSU.

5 HEARING EXAMINER HARWOOD: Objection
6 from Empire?

7 MS. HARDY: No objection, but I believe
8 those are attached to Mr. Wheeler's testimony.

9 MR. RANKIN: Yeah. I'm not sure if
10 they all are, but I just want to make sure that it's
11 part of the record.

12 HEARING EXAMINER HARWOOD: Okay. Thank
13 you.

14 OCD?

15 MR. MOANDER: No objection.

16 HEARING EXAMINER HARWOOD: Rice?

17 MR. BECK: No objection.

18 HEARING EXAMINER HARWOOD: Pilot?

19 MR. SUAZO: No objection.

20 HEARING EXAMINER HARWOOD: All right.
21 They will be administratively noticed.

22 MR. RANKIN: No further questions,
23 Mr. Hearing Officer.

24 HEARING EXAMINER HARWOOD: Okay.
25 Empire, may this witness be excused?

1 MS. HARDY: Yes. Thank you.

2 HEARING EXAMINER HARWOOD: All right.

3 Mr. Alleman, thank you for your time,
4 and you're free to go or stay.

5 Mr. Rankin, who is your next witness?

6 MR. RANKIN: Mr. Hearing Officer, next
7 witness will be Dr. Lake.

8 HEARING EXAMINER HARWOOD: Okay. All
9 right. I see somebody standing up in the back, so I
10 assume he's appearing in person.

11 MR. RANKIN: I wonder if I may just
12 take five minutes to get my documents in order, and
13 maybe that might help others as well. Just a quick
14 five minutes to allow Mr. Lake to get situated. I can
15 get him a glass of water. And then we can make sure
16 we have everything we need for the documents.

17 HEARING EXAMINER HARWOOD: Sure. We'll
18 pick up with Dr. Lake at 3:30.

19 MR. RANKIN: Thank you.

20 (Off the record.)

21 HEARING EXAMINER HARWOOD: Good
22 afternoon, sir.

23 Please raise your right hand.

24 //

25 //

1 WHEREUPON,
2 LARRY LAKE,
3 called as a witness and having been first duly sworn
4 by Ripley Harwood to tell the truth, the whole truth,
5 and nothing but the truth, was examined and testified
6 as follows:

7 HEARING EXAMINER HARWOOD: Thank you,
8 sir.

9 Mr. Rankin.

10 MR. RANKIN: Thank you, Mr. Hearing
11 Officer.

12 DIRECT EXAMINATION

13 BY MR. RANKIN:

14 MR. RANKIN: Good afternoon, Dr. Lake.

15 MR. LAKE: Good afternoon.

16 MR. RANKIN: I can hear you great. So
17 that sounds good.

18 MR. LAKE: Okay.

19 MR. RANKIN: If at any time during the
20 course of this proceeding, Dr. Lake, you need to take
21 a break, just let me know or let whoever's examining,
22 you know. And as long as I think a question's not
23 pending, we can take a break; okay? So just make sure
24 to let us know; okay? Dr. Lake, can you state your
25 full name for the record, please?

1 MR. LAKE: Larry Wayne Lake.

2 MR. RANKIN: By whom are you employed
3 and in what capacity?

4 MR. LAKE: University of Texas at
5 Austin.

6 MR. RANKIN: And in this case, are you
7 also serving as a consultant?

8 MR. LAKE: Yes, Austin Consulting
9 Petroleum Engineers.

10 MR. RANKIN: Thank you. Have you
11 previously testified before the New Mexico Oil
12 Conservation Commission?

13 MR. LAKE: No.

14 MR. RANKIN: Is your CV or resume
15 attached to your self-affirmed direct statement that
16 was filed with the commission?

17 MR. LAKE: I think we've added one more
18 reference, but yes.

19 MR. RANKIN: Got it. And your
20 background experience, you're a reservoir engineer;
21 correct?

22 MR. LAKE: Yes.

23 MR. RANKIN: And you have extensive
24 experience working on CO2 and enhanced recovery; is
25 that correct?

1 MR. LAKE: Yeah.

2 MR. RANKIN: Okay. So you're seeking
3 to be qualified as a expert in reservoir engineering
4 and CO2 enhanced recovery?

5 MR. LAKE: Yes.

6 MR. RANKIN: Okay. What were you asked
7 to do in this case?

8 MR. LAKE: Well, two things. One was
9 to sort of opine on the likelihood of success of the
10 CO2 flood in the ROZ zone. And the second was to --
11 to estimate to what extent the CO2 flood would be
12 compromised by fluid passing from the water disposal
13 wells.

14 MR. RANKIN: Now, have you conducted a
15 review of the information that Empire has made
16 available regarding its proposed development in the
17 San Andres ROZ at the EMSU?

18 MR. LAKE: Yes.

19 MR. RANKIN: What did you look at --
20 just generally, what did you look at to come to your
21 opinions, if you can recall?

22 MR. LAKE: Oh, there's several
23 spreadsheets that had pressure information in it. We
24 had one spreadsheet that came from public sources for
25 rates. A lot of testimonies. And I think at least

1 one, maybe two, published, publications, papers.

2 MR. RANKIN: And you also had some
3 discussions with Goodnight personnel; correct?

4 MR. LAKE: Yes.

5 MR. RANKIN: And you also had some
6 discussions with Netherlands Sewell, in particular
7 Dr. Jim Davidson?

8 MR. LAKE: Indirectly.

9 MR. RANKIN: Okay. And you stated that
10 you reviewed some of the testimony of some of the
11 witnesses including Goodnight's witnesses in these
12 cases?

13 MR. LAKE: I didn't understand that.
14 Say it again.

15 MR. RANKIN: Sure. You reviewed the
16 testimony of the witnesses including Goodnight's
17 witnesses in these cases?

18 MR. LAKE: Yes.

19 MR. RANKIN: Okay. Have you prepared,
20 written direct and rebuttal testimony in exhibits that
21 are marked as exhibits G and G1 through G12 that
22 provide your opinions and analyses?

23 MR. LAKE: Yes.

24 MR. RANKIN: Were the exhibits and
25 figures included in your direct and rebuttal testimony

1 prepared by you or compiled under your direction and
2 supervision?

3 MR. LAKE: Yes.

4 MR. RANKIN: Do you have any
5 corrections to the testimony, figures, or exhibits
6 that were filed with the commission?

7 MR. LAKE: Not that I know of.

8 MR. RANKIN: Okay. And do you adopt
9 the testimony in your self-affirmed direct and
10 rebuttal testimony that you filed with the commission
11 that are marked as Exhibit G as you're sworn testimony
12 today?

13 MR. LAKE: [Unintelligible response.]

14 MR. RANKIN: Was that a yes?

15 MR. LAKE: Yes.

16 MR. RANKIN: Okay. Now, Mr. Hearing
17 Officer, I would -- I would tender Dr. Lake as an
18 expert witness in Reservoir Engineering and CO2
19 Enhanced Recovery.

20 HEARING EXAMINER HARWOOD: Empire?

21 MS. HARDY: No objection from Empire.

22 HEARING EXAMINER HARWOOD: OCD?

23 MR. MOANDER: No objection.

24 HEARING EXAMINER HARWOOD: Rice?

25 MR. BECK: No objection.

1 HEARING EXAMINER HARWOOD: Pilot?
2 MR. SUAZO: No objection.
3 HEARING EXAMINER HARWOOD: You will be
4 so recognized.
5 MR. RANKIN: Mr. Hearing Officer, I
6 would also move the admission into evidence of
7 Dr. Lake's direct testimony and rebuttal testimony
8 marked as Exhibit G and attachments G1 through G12.
9 HEARING EXAMINER HARWOOD: Any
10 objection from Empire?
11 MS. HARDY: No objection.
12 HEARING EXAMINER HARWOOD: OCD?
13 MR. MOANDER: No objection.
14 HEARING EXAMINER HARWOOD: Rice?
15 MR. BECK: No objection.
16 HEARING EXAMINER HARWOOD: Pilot?
17 MR. SUAZO: No objection.
18 HEARING EXAMINER HARWOOD: They'll be
19 admitted.
20 (Exhibit G and Attachments G1 Through
21 G12 were admitted into evidence.)
22 DIRECT EXAMINATION
23 BY MR. RANKIN:
24 MR. RANKIN: Okay.
25 Dr. Lake, have you been present --

1 well, not present, but have you listened to some of
2 the testimony and cross-examination that was provided
3 by some of Empire's experts during this proceeding?

4 MR. LAKE: Yes.

5 MR. RANKIN: Did you listen to
6 Dr. Buckwalter's [ph] testimony?

7 MR. LAKE: I did. Most of it, yes.

8 MR. RANKIN: Okay. Did you hear any
9 other witness testimony that relates to this case
10 through the matters you're going to be addressing?

11 MR. LAKE: Today.

12 MR. RANKIN: Today?

13 MR. LAKE: Yeah.

14 MR. RANKIN: And did you prepare a
15 summary of slides reflecting your opinions including
16 any additional opinions based on what you learned from
17 the testimony you heard?

18 MR. LAKE: Yes.

19 MR. RANKIN: At this time,
20 Mr. Hearing Officer and Dr. Lake, I would like to walk
21 through your slides.

22 And starting with this first one, you
23 have some summary points. Walk us through what your
24 summary is.

25 MR. LAKE: Yeah, I'm going to, first of

1 all, I probably should apologize. This presentation
2 is academic, a little more wonky -- not wonky wonky,
3 than some of the others I've heard. So if it seems
4 like I'm talking too much or getting into too much of
5 the weeds, please stop me. And Mr. Rankin is my slide
6 advancer, so I'm going to save time to move forward.

7 Okay. First conclusion is that the
8 disposal, San Andres, and the Grayburg formations are
9 largely separate. And that is based upon three
10 observations. Next. The pressure behavior. The next
11 observation is physical separation. Third one is the
12 lost circulation.

13 The next thing is that I -- I think the
14 simulation that we referred to just now had too much
15 residual water in it. And that means that there
16 was -- had -- it had to -- water had to come from
17 somewhere. And I think some of those somewhere is in
18 the residual water saturation.

19 Next. And finally, the recovery
20 prediction is well outside the range of observed CO2
21 floods.

22 MR. RANKIN: What does this next slide
23 show?

24 MR. LAKE: Well, this is a -- this is a
25 diagram of something called a repeat formation tester

1 on the left-hand side. It looks a lot better here
2 than -- than when I looked at it before. This is
3 something that was invented back in the 1960s. And
4 it's used to measure pressure at different points
5 along a wellbore.

6 The most recent manifestations of
7 the -- of -- of this, it also can take fluid samples.
8 And it can take other attributes of the fluids being
9 produced, too. It basically is something that moves
10 up and down the wellbore. And I have to use my hands
11 here; okay? It moves up and down the wellbore here,
12 and periodically, it punches the hole through the
13 mud -- the mud cake.

14 And it samples pressure as a function
15 of time and fluids if you need it. Now, pressure's
16 the only thing we're going to talk about here. So it
17 can be done in just a few minutes. So it can be done,
18 moved up the wellbore, done, moved up the wellbore.
19 And when you finish, you get a profile of a pressure.

20 So in fact, you get a time change of
21 pressure. But I think we'll just talk about the
22 spatial change of pressure here. And what is not
23 shown on the right-hand side there is a -- is a
24 picture of a typical pressure profile. And it works
25 something like this.

1 You start at the surface. And as you
2 move down with a straight line -- it's important it's
3 a straight line, that indicates the density of the
4 fluid. But if it passes through a zone that has no
5 permeability or has no fluids, it goes kind of crazy
6 for a while. And then it does it again if there's
7 another zone that has a density of fluid, crazy again
8 and then another one.

9 And you can tell what the identity of
10 the fluids are, if you're lucky, from the -- from the
11 slopes of the lines. But as important, if not more
12 so, is you can tell which zones are potentially
13 productive. It's pretty clever 'cause you can -- you
14 can run it in a fairly short period of time. You can
15 do a whole profile of pressures.

16 MR. RANKIN: Okay.

17 MR. LAKE: Okay.

18 MR. RANKIN: Next one?

19 MR. LAKE: Next one. Yeah.

20 MR. RANKIN: Okay. And you had a point
21 here I guess, Dr. Lake, that I wanted you just to
22 touch on. Why is it important to understand this RFT
23 tool here in the context of this case?

24 MR. LAKE: Well, it tells you which
25 parts of the zone are permeable, which parts are

1 fluids or not. And in -- in particular as you look at
2 it as a whole, you get some idea of what -- what parts
3 of the -- of the wellbore are isolated from each
4 other.

5 MR. RANKIN: Okay. And why is it
6 important to understand what's happening with the
7 pressure in this case?

8 MR. LAKE: Well, pressure -- pressure
9 to me is the most definitive aspect of barriers. And
10 so if you can see things in the pressure, that's --
11 that's a barrier.

12 MR. RANKIN: What does this next slide
13 show, and explain how it relates to your --

14 MR. LAKE: Yeah, this one is going just
15 take a little while. But first of all, this is not my
16 slide originally. So please, I'm not going to refer
17 to any of the text on the right-hand side over there.
18 On the left-hand side, just sort of a little
19 background. Fluid pressure is measured in PSI or
20 pounds per square inches.

21 But as important as the pressure is is
22 the gradient or the slope of line, pressure versus
23 depth or -- or distance. Because that's proportional
24 to the -- the rate at which the fluid flows. And
25 we've gotten so used to doing this that we report

1 gradients in kind of odd units.

2 It's -- instead of it being pounds per
3 square -- instead of it being pounds per cubic feet or
4 so, it's as it says right there "The gradient for
5 water is 0.46 PSI per foot, and oil is 0.36" and so on
6 and so forth. If I consider two points, two
7 horizontal points in the reservoir, zero gradient
8 indicates perfect communication between the two, the
9 two points.

10 If I consider two points that are
11 vertical like a wellbore, then the -- the vertical
12 gradient should be equal to the density of the fluid.
13 It's actually the reciprocal density, but we'll --
14 we'll go with that. And so if it is a -- a zone that
15 is -- that there's -- is -- can flow fluids, that
16 be -- should be a straight line.

17 And on the right-hand side over there,
18 the -- the vertical axis is pressure. The horizontal
19 axis, I think, I'd get that back. So the vertical
20 axis is depth, the horizontal axis is pressure. And
21 it's -- it goes up as you go deeper, which is what it
22 should do. But it's not a straight line.

23 It's not a -- so I -- I think that's
24 pretty firm evidence that there is at least a partial,
25 if not a total barrier in -- in between the top and

1 the bottom of that zone. So next.

2 MR. RANKIN: Before I leave this
3 Dr. Lake, just to be clear. When you're talking about
4 not a straight line, you're referring to these points
5 on the chart that have the black circle around them;
6 correct?

7 MR. LAKE: Indeed. I would refer to
8 them, if I could point to them.

9 MR. RANKIN: Yeah.

10 MR. LAKE: But -- points -- the points
11 on the line there that -- that determine the curve.

12 MR. RANKIN: Okay. And I'm asking you
13 this Dr. Lake only because there's going to be a
14 written record, and I'll need to make sure the written
15 record is -- is clear about what you're specifying
16 you're referring to.

17 MR. LAKE: Fair enough.

18 MR. RANKIN: Okay.

19 MR. LAKE: Fair enough.

20 MR. RANKIN: Okay, next slide.

21 MR. LAKE: So anyhow.

22 MR. RANKIN: Yeah.

23 MR. LAKE: So pressure behavior
24 indicates literally no communication between the
25 disposal unit and the Grayburg.

1 MR. RANKIN: What does this next slide
2 show, and explain how --

3 MR. LAKE: The next slide is -- is the
4 second argument on the list of the first page there
5 was physical separation. And the color codes are such
6 that the green indicates the -- well, first of all,
7 the bars there indicate the top and the bottom of the
8 completion intervals. Green indicates an in-situ
9 producer, and red indicates a saltwater disposal unit.

10 And the two figures, the one on the
11 left and the one on the right, are the same thing.
12 It's just they have different aspects of -- of the
13 completions. And you can see with the exception of
14 the one well that's sticking down there, right there,
15 yes, they're all pretty separate of each other. So
16 the second argument for them being isolated is just
17 physical separation. Okay.

18 The third one, and this one is
19 basically a little more involved. But when wells are
20 drilled, they are drilled with something called "mud."

21 MS. SHAHEEN: Excuse me. Excuse me.
22 Empire has an objection to this slide and the next two
23 slides. Dr. Lake provided no testimony regarding lost
24 circulation or mud losses in his written statements,
25 he filed a direct testimony. There's no mention of

1 mud losses or circulation anywhere in his direct
2 testimony.

3 Likewise, he was deposed, and there was
4 no discussion of mud, of losses, or of circulation in
5 his deposition. Finally, he also filed rebuttal
6 testimony, and there, again, no mention of mud, of
7 losses, or circulation. It's an unfair surprise, an
8 undue prejudice to Empire. We received these slides
9 late on Tuesday. We had no idea that Dr. Lake would
10 be testifying about mud losses or loss in circulation.

11 There are other Goodnight witnesses who
12 have testified about this. And we don't believe it is
13 fair for Dr. Lake to all of a sudden be also
14 testifying in that regard.

15 HEARING EXAMINER HARWOOD: Mr. Rankin?
16 Mr. Rankin?

17 MR. RANKIN: Mr. Hearing Officer,
18 Dr. Lake testified at length in both his direct and
19 rebuttal testimony about the importance of pressures,
20 about the difference in pressure regimes between these
21 zones. And this is a example, it's a demonstrative,
22 of what he's talking about.

23 How there's a demonstration of a
24 difference in pressure regimes between the overlying
25 zone and the zone in which Goodnight is disposing of.

1 He's simply using it to demonstrate the other elements
2 of his basis for his opinions.

3 HEARING EXAMINER HARWOOD: The
4 objection as to the exhibit, was this first provided
5 to Empire only on Tuesday?

6 MR. RANKIN: No, no,
7 Mr. Hearing Officer. This exhibit was filed with
8 Mr. McGuire's direct case in August of 2024. This
9 information was also provided to Empire as part of the
10 discovery in this case. I can't even tell you what
11 date it was, but it was months earlier. This
12 information is not new.

13 In fact, as you saw just the other day,
14 Mr. Hearing Officer, they put forward their own
15 demonstrative showing the lost circulation across the
16 entire EMSU. This is not a surprise. This is the
17 core of the case. There's no surprise here. Dr. Lake
18 has been discussing from the beginning of his
19 testimony the importance of pressure.

20 HEARING EXAMINER HARWOOD: Okay. But I
21 think the objection goes to its testimony about mud
22 losses.

23 MR. RANKIN: Oh, I think Dr. Lake has
24 listened to different discussions from the hearing.
25 And I think it's fair for him to opine on what he's

1 learned based on the hearing.

2 HEARING EXAMINER HARWOOD: Okay.
3 Ms. Shaheen, I'll hear from you on those points.

4 MS. SHAHEEN: Thank you
5 Mr. Hearing Officer. Yes. Goodnight has other
6 witnesses who have testified in this regard.
7 Mr. McGuire is free to testify about these. But
8 Dr. Lake, as I mentioned, has never once mentioned mud
9 losses or circulation in any of his prior testimony.

10 And I think it's cumulative, if not
11 prejudicial, to Empire at this point to have Dr. Lake
12 testify on a subject on which he's not disclosed any
13 previous testimony.

14 HEARING EXAMINER HARWOOD: So do you
15 have any objection to him testifying about pressure as
16 opposed to mud losses?

17 MS. SHAHEEN: I am fine with him
18 testifying about pressure because that is in his
19 testimony. But he did not, again, testify about mud
20 losses or circulation.

21 HEARING EXAMINER HARWOOD: Are you okay
22 with that? Are you going to end up with a problem if
23 Preston McGuire has -- if he's actually going to
24 testify about that, then you'll end up with cumulative
25 objections with him.

1 MR. RANKIN: This is part of
2 Mr. McGuire's testimony. I guess I would ask, can
3 Dr. Lake explain some of the bases for his opinion
4 about differences in pressure?

5 HEARING EXAMINER HARWOOD: Well, at
6 your own risk.

7 MR. RANKIN: I'm not sure what the
8 hearing officer is referring to, I guess.

9 HEARING EXAMINER HARWOOD: Well, what I
10 mean is Ms. Shaheen is saying you have another witness
11 teed up to testify about the relationship, apparently,
12 between mud losses and pressure differential. So if
13 you ask this witness about that and then ask another
14 witness about that, I may start sustaining cumulative
15 objections.

16 MR. RANKIN: Mr. Hearing Officer, I
17 would point out that Empire had 11 witnesses, several
18 of whom repeated over and over again about Mother
19 Nature's water flood, how it started, where it went,
20 the effect of Mother Nature's water flood. I made no
21 objection to cumulative evidence. I don't --

22 HEARING EXAMINER HARWOOD: Okay. You
23 could have. And all I'm telling you is they have the
24 right to make that objection if you go there.

25 MR. RANKIN: Well --

1 HEARING EXAMINER HARWOOD: I'm going to
2 allow it if you want to go there. And then we'll end
3 up, we may end up in a problem with Preston McGuire.

4 BY MR. RANKIN:

5 MR. RANKIN: Dr. Lake, I would just ask
6 you, rather than go into detail about mud losses, the
7 nature of the mud losses, how it occurred, where it
8 occurred, any information specific about mud losses,
9 but I guess I think it's appropriate for you to
10 testify about how the fact of mud losses in the EMSU
11 has supported the basis for your opinion; okay?

12 So rather than getting into details
13 about the specific exhibit here, I would just ask how
14 in general your understanding of the fact that there
15 were lost circulation underneath the EMSU and
16 surrounding have informed your opinion?

17 MR. LAKE: Well, I think it's a
18 pressure issue. So because the mud is supposed to go
19 down the well, it's supposed to come up at the -- the
20 outside of the tubing. And when it encounters a zone
21 that is low pressure or a zone that's highly
22 permeable, it -- it has a tendency to lose, to
23 basically -- it'll flow into the formulation -- flow
24 into the formation and not back to the surface.

25 It's called lost mud. So it is -- it

1 is a pressure issue. And the fact that they lost --
2 what was that? -- 22 -- bottom hole pressure started
3 there at 4,295. Next slide.

4 MR. RANKIN: So Dr. Lake, rather than
5 getting into too much detail about the mud losses, to
6 preserve any issues or avoid any further issues, I'll
7 just ask you, I'll skip down through these next few
8 slides and ask you to explain to me at a high level
9 your basis for why, in your opinion, there's a
10 pressure differential between the Grayburg and
11 San Andres.

12 MR. LAKE: Go back one slide. So lost
13 circulation indicates low pressure in the San Andres,
14 and it indicates high perm. In fact, I think there's
15 other testimony that says how -- how low the pressure
16 differences are. By the way, pressure is an elusive
17 little fella 'cause there's so many different
18 pressures around a reservoir. But this is speaking
19 about the bottom hole pressure of circulating mud.

20 MR. RANKIN: What's this next slide
21 show? And if you would, just explain to us what this
22 next --

23 MR. LAKE: This goes to the third
24 bullet. I talked about too much water, and this one
25 is the wonkiest slide here. On the left-hand side is

1 a -- something called a -- a relative permeability
2 curve. This is the one that came from a report by
3 Cobb in, I think, the 1980s. Then onto the right,
4 there's the same thing.

5 These are the curves that were used in
6 Dr. Buckwalter's [ph] simulation results. These
7 things represent, on the vertical axis, the relative
8 mobility or permeability of the indicated fluids.
9 That is a dynamic measure. Across the horizontal axis
10 is the -- is a water saturation; that is a static
11 measure.

12 And this is one of the things that we
13 strive to do in petroleum engineering is to relate
14 dynamic and static measures. I'll -- I'll refer to
15 the one on the left, although both -- both of these
16 are laboratory measurements. And there should be a
17 bunch of little points around it, and they have been
18 summarized with -- with curves.

19 But the curve that is decreasing from
20 left to right is the oil relative permeability. And
21 its most important feature is usually where that curve
22 goes to zero. I think that's about 70 percent, isn't
23 it?

24 MR. RANKIN: Yes.

25 MR. LAKE: And then the other curve,

1 the one that's increasing for right to left, is the
2 water relative permeability. And that's about 20
3 percent or so. On the -- on the right-hand side, the
4 same things that I've tried to indicate, the water
5 residual saturation. The residual saturation is where
6 the relative permeability goes to zero.

7 So I've got a blue area over here on
8 the left-hand side of about 20 percent. And on the
9 right-hand side -- and honestly, I can't read that.
10 Is that 35 percent?

11 MR. RANKIN: Yeah. Oh, sorry --
12 Dr. Lake. Yeah, 35 percent.

13 MR. LAKE: Yeah. So -- so he starts
14 off with a lot more water in the -- in the simulation
15 than -- than what probably should be there. And he
16 needs this so that you can make up the water that he
17 sees produced at -- at the wellbore. So the claim is
18 the modeling work starts with a residual water
19 saturation that's too large.

20 This is falling back on experience.
21 But with the San Andres cores that I've seen in other
22 places, residual water saturation is 15 percent or so,
23 much, much smaller than either one of these. Okay,
24 next.

25 Okay. A little bit of background on

1 CO2 enhanced oil recovery. This -- this is by far --
2 well, first of all we inject CO2 in the reservoir. As
3 the -- the cartoon there says, there's a -- a vertical
4 well. Nearly all of the wells that have been done,
5 CO2 -- have been done through vertical wells. There
6 are some horizontals. And it's producing fluids to
7 the second vertical well on the right-hand side there.

8 And you inject the CO2, and it brings
9 about chemical changes in the oil. And those chemical
10 changes, and it's represented by that -- that dark --
11 the red-blue area there on the right-hand side, can
12 cause oil that was previously immobile to be mobile.
13 And that can cause a bank to form. This is the most
14 common form of enhanced oil recovery in the Permian
15 Basin.

16 And with the exception of thermal EOR,
17 this is the most successful form of an enhanced oil
18 recovery.

19 Most operators inject it with water,
20 and that's where the water alternating gas comes from.
21 So they inject a little bit of CO2, a little bit of
22 water, a little bit of CO2. And that's shown in the
23 cartoon there on the right, that's alternating light
24 blue and light green areas there. So the injecting
25 water increases the volume of the reservoir that is

1 contacted.

2 And there's a lot of papers that would
3 support that. But it also reduces the amount of CO₂
4 that's required. And so as long as it doesn't
5 compromise the flood too much, it's a good thing to do
6 because you save expenses that way, too. Typically,
7 the WAG ratio is about two barrels of water for every
8 barrel of CO₂ injected in there. And so that's CO₂
9 enhanced oil recovery. Okay, next.

10 Now, this has been around since the
11 1960s or 1970s. This is the -- the paper that I'm
12 showing you results from there is a top in -- . The
13 title of this is "50 Years of Enhanced Oil Recovery."
14 I should remember that. I was -- I was an author on
15 that. And so it's -- it basically is a summary of the
16 field experience.

17 Oh, and I should say this to make sure
18 I don't -- when I think of it, I have to make sure I
19 don't -- don't forget it later on. These are all
20 conventional CO₂ floods. They're not floods in ROZs.
21 And so the -- the right upper figure shows the
22 vertical axis. The CO₂ recovered is a fraction of the
23 hydrocarbon pore volume.

24 And across the horizontal axis is the
25 total water plus CO₂ injected as a fraction of the

1 hydrocarbon pore volume. The figure at the bottom is
2 a figure that came from a paper that the testimony
3 showed was used in calculating CO2 recovery for an ROZ
4 zone.

5 And the -- the one on the left, the one
6 on the bottom basically is just a simulation. But the
7 one on the upper right is actual data. We got a
8 really good data set from a consulting company. And
9 so we plotted them all up. If you can see the -- the
10 faint lines there, that's the behavior of the
11 individual 20 some odd conventional CO2 floods that
12 have been going on mostly in the Permian Basin, but
13 occasionally outside of it.

14 The dotted lines represented plus or
15 minus two standard deviations of the -- of the
16 average, which is red. And the solid lines represent
17 plus or minus one standard deviation. A lot of
18 spread, a lot of scatter. And so I know that over
19 here at the extreme right-hand side where it's
20 injected four pore volumes, the average recovery is
21 about 11 percent.

22 This is -- this is data. This is not
23 just some simulation. And if I move down to the
24 middle plot over here where they've injected four pore
25 volumes, they're showing recoveries of about 18

1 percent, which is about twice as much as what the
2 actual field did. In fact, 18 percent is basically
3 two standard deviations above the mean.

4 And remind you again that these are
5 conventional CO2 floods, and it is likely that ROZ
6 floods would perform about a third as well as this.
7 So it is my belief, and that's the next advance, is
8 that our recovery prediction is too optimistic. So
9 that's the summary.

10 MR. RANKIN: Thank you, Dr. Lake.
11 Thank you very much.

12 Mr. Hearing Officer, before I release
13 Dr. Lake for cross-examination, I just have a few more
14 questions.

15 Dr. Lake, what's your opinion about
16 Empire's proposal to develop a potential ROZ in the
17 EMSU?

18 MR. LAKE: I don't think they'll make
19 money.

20 MR. RANKIN: How about the proposal to
21 develop a potential ROZ in the interval that Goodnight
22 Midstream is disposing into?

23 MR. LAKE: I don't think they'll make
24 money there, either.

25 MR. RANKIN: Is there any reason that

1 you're aware of that would prevent Empire from
2 collecting additional data, itself, on the potential
3 for an ROZ in Goodnight Midstream's disposal zone at
4 this time?

5 MR. LAKE: Expense would be the only
6 reason.

7 MR. RANKIN: In your experience, is
8 four years enough time to acquire sufficient data to
9 develop and plan to conduct an ROZ project?

10 MR. LAKE: Four years of data
11 collection, is that what you said?

12 MR. RANKIN: Is four years enough time
13 to collect data and develop a plan?

14 MR. LAKE: I think so. Yeah.

15 MR. RANKIN: What's your opinion about
16 whether Goodnight's disposal injection is impairing
17 Empire's EMSU operations?

18 MR. LAKE: Yeah. I -- I'm skeptical.
19 And what I go back to is a publication about ten years
20 ago by a fellow named Enick at the University of
21 Pittsburgh who measured the CO2 oil phase behavior in
22 the presence of freshwater and saltwater. And there
23 was no -- no difference whatsoever. It's not a
24 process that's considered to be sensitive to the
25 salinity of the water.

1 MR. RANKIN: What's your opinion about
2 whether Empire's producing zone and Goodnight's
3 disposal zone are in communication?

4 MR. LAKE: We just -- we talked about
5 that before. I don't -- I don't think there would be
6 an issue.

7 MR. RANKIN: And what's your opinion
8 about whether Empire can develop a residual oil zone
9 in the EMSU while Goodnight continues to dispose of
10 produced water into its disposal zone?

11 MR. LAKE: I think they can.

12 MR. RANKIN: Okay. Dr. Lake, based on
13 your review, do you believe that there's enough data
14 today to make a decision based on what you've
15 reviewed?

16 MR. LAKE: I don't think so. There's a
17 lot of uncertainties, a lot of missing things. So no,
18 I -- I don't think so.

19 MR. RANKIN: Okay. What additional
20 data do you think needs to be obtained in order -- and
21 I guess the question is, is it your opinion that --
22 your opinion today is that there's enough information
23 to know that there's not going to be impairment from
24 Goodnight's injection; correct?

25 MR. LAKE: I think so, yes.

1 MR. RANKIN: Okay. But the question is
2 whether there's enough information whether an ROZ
3 could even work; is that right?

4 MR. LAKE: Yeah. I think -- partly why
5 I answered that is that I've done some looking up of
6 historic ROZ developments. There's almost no data in
7 the literature about this. But the recoveries are
8 very -- are very low. So I don't see reason why this
9 would not be similar -- similar also.

10 MR. RANKIN: Okay. Thank you very
11 much, Dr. Lake.

12 At this time, Mr. Hearing Officer, I
13 have no further questions of Dr. Lake and make him
14 available for cross-examination.

15 HEARING EXAMINER HARWOOD: All right.
16 Thank you, Mr. Rankin.

17 Ms. Shaheen or Ms. Hardy I'm guessing.

18 MS. SHAHEEN: Thank you,
19 Mr. Hearing Officer.

20 CROSS-EXAMINATION

21 BY MS. SHAHEEN:

22 MS. SHAHEEN: Good afternoon, Dr. Lake.
23 We met virtually at your deposition.

24 MR. LAKE: Good -- good afternoon
25 again. Yeah.

1 MS. SHAHEEN: Nice to see you. I
2 understand from your CV that you've done some
3 consulting work for Chevron and for Exxon; is that
4 correct?

5 MR. LAKE: Let me see. Chevron for
6 sure. Exxon, yeah. A long time ago, though.

7 MS. SHAHEEN: And in your opinion, do
8 these companies perform good work?

9 MR. LAKE: In my opinion, yes.

10 MS. SHAHEEN: And you'd agree with me,
11 then, that Exxon wouldn't represent the existence of
12 an ROZ in its sale package if they hadn't performed
13 enough analysis or have enough evidence to support
14 that representation; is that right?

15 MR. LAKE: That's -- that's sort of the
16 way they operate. But if it is, it is.

17 MS. SHAHEEN: Can you tell us what you
18 were asked to do for Goodnight in this matter?

19 MR. LAKE: To estimate what I thought
20 the feasibility of a -- of a successful ROZ flood and
21 to the extent of which the -- the water disposal would
22 compromise the CO2 flood.

23 MS. SHAHEEN: You weren't asked to
24 determine whether there's an impermeable barrier
25 between the Grayburg and the San Andres, were you?

1 MR. LAKE: I think so. We said no
2 communication.

3 MS. SHAHEEN: And so have you given us
4 an opinion that there exists an impermeable barrier
5 throughout --

6 MR. LAKE: Yeah. Yeah. I -- I
7 understand you. I'm sorry, I talked over you, sorry.

8 HEARING EXAMINER HARWOOD: Yeah,
9 Doctor. Just I know you can anticipate the full
10 question.

11 MR. LAKE: Yeah, I understand.

12 HEARING EXAMINER HARWOOD: For the sake
13 of the court reporter and everybody's sanity, if
14 you'll please wait for Ms. Shaheen, and just think of
15 it as a radio transmission where you don't have to say
16 over.

17 MR. LAKE: Yeah. Yeah.

18 HEARING EXAMINER HARWOOD: Thank you.

19 MR. LAKE: So a single barrier,
20 probably no. But a collection of barriers -- in fact,
21 that one slide that I showed that had the pressure
22 versus depth, but thinking about how one could
23 actually back out sort of the density of the barriers
24 or maybe the -- the length of the barriers from --
25 from that. So I think the pressure indication is --

1 is definitely noncommunication. Probably not a single
2 barrier.

3 MS. SHAHEEN: You weren't asked to
4 determine whether a residual oil zone exists in the
5 San Andres, were you?

6 MR. LAKE: I was not.

7 MS. SHAHEEN: And you, yourself, did
8 not conduct a study to evaluate whether a residual oil
9 zone exists in the San Andres, did you?

10 MR. LAKE: No.

11 MS. SHAHEEN: In your direct testimony,
12 that was filed in August, on page 3 you speak of "the
13 large injection rate and small pressure increase." Do
14 you recall that testimony?

15 MR. LAKE: I do.

16 MS. SHAHEEN: When considering the
17 small pressure increase, did you factor in the volumes
18 of water that had been removed from the San Andres
19 through the water supply wells for the water flood?

20 MR. LAKE: I've just -- just looked at
21 what the data said. And so I just had the -- the
22 injection volumes, which is in millions of barrels as
23 I recall, and a very small pressure increase.

24 MS. SHAHEEN: So this slide, you can
25 take a minute to look at it.

1 MR. LAKE: Okay.

2 MS. SHAHEEN: But what I understand it
3 shows is the amount of water that was injected in the
4 San Andres prior to 1986, before the unit was formed.
5 And then the green on the right shows the water that
6 was withdrawn from the water supply wells during the
7 water flood.

8 And you can see there's a large dip
9 there and kind of remains level for a while and then
10 starts coming up fairly drastically there in the
11 yellow part there since 2020 when Goodnight began its
12 injection. Do you see that?

13 MR. LAKE: I do see that.

14 MS. SHAHEEN: And so did you take into
15 consideration this exchange of water, if you will,
16 when you offered your opinion about the small pressure
17 increase and the large injection rate?

18 MR. LAKE: I think that's a dotted
19 line, which indicates that it's an estimate.

20 MS. SHAHEEN: Yes. After 2025 going
21 forward --

22 MR. LAKE: Right.

23 MS. SHAHEEN: -- that is a dotted line,
24 and that is projected.

25 MR. LAKE: Yeah.

1 MS. SHAHEEN: But up through the yellow
2 is actual water withdrawals up until 2024.

3 MR. LAKE: Yeah. I'm -- I'm very, very
4 fuzzy on what -- where this slide comes from or -- or
5 what -- or what this slide means. I just remember the
6 spreadsheets that were in the testimony that showed
7 very small pressure changes.

8 MS. SHAHEEN: This is from the OCD
9 website, data from the OCD website and our rebuttal
10 Exhibit B47. Are you aware that the injected water
11 has effectively replaced most, if not all, of the
12 previously removed water?

13 MR. LAKE: If you say so. I don't
14 know. I didn't calculate those volumes.

15 MS. SHAHEEN: You didn't review that
16 data and compare it?

17 MR. LAKE: I just misread it. I
18 didn't -- one versus the other.

19 MS. SHAHEEN: Wouldn't you expect that
20 the pressure will increase at a greater rate now given
21 that any future withdrawal of water will be much less
22 than Goodnight's proposed injected volumes?

23 MR. LAKE: It's a bit of a mystery
24 because even without the withdrawal, it -- well, let
25 me say it right. It's -- it's -- there's -- there's

1 some holes out there that's taking a lot of water.
2 Which means that you could probably pull -- pull a
3 lot -- a lot of water through there. And so I -- I
4 guess -- I guess I forgot what the question was; so --

5 MS. SHAHEEN: The question is wouldn't
6 you expect that the pressure will increase at a
7 greater rate now given that any future withdrawal of
8 water will be much less than Goodnight's injected
9 volumes?

10 MR. LAKE: In -- in the normal case,
11 yes. But not in this case. That's amazing. It
12 injects with basically no pressure difference.

13 MS. SHAHEEN: Have you seen the fluid
14 data, fluid level data, that Goodnight recently
15 provided to Empire?

16 MR. LAKE: Have I seen that? I don't
17 recall that I've seen that.

18 MS. SHAHEEN: On the right here, do you
19 see this chart?

20 MR. LAKE: Uh-huh.

21 MS. SHAHEEN: It's somewhat of a
22 spreadsheet. This data was provided to us about a
23 week ago, fluid level data from Goodnight's injection
24 wells. And over to the left is a graphic
25 representation of that fluid level data.

1 MR. LAKE: The vertical axis is
2 pressure?

3 MS. SHAHEEN: The vertical axis is
4 fluid level from the surface.

5 MR. LAKE: Which is -- okay. Which is
6 a surrogate for pressure.

7 MS. SHAHEEN: You agree that the fluid
8 levels are rising in every well across the formation
9 except for the Piper 2, which we understand has been
10 shut in. Do you agree?

11 MR. LAKE: Not every well. And
12 furthermore, I don't know what the uncertainty of
13 these measurements are. It looks pretty constant to
14 me.

15 MS. SHAHEEN: You're looking at -- it
16 looks to me, and, you know, correct me if you see this
17 differently. But I see at the bottom there, the dark
18 blue line and the green line, and they progressively
19 go up, level out a little bit, then they go up even
20 more, and then they level out a little bit. But from
21 February of 2022 to almost May of 2025, you wouldn't
22 agree with me that those fluid levels have gone up?

23 MR. LAKE: I'm looking at 10 --
24 specifically, your question was over that time
25 interval; right?

1 MS. SHAHEEN: I'm sorry?

2 MR. LAKE: Your question was over the
3 time interval?

4 MS. SHAHEEN: Yes.

5 MR. LAKE: Yeah. Yeah. It -- it's --
6 it's gone up. But then it flattens out there about
7 10/23. That's four years.

8 MS. SHAHEEN: You would agree that
9 rising fluid levels indicate that pressures are
10 rising.

11 MR. LAKE: I agree.

12 MS. SHAHEEN: And you agree that
13 pressure will continue to rise with the injection of
14 large volumes of water; correct?

15 MR. LAKE: Oh yeah.

16 MS. SHAHEEN: I think you've viewed a
17 number of variations of this slide, including your
18 own, that reflects the repeat formation test pressure
19 data. You're aware that this RFT, repeat formation
20 test, performed in 1986 was before the water flood;
21 right?

22 MR. LAKE: Okay. I didn't know that.

23 MS. SHAHEEN: And it was before any
24 water supply well withdrawals as well. Are you aware
25 of that?

1 MR. LAKE: Nope.

2 MS. SHAHEEN: Is it your opinion that
3 these pressures do not support the conclusion that
4 there's communication between the San Andres and the
5 Grayburg?

6 MR. LAKE: Well, I think it does
7 support the conclusion. But what it does not support
8 is a single isolated barrier. So there's baffles or
9 something there. There's -- there's something that's
10 prohibiting movement.

11 MS. SHAHEEN: And you understand that
12 as represented here in Empire slide 3, Empire applied
13 a 0.43 gradient, PSI per foot, to calculate the
14 San Andres pressure? You understand that?

15 MR. LAKE: That's -- yeah, that's
16 common.

17 MS. SHAHEEN: And you understand that
18 the blue line on the right side of this slide, right
19 here where my cursor -- I'm going to try to put my
20 cursor. There it is. That this blue line represents
21 that calculation?

22 MR. LAKE: Yeah.

23 MS. SHAHEEN: And that pressure was
24 calculated to be 1,527 PSI in the San Andres? Right
25 here.

1 MR. LAKE: What was the question?

2 MS. SHAHEEN: The question is, you
3 understand that they used that gradient to calculate
4 San Andres pressure, original San Andres pressure, at
5 1,527 PSI?

6 MR. LAKE: Yeah. It -- it -- I
7 understand your question now. It depends on where
8 that line started. I mean, the gradient is correct,
9 but I don't know where the lines start. You could
10 shift that blue line to the left quite a bit and
11 still -- and -- and still -- what am I trying to say
12 here? And still to honor the gradient because it's
13 the slope of the line, not the -- not the pressure,
14 itself.

15 MS. SHAHEEN: Okay. But you agree that
16 the pressure was calculated to be 1,527 PSI in the
17 San Andres?

18 MR. LAKE: I agree that somebody
19 calculated that. Yes.

20 MS. SHAHEEN: And you would agree that
21 0.43 is a reasonable gradient for a normally pressured
22 reservoir; right?

23 MR. LAKE: Correct.

24 MS. SHAHEEN: And looking at your
25 exhibit G4 -- I'll pull it up if we need to, but

1 there, you've actually used 0.46 PSI per foot as the
2 gradient; is that right?

3 MR. LAKE: I think I didn't. Could you
4 go back to that?

5 MS. SHAHEEN: Sure.

6 MR. LAKE: Yes. That gradient depends
7 on water salinity, and so it depends. It's -- it's --
8 these are fairly saline, and so it's usually 0.433 to
9 about 0.465. So, like -- but I didn't use that for
10 any calculation. It's just there for illustration.

11 MS. SHAHEEN: But you agree, you're --
12 my understanding is you've recommended that 0.46 PSI
13 per foot would be a reasonable gradient to use here;
14 is that right?

15 MR. LAKE: To who did I recommend it?
16 I don't understand the question.

17 MS. SHAHEEN: On your slide here,
18 you're representing that water, the water gradient,
19 should be 0.46 PSI per foot; is that right?

20 MR. LAKE: That's saltwater, yes.

21 MS. SHAHEEN: And you agree that this
22 gradient will give you a higher pressure than 1,527
23 PSI that was calculated by Empire?

24 MR. LAKE: If it were a straight line,
25 yeah.

1 MS. SHAHEEN: So you agree that the
2 San Andres is under pressure; correct?

3 MR. LAKE: I do.

4 MS. SHAHEEN: How do you explain the
5 lower pressure reading using your gradient?

6 MR. LAKE: I don't explain it at all.
7 I -- it's a geologic factor.

8 MS. SHAHEEN: On page 4 in paragraph 8
9 of your direct testimony, you opine that significant
10 pressure differences between the San Andres and the
11 Grayburg "are conclusive evidence of lack of
12 communication." Do you recall that testimony?

13 MR. LAKE: I think so.

14 MS. SHAHEEN: You didn't do any
15 calculations on the pressure differences; right?

16 MR. LAKE: No.

17 MS. SHAHEEN: You rely on
18 Preston McGuire; is that right?

19 MR. LAKE: Yes.

20 MS. SHAHEEN: On page 5, paragraph 9 of
21 your direct testimony, you opine that the San Andres
22 "used by Goodnight Midstream is separated from the
23 Grayburg Formation by at least 200 feet, which
24 includes impermeable zones and anhydrite layers." Do
25 you recall that testimony?

1 MR. LAKE: I think so. That was a lot,
2 though.

3 MS. SHAHEEN: You, yourself, did not
4 perform any analysis or study to come to this opinion,
5 did you?

6 MR. LAKE: No. Because I think I would
7 explain my reasoning a little from -- from the other
8 direction. I know that --

9 MS. SHAHEEN: Excuse me, if you'd just
10 answered my question, that would be appreciated.

11 MR. LAKE: Okay. Can you do it again?

12 MS. SHAHEEN: Did you make any effort
13 to determine the location of this purported
14 impermeable barrier?

15 MR. LAKE: Did not.

16 MS. SHAHEEN: Am I correct in
17 understanding that you relied on Goodnight witness
18 Preston McGuire for this opinion?

19 MR. LAKE: Yes.

20 MS. SHAHEEN: On page 5, paragraph 11
21 of your direct testimony, you referred to the "low
22 concentration of oil in the San Andres." Do you
23 recall?

24 MR. LAKE: I think so.

25 MS. SHAHEEN: You, yourself, did not

1 perform a study on the concentration of oil in the
2 San Andres; correct?

3 MR. LAKE: No.

4 MS. SHAHEEN: Am I correct that you
5 relied on Dr. Davidson's testimony to support your
6 opinion here?

7 MR. LAKE: I relied on the testimony --
8 the -- the -- I'm sorry. I did it again. I'm sorry.
9 I -- I relied on the -- on the -- the published logs,
10 the material that I reviewed.

11 MS. SHAHEEN: And you reviewed logs?

12 MR. LAKE: Didn't review logs. I
13 reviewed the published logs, the reports of that.

14 MS. SHAHEEN: And which reports did you
15 review?

16 MR. LAKE: It may have been Davidson's.

17 MS. SHAHEEN: Are you aware that
18 Dr. Davidson testified he saw oil saturations all the
19 way down to the bottom of the San Andres?

20 MR. RANKIN: Objection to
21 mischaracterization of Dr. Davidson's testimony.

22 MS. SHAHEEN: Did you listen to
23 Dr. Davidson's testimony in the hearing this week?

24 MR. LAKE: I did not.

25 MS. SHAHEEN: On page 9, paragraph 20

1 of your direct testimony, you opine that the
2 San Andres is likely fractured and/or heavily karsted;
3 correct?

4 MR. LAKE: Yes.

5 MS. SHAHEEN: What is the basis for
6 your opinion?

7 MR. LAKE: Well, carbonate reservoirs,
8 this is a carbonate, calcium carbonate, tend to be
9 fractured because they tend to be a lot more brittle.
10 And a little bit of stress will cause there to be a
11 crack --

12 MS. SHAHEEN: Did you perform a study
13 here? I'm sorry.

14 MR. RANKIN: Objection. He's in the
15 middle of answering a question.

16 MS. SHAHEEN: My apologies.

17 MR. LAKE: I'm losing track of this,
18 guys. What -- what was the deal? Oh, finish
19 answering the question. Also, carbonates are -- are
20 kind of reactive to water. So they have a tendency
21 for water to -- to leach out in portions of it. It's
22 pretty obvious in some places.

23 And -- and in -- in locations where
24 carbonate by itself would be almost impermeable, the
25 connection of karst -- the karst and the connection of

1 the karst can lead to a pretty high -- high
2 permeability medium.

3 MS. SHAHEEN: Did you perform a study
4 in this regard?

5 MR. LAKE: No.

6 MS. SHAHEEN: Have you reviewed
7 Dr. Lindsay's fracture study?

8 MR. LAKE: I have.

9 MS. SHAHEEN: Wouldn't these fractures,
10 these karsts, include vertical fractures?

11 MR. LAKE: I don't remember it that
12 well.

13 MS. SHAHEEN: Well, just generally
14 speaking, you opined on karsts and heavy fractures in
15 the San Andres; right?

16 MR. LAKE: Yeah.

17 MS. SHAHEEN: And so my question is,
18 wouldn't these fractures include vertical fractures?

19 MR. LAKE: If I think about this,
20 fractures at depth are usually vertical. So yes.

21 MS. SHAHEEN: If there are fractures
22 and karsting throughout the San Andres, how can the
23 San Andres have a barrier in it that exists throughout
24 the EMSU?

25 MR. LAKE: That's geology. I don't

1 know.

2 MS. SHAHEEN: Couldn't you conclude
3 that there's communication between the San Andres and
4 the Grayburg because of the large injection rate and
5 small pressure increase?

6 MR. LAKE: Let's see. You mean small
7 pressure? I'm having trouble visualizing that. Does
8 small pressure increase in a large injection rate?

9 MS. SHAHEEN: Yes.

10 MR. LAKE: And so your -- your picture,
11 is that -- everything is bleeding through to the -- to
12 the Grayburg?

13 MS. SHAHEEN: I'm just asking
14 hypothetically, couldn't you conclude that there is
15 communication between those two formations --

16 MR. LAKE: Yeah.

17 MS. SHAHEEN: -- based on the large
18 injection rate?

19 MR. LAKE: Yes. Okay.

20 MS. SHAHEEN: Have you reviewed water
21 production data for the Grayburg wells?

22 MR. LAKE: No. I have not.

23 MS. SHAHEEN: Have you seen this
24 graphic depiction of oil and water production data
25 available from the Oil Conservation Division?

1 MR. LAKE: I have not.

2 MS. SHAHEEN: And you'll see here there
3 are large bubbles, and there are smaller bubbles. And
4 the blue here indicates the cumulative water
5 production to date. And the green indicates the oil
6 cumulative -- the cumulative oil to date. If there's
7 no communication between the Grayburg and the
8 San Andres, how do you account for the ratio of oil
9 and water production evident here?

10 MR. LAKE: Well, one of the ways to
11 account for it is the fact that he put -- into his
12 simulation, he put in a lot of -- a lot of extra
13 water. But another way to account for it is I think
14 there's aquifers on -- on maybe both sides of this
15 reservoir.

16 MS. SHAHEEN: If it's edge water, why
17 don't the wells in the middle here have high water
18 production?

19 MR. LAKE: Don't they?

20 MS. SHAHEEN: These smaller -- I'm
21 trying to find my cursor here. These smaller circles
22 here have more oil production and less water. So you
23 can see here. So my question is, if it's edge water
24 coming from either side, why don't these wells in the
25 middle have high water production?

1 MR. LAKE: I'm not sure I understand
2 your question because edge water means it's coming
3 from the side. And most of the -- the big, blue dots
4 are from the side over there. So that's where the
5 water's coming from, off to the left side.

6 MS. SHAHEEN: Well, would that explain
7 this big bubble right here?

8 MR. LAKE: Which big bubble right
9 there? No, it's an anomaly. It's -- it's not -- not
10 characteristic of the rest of it.

11 MS. SHAHEEN: Okay. But you're saying
12 that edge water is coming from this direction?

13 MR. LAKE: No. To the left.

14 MS. SHAHEEN: You're saying edge water
15 is coming from this direction?

16 MR. LAKE: Yeah.

17 MS. SHAHEEN: Have you performed a
18 study in --

19 MR. LAKE: .I have not. No. I'm just
20 going by --

21 HEARING EXAMINER HARWOOD: Doctor,
22 again, please wait for --

23 MR. LAKE: Yeah, I'm sorry.

24 HEARING EXAMINER HARWOOD: --

25 Ms. Shaheen to finish her question. Thank you.

1 MR. LAKE: Sure.

2 MS. SHAHEEN: This, I believe, is your
3 exhibit G3. One more question going back to the
4 bubble map. Are you aware that the reservoir, the
5 Grayburg reservoir, pinches out to the east?

6 MR. LAKE: I was not aware of that.
7 No.

8 MS. SHAHEEN: And I believe this is
9 your Exhibit G3. Do you recognize this exhibit?

10 MR. LAKE: That's a version of that
11 exhibit. There are actually more on the exhibit than
12 what's here.

13 MS. SHAHEEN: This is the first page of
14 it; is that correct?

15 MR. LAKE: First page of what?

16 MS. SHAHEEN: Of your Exhibit G3.

17 MR. LAKE: Oh, you're talking about the
18 original document?

19 MS. SHAHEEN: Yes.

20 MR. LAKE: Oh, okay. I thought you
21 were talking about my presentation. Yeah. Okay.

22 MS. SHAHEEN: Okay. And you didn't
23 create this exhibit, did you, Dr. Lake?

24 MR. LAKE: No.

25 MS. SHAHEEN: Who created it?

1 MR. LAKE: My colleague at Austin
2 Consulting Petroleum Engineers.

3 MS. SHAHEEN: In your deposition, you
4 stated that you got "tops and the bottom of the
5 reservoirs from well data obtained from the
6 subscription service IHS." Do you recall that
7 testimony?

8 MR. LAKE: I believe so.

9 MS. SHAHEEN: And that's what
10 information you used for Exhibit G3; is that right?

11 MR. LAKE: Yes.

12 MS. SHAHEEN: On page 5 in paragraph 11
13 of your direct testimony, you rely on NSAI's, that's
14 Netherland, Sewell, I believe, on its analysis that
15 "Empire's target San Andres ROZ below negative 700
16 feet total vertical depth subsea is in an aquifer with
17 only scattered saturation above 20 percent." Do you
18 recall that testimony?

19 MR. LAKE: That's in the Netherland,
20 Sewell report?

21 MS. SHAHEEN: Yes. What witness from
22 Netherland, Sewell did you rely on?

23 MR. LAKE: I don't remember that.

24 MS. SHAHEEN: Did you, yourself,
25 conduct any study in this regard?

1 MR. LAKE: No.

2 MS. SHAHEEN: Did you verify
3 Netherland, Sewell's opinions in this regard?

4 MR. LAKE: No.

5 MS. SHAHEEN: Have you reviewed the
6 course from the EMSU-679 and the R.R. Bell number 4 to
7 determine oil saturation?

8 MR. LAKE: No.

9 MS. SHAHEEN: Turning now to your
10 rebuttal testimony. On page 3 of your rebuttal, you
11 critique Mr. West's use of dimensionless curves from a
12 2009 SPE paper; is that right?

13 MR. LAKE: Could you show it to me?

14 MS. SHAHEEN: Yes, I will.

15 MR. LAKE: Okay.

16 MS. SHAHEEN: Well, oh, you want me to
17 show you your rebuttal?

18 MR. LAKE: Yeah.

19 MS. SHAHEEN: Okay, let me see if I can
20 pull that up. Okay. This is your rebuttal testimony.
21 Page 3. I think it's this first full bullet here.

22 MR. LAKE: Yes.

23 MS. SHAHEEN: Do you see that?

24 MR. LAKE: I see it.

25 MS. SHAHEEN: So there, you appear to

1 complain that the dimensionless curves are not
2 appropriate to use with respect to the EMSU because
3 the curves relate to Wyoming and to determining CO2
4 demand and not oil recovery; is that accurate?

5 MR. LAKE: That's accurate, yes.

6 MS. SHAHEEN: Is this the paper that
7 you're relying on?

8 MR. LAKE: Let me see. Yes.

9 MS. SHAHEEN: And it's entitled
10 "Estimates of Potential CO2 Demand for CO2 EOR in
11 Wyoming Basins"; correct?

12 MR. LAKE: Yes.

13 MS. SHAHEEN: Copyright 2009, SPE
14 122921. And here in this first highlighted place, I
15 have highlighted "ExxonMobil operates one of the
16 world's largest CO2 producing fields at the LaBarge
17 anticline in southwestern Wyoming. Five Wyoming
18 fields are currently under CO2 flooding using the CO2
19 supplied by a CO2 pipeline network that originates at
20 ExxonMobil's gas plant at Shute Creek." Do you see
21 that?

22 MR. LAKE: Yes.

23 MS. SHAHEEN: I believe you testified
24 earlier that you believe Exxon knows what it's doing.
25 Is that right?

1 MR. LAKE: Seems to.

2 MS. SHAHEEN: Here, the second
3 highlighted part, can you see it? Should I make a
4 bigger? I can make it a little bigger here.

5 MR. LAKE: I -- I can't.

6 MS. SHAHEEN: Is that helpful?

7 MR. LAKE: Where it says "The purpose
8 of this study is twofold"? Is that what you're
9 talking about?

10 MS. SHAHEEN: Yes.

11 MR. LAKE: Yeah. Okay.

12 MS. SHAHEEN: "First, to screen for
13 Wyoming oil reservoirs that are technically suitable
14 for CO2 flooding. And second, to provide a method
15 that quickly estimates the potential CO2 demand for
16 CO2 EOR candidate reservoirs. The resulting database
17 and CO2 demand estimation should be used for CO2
18 suppliers to foresee the market volume for CO2 EOR in
19 Wyoming basins"; correct?

20 MR. LAKE: Yes.

21 MS. SHAHEEN: Moving on. And then it
22 says "The primary objective of CO2 EORs: To
23 remobilize and dramatically reduce the post water
24 flooding residual oil saturation and reservoir pore
25 space"; correct?

1 MR. LAKE: Yes.

2 MS. SHAHEEN: You can skip that one.

3 And then here it starts talking about the
4 dimensionless curve. "The dimensionless curve
5 obtained from the CO2 WAG flood in the 10 Sleep
6 Reservoir of Lost Soldier is shown in figure 3 and is
7 compared with the typical dimensionless curve from the
8 CO2 wag floods in the San Andres reservoirs of West
9 Texas." Do you see that?

10 MR. LAKE: I do.

11 MS. SHAHEEN: And so here, they've
12 actually compared not only the Wyoming dimensionless
13 curve but also a dimensionless curve from the
14 San Andres reservoirs in West Texas; is that right?

15 MR. LAKE: Yes.

16 MS. SHAHEEN: And then this following
17 sentence "For similar type of reservoirs using a same
18 CO2 flood scheme, the dimensionless curve method could
19 provide a quick assessment of potential oil recovery
20 as well as required CO2 injection volume." Did I read
21 that correctly?

22 MR. LAKE: Yes.

23 MS. SHAHEEN: And then here again in
24 this highlighted section, it again talks about CO2
25 floods in the San Andres reservoirs of West Texas;

1 correct?

2 MR. LAKE: Yes.

3 MS. SHAHEEN: And then finally there's
4 a figure, let me see how far down it is. Thank you
5 for your patience. I should have made a note of
6 which -- here we go. Here we have a figure that
7 indicates both the dimensionless curve from Wyoming as
8 well as the dimensionless curve from the San Andres
9 formation in West Texas; correct?

10 MR. LAKE: Correct.

11 MS. SHAHEEN: And in the same rebuttal
12 testimony, you complain that the source of the
13 dimensionless curve for the San Andres in the SPE
14 paper is unknown; do you not?

15 MR. LAKE: I'm sorry, say that again.

16 MS. SHAHEEN: You complain that the
17 source of the dimensionless curve for the San Andres
18 in the SPE paper is unknown. Do you recall that?

19 MR. LAKE: I do not recall that.

20 MS. SHAHEEN: Let's see, should I go
21 back? Do you want me to go back to your rebuttal?

22 MR. LAKE: Sure. Okay.

23 MS. SHAHEEN: Do a quick search for
24 curve here. Okay, well, I won't waste our time here,
25 but I will show you the source of that dimensionless

1 curve here in my PowerPoint. Here it is. Are you
2 aware that that dimensionless curve came from the
3 Kinder Morgan screening tool?

4 MR. LAKE: No. I did not know that.

5 MS. SHAHEEN: In your slide 8 and in
6 your testimony, you opine that Dr. Buckwalter's [ph]
7 modeling work starts with residual water saturation
8 that is too large, don't you?

9 MR. LAKE: Yes.

10 MS. SHAHEEN: What fields did you look
11 at to come to this opinion?

12 MR. LAKE: Oh gosh, Sack Rock Watson or
13 whatever, Seminole. All -- all those are conventional
14 CO2 floods.

15 MS. SHAHEEN: Did you hear Mr. Knights'
16 testimony yesterday?

17 MR. LAKE: Did not.

18 MS. SHAHEEN: He testified that none of
19 the other ROZ fields are analogous to the EMSU. Do
20 you agree with Mr. Knights?

21 MR. LAKE: I don't know whether to
22 agree or not. The -- it's such an early -- early
23 stage of development with the ROZ reservoirs. I would
24 guess that he's probably right.

25 MS. SHAHEEN: With respect to residual

1 water saturation, did you look at the literature
2 relating to the EMSU in this regard?

3 MR. LAKE: I did once, yes, but I don't
4 recall.

5 MS. SHAHEEN: Have you reviewed the
6 EMSU working interest owner meeting minutes from 1990?

7 MR. LAKE: No.

8 MS. SHAHEEN: Here, this indicates at
9 the bottom here in the red box that initial water
10 saturation was 30 percent. Would you agree that
11 Dr. Buckwalter's [ph] number is much closer to the
12 applicable literature?

13 MR. LAKE: For a residual water
14 saturation in a Permian carbonate? No. I don't
15 think so.

16 MS. SHAHEEN: You don't agree that
17 Dr. Buckwalter's [ph] use of 35 percent is closer to
18 the 30 percent that's identified here than your
19 estimation of 15 percent?

20 MR. LAKE: Yeah. All I can say is what
21 I've seen; so --

22 MS. SHAHEEN: And you haven't seen this
23 before?

24 MR. LAKE: No.

25 MS. SHAHEEN: Just a few questions

1 relating to the testimony about mud losses. Have you
2 ever seen mud losses used to predict tops of
3 formations?

4 MR. LAKE: No, I haven't. That's what
5 made it interesting.

6 MS. SHAHEEN: Did you review all of the
7 drilling reports in all wells that penetrate the
8 Grayburg and the San Andres to identify the locations
9 of any and all mud losses?

10 MR. LAKE: Did you say all of the
11 wells?

12 MS. SHAHEEN: Yes.

13 MR. LAKE: No.

14 MS. SHAHEEN: Are you aware of any
15 literature that discusses the use of mud losses to
16 identify barriers between formations?

17 MR. LAKE: No.

18 MS. SHAHEEN: When you have losses, do
19 you know without a doubt what zone is taking the
20 losses?

21 MR. LAKE: I think I'm going to have to
22 ask you to explain that one. Do you mean the name of
23 the zone or the location or what?

24 MS. SHAHEEN: I'd say the location.

25 MR. LAKE: Yeah, you --

1 MS. SHAHEEN: For example -- I'm sorry.
2 Go ahead.

3 MR. LAKE: It's okay. Go.

4 MS. SHAHEEN: For example, could it be
5 a shallow zone?

6 MR. LAKE: Oh, I see what you're
7 asking. It -- if it were a shallow zone, it would
8 have shown mud losses a little bit higher up in the
9 formation.

10 MS. SHAHEEN: You really don't know
11 with 100 percent certainty what zone is taking fluid;
12 do you?

13 MR. LAKE: How to answer that? It -- I
14 know where it's going in because I know when the mud
15 is lost. And I know what the depth of the penetration
16 is. So yeah, you do.

17 MS. SHAHEEN: Are you assuming that the
18 zone that is taking fluid is the penetrated zone?

19 MR. LAKE: Yes.

20 MS. SHAHEEN: Could it be the lowest
21 pressure zones in the well that is the upper Grayburg?

22 MR. LAKE: It would lose fluid there.
23 Maybe I don't understand your question.

24 MS. SHAHEEN: Could I have five minutes
25 to confer with my client? I think I might be done.

1 MR. RANKIN: Sure.

2 MS. SHAHEEN: Okay. Thank you. Thank
3 you Dr. Lake.

4 MR. LAKE: Are we -- are we finished?

5 HEARING EXAMINER HARWOOD: Let's come
6 back at 4:41.

7 MS. SHAHEEN: Oh, I understand I don't
8 need a break. We are done. I pass the witness.
9 Thank you.

10 HEARING EXAMINER HARWOOD: Oh, okay.
11 All right.

12 Madam Court Reporter, false alarm.

13 THE REPORTER: I'm here.

14 HEARING EXAMINER HARWOOD: All right,
15 thank you.

16 All right, Mr. Moander,
17 cross-examination of Dr. Lake?

18 MR. MOANDER: No questions for
19 Dr. Lake.

20 Thank you for coming today, Doctor.

21 MR. LAKE: You're welcome.

22 HEARING EXAMINER HARWOOD: Mr. Beck,
23 cross-examination for Rice Operating?

24 MR. BECK: No questions.

25 HEARING EXAMINER HARWOOD: And

1 Mr. Suazo, cross-examination for Pilot Water
2 Solutions?

3 MR. SUAZO: No questions for Dr. Lake
4 from Pilot.

5 HEARING EXAMINER HARWOOD: All right.
6 Then at this time, we'll start with Dr. Ampomah.

7 CROSS-EXAMINATION

8 BY DR. AMPOMAH:

9 DR. AMPOMAH: Thank you,
10 Professor Lake, for being here today. I do have
11 couple of questions for you. And I will really make
12 it really, really simple. Hopefully I'll be done
13 before five.

14 So you made mention in your testimony
15 that you believe that there is this anhydrite, there
16 is this impermeable layers within the San Andres. Do
17 you, you know, based on all the testimonies that
18 you've listened to, especially Mr. Knights' and then
19 also Dr. Davidson's testimony, do you believe that
20 this statement has been well established, you know, to
21 the commission?

22 MR. LAKE: Okay, I go by the pressures.
23 To me, the pressures are definitive. And so I think,
24 based upon pressures, yeah, I think it's been well
25 established.

1 DR. AMPOMAH: So when Mr. Knights was
2 presenting to the commission, he showed us the core
3 data from one of the wells, which is EMSU-679. And he
4 tried to relate its low perm to some of the numbers
5 that was in that report, specifically on the vertical
6 permeability.

7 You know, from your experience, which I
8 know you do have, do you believe that, let's say, 2
9 feet, 3 feet, 4 feet, less than 0.1 millidarcy can be
10 established as a barrier zone?

11 MR. LAKE: Sure. Yes.

12 DR. AMPOMAH: Now, you talked about, in
13 your testimony, there are karst, which could be
14 fractures within the San Andres. Now, don't you
15 believe that that more or less aligns with Empire's
16 assertion that there could be a potential
17 communication, especially now you're talking about
18 this karst and then the fractures, could be a
19 potential conduit for fluid movement?

20 MR. LAKE: It could be.

21 DR. AMPOMAH: So if Dr. Buckwalter [ph]
22 utilized that assumption in this model, and you went
23 back and forth with Ms. Shaheen on that one, do you
24 believe that that assumption that he used in this
25 model, and knowing for sure that we do have karst, we

1 do have potential fractures, that could be an option
2 for modeling purposes? Do you believe that?

3 MR. LAKE: It could be. Yes.

4 DR. AMPOMAH: Let's discuss a little
5 bit about the pressure. So based on all the
6 information that you've reviewed, most experts from
7 Goodnight's side is saying that San Andres is under
8 pressured reservoir. Do you believe that?

9 MR. LAKE: Yes.

10 DR. AMPOMAH: And don't you believe
11 that that reduction in the pressure also attributed to
12 the water supply wells within the San Andres?

13 MR. LAKE: I thought about that, too.
14 And you're saying -- I'm going to restate your
15 question to make sure I understand it. That the
16 reduction in the pressure was because of the water
17 supply wells for the water flood, the upper water
18 flood. I don't think the -- the volumes go around on
19 that. I don't think there's enough of that to do it.

20 DR. AMPOMAH: No. I was saying that
21 that also could have contributed to that reduction.

22 MR. LAKE: Yeah, I think so. Yeah.

23 DR. AMPOMAH: Now, so that pressure
24 measurement that you went back and forth with
25 Ms. Shaheen on. Within the San Andres where they

1 estimated the pressure, based on the hydrostatic
2 gradient, was about 1,547 PSI, and that was reduced to
3 about 1,200 PSI. Based on your experience, is there
4 any way this could happen, assuming it is a
5 hydrostatic pressure system?

6 MR. LAKE: Can -- say it again? I'm
7 not sure I understood you.

8 DR. AMPOMAH: Okay. So looking at
9 those pressure differences, you know, if you use
10 hydrostatic, you are looking at about 1,500 PSI. And
11 based on the data, it has reduced to about, let's say,
12 1,200 PSI. So I'm asking you, assuming there is no
13 communication between the San Andres and then the
14 Grayburg, is there any petroleum engineering principle
15 that you know that could have contributed to that
16 reduction in pressure? Still assuming we are in
17 hydrostatic regime.

18 MR. LAKE: I still don't quite
19 understand the question because if you're -- keep
20 going.

21 DR. AMPOMAH: Okay. So assuming that
22 we are in hydrostatic regime.

23 MR. LAKE: Okay.

24 DR. AMPOMAH: Pressure regime. And
25 instead of recording 1,500 PSI, we are recording 1,200

1 PSI. So I'm asking you, based on your experience, is
2 there any principle that could have allowed that to
3 happen? You know, assuming also that there is no
4 communication between both formations.

5 MR. LAKE: Boy, I still don't quite
6 understand it, but I'll give it a shot; okay? The --
7 going -- going from gradients to pressures implies
8 that you know where to start the line. And sometimes
9 people start the line well down in the -- in the --
10 below the surface so that the actual gradient from the
11 surface down to the point in question is going to be
12 around 0.36 or something like that.

13 But the -- the gradient, the
14 hydrostatic gradient, would be more like 0.433. I'm
15 not sure I'm answering your question.

16 DR. AMPOMAH: Can we bring up slide
17 number 3 from your presentation?

18 MR. RANKIN: One moment, Dr. Ampomah.
19 I'll have it in just a moment.

20 DR. AMPOMAH: Okay. Thank you.

21 HEARING EXAMINER HARWOOD: And
22 Dr. Ampomah, don't feel pressured to finish by five.
23 This witness will be back tomorrow morning, I expect,
24 so take your time. All right?

25 DR. AMPOMAH: No, I think we should be

1 good. Slide number 3. So Professor Lake, as I called
2 you, and I know you are, so, you know, on this
3 particular slide, so I'm just, we looking at the RFT
4 measurements within the Grayburg.

5 Now, you know, and I appreciated your
6 explanation on this, don't you believe that these
7 pressure changes, even though they are not aligned
8 with the gradient, could also be due to production
9 history?

10 MR. LAKE: Production history from?

11 DR. AMPOMAH: From the Grayburg?

12 MR. LAKE: From the Grayburg?

13 DR. AMPOMAH: Yeah. The oil, gas,
14 water production.

15 MR. LAKE: I -- I don't -- either --
16 either the answer is no or I don't understand your
17 question. So one or the other. I don't know.

18 DR. AMPOMAH: So you were saying that
19 this profile that you're looking at establishes some
20 kind of a barrier?

21 MR. LAKE: Yeah. I'm going by the --
22 by the gradient, by the fact that it's not a straight
23 line. In fact, so -- so it's a -- I'm writing out of
24 words here. But if there's good communication, it
25 should be a straight line.

1 DR. AMPOMAH: And I'm asking you that
2 could the different levels of production recovery from
3 several layers, would that not contribute to this type
4 of behavior?

5 MR. LAKE: Aren't those above this plot
6 here?

7 DR. AMPOMAH: They are right there on
8 this plot.

9 MR. LAKE: They what?

10 DR. AMPOMAH: So you see those blue
11 showing the pressure?

12 MR. LAKE: Yeah.

13 DR. AMPOMAH: So you are attributing --
14 when you look at this -- interpreting this one.

15 MR. LAKE: Oh, I -- I do see, yeah. It
16 could be the production. Yeah, yeah, yeah.

17 DR. AMPOMAH: So if it could be, did
18 you include that in your analysis?

19 MR. LAKE: Did not.

20 DR. AMPOMAH: In your conclusion to say
21 that it is due to a barrier?

22 MR. LAKE: No, did not.

23 DR. AMPOMAH: So that could be an
24 uncertainty in your analysis then?

25 MR. LAKE: It could.

1 DR. AMPOMAH: Thank you. Let's go to
2 slide number 4. Slide number 4, please. So Dr. Lake,
3 you know, we've heard about, from Goodnight's experts
4 that -- specifically Mr. Knights, that lost
5 circulation can be attributed to an impermeable
6 barrier or something like that. I mean, based on your
7 experience, do you agree to that?

8 MR. LAKE: I -- I think -- I think
9 that's backwards. So lost circulation is just
10 entering into a low-pressure zone. And the fluids go
11 into that zone rather than back up the wellbore. So I
12 think it's indicating a change of something.

13 DR. AMPOMAH: Well, that was what I was
14 thinking. Like, if we are losing fluid, how does it
15 become a barrier? But I think you are clarifying
16 that, saying that there is something.

17 MR. LAKE: There is something, right,

18 DR. AMPOMAH: But not necessarily that
19 it is a barrier?

20 MR. LAKE: But I think the other, the
21 pressure data, speak to that.

22 DR. AMPOMAH: Okay. On slide number 8
23 from select, so you're criticizing Dr. Buckwalter's
24 model, specifically on the --. Now, my question to
25 you is, do you know for certain that this was the

1 final relative perm after his history matching?

2 MR. LAKE: Do I know if the ones on the
3 right are the final relative perm after history
4 matching?

5 DR. AMPOMAH: Yes.

6 MR. LAKE: Oh got you. I guess I don't
7 know that. I just assumed he used them.

8 DR. AMPOMAH: I did not get your
9 response.

10 MR. LAKE: I -- I don't know -- I
11 thought they were the -- the final relative perms
12 after history matching. I didn't know that there was
13 any other.

14 DR. AMPOMAH: But I thought I heard
15 from Goodnight's expert that he provided input data.
16 So are you certain or you are not certain whether
17 these were the final curves after his history matching
18 of the oil in place?

19 MR. LAKE: No. I'm not certain of
20 that.

21 DR. AMPOMAH: So then it's possible
22 that he could have probably changed these endpoints as
23 part of his history matching effort. Would that be a
24 fair statement?

25 MR. LAKE: It's more than possible.

1 It's likely.

2 DR. AMPOMAH: So on slide number 10,
3 you know, you discussed, you know, you're criticizing
4 Mr. West's economic model, the CO2 economics model.
5 So I don't need to ask, but I'm pretty sure you are
6 familiar with the Kinder Morgan CO2 screen tool.

7 MR. LAKE: No, I didn't. The -- the
8 first I heard of it was just now.

9 DR. AMPOMAH: Okay. Don't you believe
10 that his analysis, Mr. West's analysis, is the first
11 part in terms of the scoping process that we normally
12 do when we are evaluating a field for a potential CO2
13 EOR project?

14 MR. LAKE: Yes.

15 DR. AMPOMAH: So then let me go back
16 to, I'm going back to your direct testimony, page 6,
17 item number 12. And I'll read. Hopefully you will
18 get that. You're saying that "without detailed
19 reservoir engineering and economic analysis, Empire
20 cannot possibly claim that a viable ROZ project, which
21 would require an investment, blah, blah blah."
22 Please, do you get that?

23 MR. LAKE: Yeah.

24 DR. AMPOMAH: So don't you believe that
25 Empire should be given the opportunity without any

1 restriction for them to fully do the detail
2 engineering and then also the economic analysis to
3 tell the commission if their project could be viable
4 or not?

5 MR. LAKE: I think so.

6 DR. AMPOMAH: Dr. Lake, in your
7 testimony, I've seen that you flagged that Empire is
8 alleging that there is an ROZ. And I'm trying to look
9 for one of them. So on page 4, on item 7, and I'll
10 read portion of that. You presented in your Exhibit
11 G2, saying it's a base map of the Eunice Monument
12 South Unit. And on the next line, you said "Empire
13 alleges that a large target of oil exists in the
14 claimed residual oil zone, ROZ, in the San Andres
15 below the historic core producing. That would be the
16 Grayburg." Is that your statement?

17 MR. LAKE: Can you show that to me on
18 the screen?

19 MR. RANKIN: Is that from the direct
20 testimony?

21 DR. AMPOMAH: Yes, sir.

22 MR. RANKIN: Okay. One moment.

23 Dr. Ampomah, while I'm pulling it up, will you remind
24 me what page or --

25 DR. AMPOMAH: Yeah. That would be on

1 page 4, number 7.

2 MR. RANKIN: Would you mind reading to
3 me -- number 7? Okay.

4 DR. AMPOMAH: Yeah. Goodnight Exhibit
5 G2. So that will be on the initial response to
6 Empire's claim San Andres ROZ right there. Thank you.

7 So the second line "Empire alleges that
8 a large target of oil exists in the claim ROZ."

9 MR. LAKE: Okay.

10 DR. AMPOMAH: So based on all the
11 testimony that we've listened to, we are in third week
12 now, Dr. Davidson, who did the petrophysical analysis,
13 he acknowledged that there is or could be an ROZ in
14 the upper San Andres as he defined it. So from
15 Goodnight's experts, they are acknowledging that.
16 Would you still stand by your statement that there is
17 no ROZ?

18 MR. LAKE: Actually, the -- the
19 existence of this upper part of the San Andres was new
20 to me. And so I probably would modify the statement
21 and qualify that.

22 DR. AMPOMAH: So we listened to the
23 experts from Goodnight. Mr. Knights made a statement
24 about the description of the San Andres is not -- it's
25 not well known. And this will probably support what

1 you are saying right now.

2 Now, if the description of the San
3 Andres is not well known by Goodnight experts, and
4 there has not been well-established boundaries that
5 has been shown to the commission, we've seen some
6 anhydrites, we've seen some perm barriers.

7 As of now, if you don't have a full
8 understanding of the description of the San Andres,
9 why should the commission really acknowledge the
10 opinions from Goodnight saying that there's no
11 potential issue with the injection on the production
12 that is going on in the Grayburg, or let's say even
13 there is any ROZ existence? I don't know if you can
14 comment on that.

15 MR. LAKE: I kind of lost track of it.
16 Could shorten it a little bit and try it again.

17 DR. AMPOMAH: Yeah. So the short part
18 of it is that Goodnight expert, Mr. Knights, was
19 saying that the San Andres is not fully characterized.

20 MR. LAKE: ?It's not really what

21 DR. AMPOMAH: Fully characterized.

22 MR. LAKE: Oh, oh. Yeah.

23 DR. AMPOMAH: And based on your
24 statement, you said that even you got to know about
25 the upper San Andres even based on the discussions

1 we're having.

2 MR. LAKE: Yeah.

3 DR. AMPOMAH: So I'm just asking if
4 Goodnight's experts are telling us they don't really
5 fully understand the geology in the San Andres, how
6 convincing, you know, is your argument that the
7 anhydrite and let's say the barriers actually really
8 exist?

9 MR. LAKE: It's -- I -- I get your
10 question now. So it's sort of like lateral reasoning.
11 That this karstic fracturing exists in other carbonate
12 reservoirs. In fact, in other San Andres reservoirs.
13 And so barring any -- any reason for it not to be true
14 in -- in this one, why -- why not? Why would it not?
15 Why would it not exist?

16 DR. AMPOMAH: Dr. Lake, thanks so much
17 for being here. I do appreciate your time.

18 MR. RANKIN: Thank you.

19 MR. LAKE: Thank you.

20 HEARING EXAMINER HARWOOD: Okay,
21 Mr. Lamkin?

22 MR. LAMKIN: I do have just a couple
23 questions for you, Dr. Lake.

24 MR. LAKE: Sure.

25 //

1 CROSS-EXAMINATION

2 BY MR. LAMKIN:

3 MR. LAMKIN: Thank you for your
4 testimony. Are there best practices when performing
5 an RFT?

6 MR. LAKE: Yes, there certainly are.

7 MR. LAMKIN: Do you know if those were
8 carried out in the implementation of the RFT that
9 everyone's basing their opinions on?

10 MR. LAKE: I'm only guessing, yes.

11 MR. LAMKIN: Okay. Thank you.

12 HEARING EXAMINER HARWOOD:

13 Chairman Razatos, questions for Dr. Lake?

14 THE CHAIRMAN: I do not.

15 Thank you for your time, Doctor.

16 MR. RANKIN: Thank you.

17 HEARING EXAMINER HARWOOD: All right.
18 I'm assuming, then, that you have a redirect
19 examination, Mr. Rankin, and you'd probably prefer to
20 begin it tomorrow morning?

21 MR. RANKIN: Yes, sir.

22 HEARING EXAMINER HARWOOD: All right.
23 I'm not reading your mind in other words.

24 MR. RANKIN: I'm sorry. Did you not
25 hear me? I know I said "yes, sir." Tomorrow morning

1 I think would be good to resume.

2 HEARING EXAMINER HARWOOD: Okay. All
3 right. It seems like a logical place to stop. Are
4 you in agreement, Chairman Razatos?

5 THE CHAIRMAN: I am. Just as a
6 reminder to everybody that tomorrow we do need to end
7 before 3 p.m. to accommodate Dr. Ampomah. So 3 p.m.,
8 please.

9 HEARING EXAMINER HARWOOD: Okay. Thank
10 you, all. And we'll be off the record for today and
11 back tomorrow at nine o'clock.

12 (Whereupon, at 4:58 p.m., the
13 proceeding was concluded.)
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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

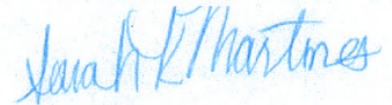


DANA FULTON
Notary Public in and for the
State of Missouri

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SARAH MARTINES

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