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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 Docket No.
CONSIDERING: D-1-GN-24-006094
Case Nos. 23614-17, 23775,
24018-20, 24025, 24123

HEARING
DATE: Friday, April 25, 2025
TIME: 9:03 a.m.
LOCATION: State Of New Mexico Oil Conservation
Commission
Pecos Hall, First Floor
Wendell Chino Building
1220 South Saint Francis Drive
Santa Fe, NM 87505
REPORTED BY: Nicole Johns
JOB NO.: 7225931

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1 A P P E A R A N C E S (Cont'd)

2 ALSO PRESENT:

3 Sheila Apodaca

4 Jose Amaya

5 Baylen Lampkin

6 John McBeth

7 Gerasimo Razatos

8 David White

9 Joe McShane

10 Amanda Rabon

11 Julia Caldaro-Baird,

12 Preston McGuire

13 Jim Davidson

14 Kerby Hunt

15 Johnathan Markell

16 Patrick Ryan

17 Patrick Walker

18 Carl Chavez

19 Rachel Chapul

20 John Waymeyer

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I N D E X

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VOIR DIRE of David White

By Mr. Rankin 131

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By Mr. Suazo 91

By Mr. Lampkin 93

By Dr. Ampomah 95

DAVID WHITE

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E X H I B I T S

NO.	DESCRIPTION	ID/EVD
Empire:		
Exhibit 1	Papers and Slides with SPE Paper	11/12
Exhibit 2	Goodnight Fluid-Level Data with Graphic Representation of Data	12/12
Exhibit 3	Kinder Morgan Screening Tool Dimensionless Curve	13/**
Exhibit 4	Water Saturation from the EMSU Working Interest Owners Meeting, 1990	16/18
	(**Exhibit rejected.)	
Goodnight:		
Exhibit 1	Slide Number 10	17/18
Empire Cross:		
Exhibit 1	Simulation Model Vertical Permeability Spreadsheet	41/41
Exhibit 2	Simulation Model Vertical Permeability Distribution	41/41

1	E X H I B I T S (Cont'd)		
2	NO.	DESCRIPTION	ID/EVD
3	Empire Cross:		
4	Exhibit 3	1959 Pressure Calculation For	
5		Eme Number 20	41/41
6	Exhibit 4	Rice's EME 20 Bottom Hole	
7		Pressure Survey	41/41
8	Exhibit 5	Rice's EME 20 Wellboard	
9		Diagram	41/41
10	Exhibit 6	Pressure Depletion From EME	
11		20 BHP in 1959 to RFT	
12		Pressure Points in 1986	41/41
13	Exhibit 7	Impact of Rock Facies on Oil	
14		Saturation, Three Slides	41/41
15	Exhibit 8	Grayburg Conventional Core	
16		Measurements, Four Slides,	
17		EMSU 649, 650, 653 and 710	41/41
18	Exhibit 9	SPE 122921 Estimates of	
19		Potential CO2 Demand for CO2	
20		EOR in Wyoming Basins	41/41
21	Exhibit 10	Goodnight Fluid Level Data,	
22		04/07/2025	41/41
23	Exhibit 11	Water Saturation From EMSU	
24		Working Interest Owners	
25		Meeting, 1990	41/41

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P R O C E E D I N G S

THE REPORTER: Today is April 25, 2025.
The time is 10:03 a.m., and we are on the record.

THE HEARING OFFICER: 10:03 a.m.
wherever you are.

THE REPORTER: Oh, I'm sorry.
9:03 a.m. Mountain Standard Time.

THE HEARING OFFICER: Okay. Great.
All right --

(Off the record.)

THE REPORTER: I'm sorry. Can someone
let my -- my audio into the room? I just noticed that
my audio is still in the waiting room, my backup
audio. It should say "reporter audio."

MS. APODACA: Can you try to join it
again?

THE REPORTER: Yes. I will join with
the meeting directly give me one second. I apologize.

THE HEARING OFFICER: Madam Court
Reporter?

THE REPORTER: Yes.

THE HEARING OFFICER: Let's solve this
after we excuse this witness, if you don't mind. He's
trying to catch a plane in Albuquerque.

THE REPORTER: Absolutely.

1 THE HEARING OFFICER: All right.
2 Empire, may Dr. Lake be excused?
3 MS. SHAHEEN: Absolutely.
4 Thank you, Dr. Lake.
5 THE HEARING OFFICER: OCD?
6 MR. MOANDER: No objection.
7 THE HEARING OFFICER: Rice?
8 MR. BECK: No objection.
9 THE HEARING OFFICER: Pilot?
10 MR. SUAZO: No objection.
11 THE HEARING OFFICER: Dr. Lake, thank
12 you for your time and safe travels.
13 MS. APODACA: Ms. Johns, I see your
14 audio's on the platform now.
15 THE REPORTER: Yes, it is -- yes, it
16 is. Sorry. Thank you.
17 THE HEARING OFFICER: Okay. So are you
18 ready to proceed, Madam Court Recorder?
19 THE REPORTER: I am. Thank you.
20 THE HEARING OFFICER: All right.
21 And who is your next witness,
22 Mr. Rankin?
23 MR. RANKIN: Good morning, Mr. Hearing
24 Officer. Our next witness will be Mr. Tomastik. But
25 we do have some housekeeping matters. I think

1 Ms. Shaheen has some exhibits that you would like to
2 move. And at the pleasure of the Hearing Officer, we
3 can deal with these housekeeping matters now or at a
4 more appropriate time.

5 THE HEARING OFFICER: Go ahead,
6 Ms. Shaheen.

7 MS. SHAHEEN: Thank you, Mr. Hearing
8 Officer. These are papers and slides that were used
9 with the cross-examination of Dr. Lake, the first one
10 being the SPE paper that he relied on. And I can show
11 that to everyone if they would like.

12 (Empire Exhibit 1 was marked for
13 identification.)

14 THE HEARING OFFICER: Any objection
15 from Goodnight?

16 MR. RANKIN: No objection.

17 THE HEARING OFFICER: OCD?

18 MR. MOANDER: No objection.

19 THE HEARING OFFICER: Rice?

20 MR. BECK: No objection.

21 THE HEARING OFFICER: Pilot?

22 MR. SUAZO: No objection.

23 THE HEARING OFFICER: Okay. That will
24 be admitted.

25 //

1 (Empire Exhibit 1 was received into
2 evidence.)

3 MS. SHAHEEN: Thank you. The second
4 thing is the fluid-level data that Goodnight recently
5 provided to Empire, along with the graphic
6 representation of that fluid-level data. That was the
7 slide that was used in our cross-examination of
8 Dr. Lake yesterday.

9 (Empire Exhibit 2 was marked for
10 identification.)

11 THE HEARING OFFICER: I doubt if you'll
12 object to that, but --

13 MR. RANKIN: Let me think about it. No
14 objection.

15 THE HEARING OFFICER: OCD?

16 MR. MOANDER: No objection.

17 THE HEARING OFFICER: Rice?

18 MR. BECK: No objection.

19 THE HEARING OFFICER: Pilot?

20 MR. SUAZO: No objection.

21 THE HEARING OFFICER: It will be
22 admitted.

23 (Empire Exhibit 2 was received into
24 evidence.)

25 MS. SHAHEEN: Third is the slide of the

1 dimensionless curve that Mr. West used in his
2 testimony, and that illustrates it came from the
3 Kinder Morgan screening tool.

4 (Empire Exhibit 3 was marked for
5 identification.)

6 MR. RANKIN: We do have an objection on
7 that, Mr. Hearing Officer. We were not -- we asked
8 repeatedly the source of that curve. We were not told
9 it was the Kinder Morgan screening tool. We asked for
10 them to provide us with the paper, the backup, the
11 data that supported it.

12 We were never provided any of that
13 information repeatedly. It took us weeks to get them
14 to tell us where it came from, what the basis for it
15 was. We couldn't get any data that substantiated
16 whether it was a main pay zone or an ROZ.

17 I strenuously object to it being
18 entered into the evidence, because it was part of his
19 direct case, and it was not part of his testimony that
20 he was required to submit back in August of 2024. It
21 took us months to get that information, and only
22 yesterday did we learn that it came from Kinder
23 Morgan.

24 It's unreasonable, totally unfair. We
25 had no notion of where it came from, and we asked

1 repeatedly.

2 THE HEARING OFFICER: Let me ask. Not
3 to put you on the hotspot, Mr. Shandler, but do you
4 think that this exhibit would be useful to
5 the Commission?

6 MS. SHAHEEN: And I'm happy to respond
7 to Mr. Rankin's statement, because I disagree with his
8 representations of what's --

9 THE HEARING OFFICER: Well, why don't
10 you do that, and that'll give Mr. Shandler more
11 information.

12 MS. SHAHEEN: Mr. West specifically
13 testified that he used the SPE paper that we reviewed
14 yesterday with Dr. Lake for his dimensionless curve,
15 and he also testified that it came from the Kinder
16 Morgan screening tool. So Goodnight has clearly had
17 the SPE paper, because it was produced by Goodnight as
18 a paper that Dr. Lake himself relied on.

19 MR. RANKIN: To be 100-percent clear,
20 we had the SPE paper. We only learned from this
21 hearing that it was part of the screening tool, and we
22 asked repeatedly where it came from. And we were
23 given that SPE paper, which did not reference, to my
24 knowledge, that it was a Kinder Morgan -- part of the
25 Kinder Morgan screening tool.

1 MS. SHAHEEN: And I'm happy to respond
2 further if it would be helpful to the Commission.

3 THE HEARING OFFICER: Go ahead.

4 MS. SHAHEEN: Thank you, Mr. Officer.
5 Dr. Lake had the SPE paper and produced it as a
6 document that he relied on. It seems to me that with
7 Dr. Lake's experience that he would have been well
8 aware of where that dimensionless curve came from that
9 was represented in the paper that he produced that he
10 relied on.

11 THE HEARING OFFICER: Does the paper
12 itself referenced the source?

13 MS. SHAHEEN: That --

14 THE HEARING OFFICER: Does the paper
15 itself reference the source?

16 MS. SHAHEEN: The source of the curve?

17 THE HEARING OFFICER: Right. The
18 Kinder Morgan.

19 MS. SHAHEEN: That, I don't recall.

20 THE HEARING OFFICER: Does it?

21 MR. RANKIN: No. And we've asked.
22 They just tell us. We asked repeatedly.

23 MS. SHAHEEN: And Mr. West told you in
24 his testimony.

25 THE HEARING OFFICER: Okay. Well, I

1 think -- my thoughts on the subject are it sounds to
2 me like an unfair surprise. I mean, the testimony
3 is -- I mean, we can't unring the bell on the
4 testimony, but it sounds to me like it's going to be
5 limited to being a demonstrative exhibit unless
6 Mr. Sandler thinks we really need it.

7 All right. So the objection is
8 sustained. That one will not be admitted.

9 MS. SHAHEEN: The final slide is the
10 shot of the initial water saturation from the EMSU
11 working interest owners meeting in 1990.

12 (Empire Exhibit 4 was marked for
13 identification.)

14 THE HEARING OFFICER: Mr. Rankin?

15 MR. RANKIN: Well, let me address that.
16 I have no -- that's part of the Commission's -- I
17 believe it's part of the Commission's administrative
18 record. I will add that it was also part of
19 Dr. Buckwalter [ph] Slide Number 10.

20 And at the time Dr. Buckwalter [ph]
21 represented his testimony in slides, I believe that
22 the Hearing Officer made the point that that Slide
23 Number 10 would be part of the record, so I don't know
24 that we need a separate admission of that.

25 But I do want to also make clear

1 that -- and I discussed this with Ms. Shaheen -- that
2 we would want to make sure -- and I didn't see it
3 separately admitted as an exhibit by Empire -- but I
4 would want to make sure that that Slide Number 10 is
5 part of the record in this case.

6 (Goodnight Exhibit 1 was marked for
7 identification.)

8 MR. RANKIN: That does also include
9 that image from the technical committee meeting
10 minutes from -- or working interest owner meeting
11 minutes from 1990.

12 THE HEARING OFFICER: Ms. Shaheen?

13 MS. SHAHEEN: No objection to admission
14 of Dr. Buckwalter's [ph] Slide 10.

15 THE HEARING OFFICER: All right. So
16 we'll treat that exchange as a stipulation.

17 Based on that stipulation, OCD, any
18 objection?

19 MR. MOANDER: No objection.

20 THE HEARING OFFICER: Rice?

21 MR. BECK: No objection.

22 THE HEARING OFFICER: Pilot?

23 MR. SUAZO: No objection.

24 THE HEARING OFFICER: All right. It
25 will be admitted subject to Empire Exhibit 10 being

1 admitted as well, if it isn't already.

2 (Empire Exhibit 4 and Goodnight
3 Exhibit 1 were received into evidence.)

4 MR. RANKIN: Just to be clear for my
5 colleague, because he's keeping track, both would be
6 admitted; correct?

7 THE HEARING OFFICER: Yes.

8 MR. RANKIN: Okay.

9 Anything else, Ms. Shaheen?

10 MS. SHAHEEN: That's it for me. Thank
11 you.

12 MR. WAYMEYER: We do have additional
13 sets of exhibits to admit.

14 Can you please publish the slides?

15 Mr. Hearing Officer, you'll recall
16 yesterday that there was quite a fuss over brand new
17 slides, brand new analyses that the commission
18 acknowledged was brand new analysis conducted by
19 Mr. Knights [ph].

20 Those were the slides where he'd gone
21 in and created new barriers with the blue shading on
22 them, and there were some related exhibits that,
23 again, were brand new analyses. And over Empire's
24 objection, those slides were received in evidence, and
25 we don't fuss with that.

1 I think Mr. Moander -- and I may be
2 misattributing this -- has cited the goose and gander
3 doctrine as part of these proceedings. And so what we
4 have here -- and I'll go through the same fashion
5 through all of the exhibits the way Mr. Rankin did,
6 and then if the commission wants his response -- the
7 first slide that we'd be offering was used in the
8 testimony of Mr. West [ph].

9 It just required the correction. The
10 explanation was made where the zeroes were changed to
11 dots. And when the zeroes were changed to dots for
12 presentation, the decimal just carried over. So this
13 is the corrected 99-grid block out of 34,500-grid
14 block slide.

15 Additionally, this was used and
16 testified to in the testimony of Mr. McBeth.

17 If we can go to the next slide.

18 This slide is also the --

19 THE HEARING OFFICER: Hold on just a
20 second, Mr. Waymeyer.

21 So, Mr. Rankin, make notes of these.

22 MR. RANKIN: I'm trying, yeah.

23 THE HEARING OFFICER: So I appreciate
24 your approach. I'd like to go through all of them,
25 and then we'll go through any objections to all of

1 them. Go ahead, Mr. Waymeyer.

2 MR. WAYMEYER: Thank you. The second
3 slide, again, this was just the corrected one. This
4 was visited about with Mr. West prior to correction
5 with Mr. McBeth after correction.

6 This was just showing in graphical
7 display the grid blocks that had the vertical
8 permeability adjustments made to them to clarify the
9 confusion that there was a uniform blanket adjustment
10 to vertical permeability that was made. That was not
11 the case.

12 If we can have the next slide.

13 This was the pressure calculation that
14 was testified to in Mr. McBeth's testimony. Again,
15 this EME Number 20, the Rice data came in late. This
16 is just showing that in comparison to the existing
17 Buckwalker [ph] model, using the brand new information
18 on that Rice owl, Dr. Buckwalter's [ph] model would've
19 only been off by 12 PSI.

20 Again, this was visited about under
21 oath with Mr. McBeth.

22 Next slide.

23 This was testimony visited on with
24 Mr. McBeth. This is working the Rice pressure data
25 from surface down. These were -- this is Rice data

1 here.

2 If we can have the next slide.

3 Also, Rice data just showing with a
4 diagram to decide where this is in vertical depth.
5 And this is showing the pressure calculation from the
6 EME Number 20 if you work it vertically down. And,
7 again, this was all visited about during Mr. McBeth's
8 testimony.

9 If we can have the next slide.

10 The next three slides come from
11 Mr. Scott Birkhead [ph], and this is just showing the
12 impact of rock facies on oil saturation and water
13 saturations. These were visited about both with
14 Mr. Knights [ph] and with Mr. McBeth.

15 If we can have the next slide.

16 This shows the suspicious data that was
17 excluded from the core analyses as part of
18 Mr. Birkhead's [ph] analysis for the reason that they
19 had unreasonable end values. This was visited about
20 with Mr. McBeth and with Mr. Knights [ph].

21 It also provides the average oil
22 saturations, both on a corrected basis and an
23 uncorrected basis and with suspicious data out and
24 with suspicious data in that Dr. Ampomah had asked
25 about in terms of just show me what the core

1 saturations are.

2 Next slide.

3 This is uncorrected core average
4 saturations for Grayburg and San Andres with and
5 without the suspicious, you know, really high end
6 values in versus out. This was, again, material that
7 was inquired about by Dr. Ampomah. This was visited
8 about with Mr. Knights [ph] and Mr. McBeth. I believe
9 it certainly, at least with Mr. McBeth.

10 And this accords reasonably closely
11 with the information that we got from Mr. McBeth in
12 response to testimony from Mr. Rankin's questioning.

13 This was the economic sensitivity
14 graphical display. This was visited about with
15 Mr. McBeth in illustrating his testimony. And then we
16 showed the Grayburg conventional core measurements out
17 of the EMSU 649 and vertical perms.

18 Next slide.

19 MR. RANKIN: Sorry. I need to -- can
20 you go back one slide just so I may I'm -- you are
21 moving quickly. I just want to make sure I catch
22 this. So this is slide 16. There was one before
23 this, slide 15?

24 MS. SHAHEEN: Yeah. These -- the
25 last -- sorry. I'm going the wrong way. I think this

1 is the first of the conventional core measurements.
2 There's four of these slides.

3 MR. RANKIN: And what would -- okay.
4 And remind me who these were presented to.

5 MR. WAYMEYER: I know these were
6 visited about with Mr. McBeth. And these are starting
7 to blend together. I just -- with taking these
8 witnesses out of order, I can't say with certainty if
9 it was Mr. Knights [ph] and Mr. McBeth, but certainly
10 Mr. McBeth. I believe we visited on these.

11 These are conventional core
12 measurements on the 650, the 653, the 710, and the
13 649.

14 Are we to the end of it, Ms. Shaheen?

15 So, again, one, we were presented with
16 brand new analyses that we'd never seen, had a chance
17 to test, do anything with. All of these slides were
18 visited about in detail with Goodnight's witnesses.

19 We would move for their admission. I
20 also think it would be very helpful to the Commission
21 in terms of illustrating the verbal testimony. So on
22 this flat testimonial record that'll come back on a
23 transcript, these are necessary to give fairness to
24 the verbal testimony.

25 And I would also just add with the

1 manner of presentation we have, Empire does not have a
2 rebuttal case here. I think everybody in here would
3 vomit if we had a case in chief, a responsive case,
4 and then a rebuttal case.

5 So Empire is a bit hamstrung in terms
6 of just the procedure because we can't bring witnesses
7 back behind the Goodnight witnesses. We're not asking
8 to do that. But to the extent that the commission has
9 any concerns about these coming in through Goodnight
10 witnesses, that's largely just the function of us not
11 having a typical rebuttal case.

12 So that would be our offer. Thank you.

13 THE HEARING OFFICER: Okay. Thank you,
14 Mr. Waymeyer. That last point is pretty well taken.
15 You know, it's unusual in my experience at least for
16 there to be before trial all this rebuttal,
17 surrebuttal. I mean, that went back and forth.

18 But, you know, the fact of the matter
19 is no matter how well you prepare with the witness,
20 they're always going to say something unexpected. And
21 so, you know, this sort of falls within that category.
22 I've got -- by my numbering, I have 14 proposed
23 exhibits.

24 Mr. Rankin, why don't -- for sake
25 of -- to expedite things, are there any of the

1 14 -- can we go through those and you tell me if there
2 are any you do not -- give me the list of the ones you
3 don't object to, and then we'll go to the rest.

4 MR. RANKIN: May I ask accommodation of
5 Ms. Shaheen just to go back to the beginning, and I'll
6 quickly just say -- some of these I can handle very
7 fast; okay --

8 THE HEARING OFFICER: Okay. That's
9 great. I'll make check marks and Xs.

10 MR. RANKIN: All right. So Slide
11 Number 1, no problem with this slide coming in,
12 Mr. Hearing Officer. We want the Commission to
13 understand what the actual values were in the model in
14 every matter.

15 I just want to make sure the record is
16 clear whether this slide is representative of all the
17 KV values or is it just a sampling? Because I wasn't
18 100-percent clear, but I think that this is intended
19 to be representative. And then the next slide shows
20 the distribution of all the KV values.

21 THE HEARING OFFICER: Mr. Weiermeyer,
22 is that correct?

23 MR. WAYMEYER: It has all the KV
24 values, so those are two-acre grid blocks across
25 34,500.

1 MR. RANKIN: So the first slide shows
2 all the KV values that were used in the model. I have
3 no problem with that.

4 Second slide, that shows the
5 distribution of those modified KV values across the
6 model grids. I have no problem with that.

7 This slide here, Mr. Hearing Officer, I
8 have a problem with it only because we were only given
9 certain output files from the model, and we were not
10 given this date.

11 I understand that the H-20 pressure
12 survey came in late and if Dr. Buckwalter [ph] had
13 that data at the time he was testifying, he would've
14 likely checked his model to see where it came up. So
15 I don't think I can strongly object to this, because I
16 think it's reasonable, so this is fine to come in.

17 Okay. This data is -- yeah. Okay.
18 This one is fine. Yeah.

19 Sorry. The previous slide that you
20 showed, Sharon, was one that we already admitted;
21 correct?

22 Okay. All right. This next slide
23 here, Slide 5 shows Rice's EME bottom hole pressure
24 survey. I don't have any problem with this. However,
25 there are -- there's additional information on here

1 that didn't relate just to the survey. Somebody
2 inserted some values of chloride. I don't know where
3 that came from.

4 Is that from the -- was that from the
5 survey report itself? I don't have it in front of me,
6 the actual document. So I don't know if that was
7 inserted or if it came from the document, and that's
8 my problem with this slide.

9 Otherwise I don't have a problem with
10 it. I just don't know where that insertion box came
11 from and if it is from the survey report itself or
12 not.

13 THE HEARING OFFICER: Mr. Waymeyer, can
14 you clear that up?

15 MR. WAYMEYER: It's a reasonable value
16 that's representative of the composition of Grayburg
17 water.

18 MR. RANKIN: I don't know where that
19 came from. There's no foundation for it. If they
20 redact that or take it out, I have no problem with it
21 coming in. I just don't know what that is or where it
22 came from.

23 MR. WAYMEYER: And by way of reply,
24 there's been plenty of testimony about the TDS and
25 chlorides in Grayburg water as a representative

1 matter. This is certainly in line with the testimony
2 about the composition of that water.

3 MR. RANKIN: I have no problem with it
4 coming in if it just comes off. I don't know where
5 that came from.

6 THE HEARING OFFICER: Well, what
7 witness put in the numbers or these -- what witness
8 put in these additions?

9 MR. WAYMEYER: Mr. West. And, again, I
10 would be sick to ask to have to bring him back in a
11 rebuttal case to offer something of such pedestrian
12 value.

13 MR. RANKIN: If he's -- Mr. Hearing
14 Officer, if I may, he's testified to what Grayburg
15 values are. He's got historical ranges in his
16 testimony already in his direct. I don't see any need
17 to put it in here.

18 THE HEARING OFFICER: Well, if he
19 testified to it and it's just written in here and it's
20 consistent with his testimony, that's not enough of an
21 objection.

22 MR. RANKIN: I just don't
23 know -- that's my point.

24 THE HEARING OFFICER: All right. Well,
25 I've marked that as an -- well, I'll rule on it in a

1 minute. For now, it's objected to. Next?

2 MR. RANKIN: I don't have an objection
3 to this. It appears to be taking OCD data and putting
4 it on a slide, so no objection.

5 The pressure depletion from EME 20
6 bottom hole pressure showing calculated pressures with
7 what Empire has represented as the top of the
8 San Andres -- their pick for the top of the San Andres
9 and then an existing slide from Mr. West.

10 I don't have an -- I understood this
11 served as a demonstrative for Mr. McBeth. I think
12 it's cumulative, because the data on the left has
13 already been admitted now and the RFT has already been
14 admitted.

15 So I don't see the purpose. I think
16 this served its purpose for crossing Mr. McBeth, and
17 so I don't see the purpose for his submission. That's
18 an objection.

19 THE HEARING OFFICER: Next.

20 MR. RANKIN: Okay. These were a bunch
21 of slides that -- I think the next series of slides
22 all go to petrophysics. That should have been
23 properly directed to Dr. Davidson. Instead, they
24 attempted to -- I have no problem with them crossing
25 Mr. Knights [ph] or Mr. McBeth on these issues, but

1 they should have been properly directed to Dr.
2 Davidson

3 And I've seen no -- there's no
4 foundation for it. These were new and created by
5 Dr. Birkhead [ph]. And I understand situation with
6 the sequencing. That said, this should have been
7 directed to Dr. Davidson.

8 These are petrophysical issues that go
9 to Dr. Davidson's petrophysical analysis, and it
10 should have been properly directed to him to address.
11 Instead they chose to address it to Mr. McBeth and
12 Mr. Knights [ph] who relied on aspects of
13 Dr. Davidson's analysis. And it was proper for
14 purposes of a demonstrative cross.

15 But I don't see any basis for
16 admission, because there's been no foundation laid.
17 We don't know exactly how Mr. Birkhead had did it.
18 And, again, it should have been directed to
19 Dr. Davidson.

20 So this slide and -- Sharon, the next
21 one -- this slide, this slide. Those three
22 slides -- those slides we just addressed all go
23 petrophysics. Don't have the foundation for how they
24 were created, include characterizations of values that
25 don't -- are not substantiated by Empire's own

1 witnesses.

2 And I believe that they're proper for
3 demonstratives and they were useful for cross -- but I
4 don't see any basis for them to come in and as actual
5 evidence.

6 THE HEARING OFFICER: Mr. Waymeyer,
7 some of these -- two of these look familiar to me.
8 The first one -- was the first one used with -- this
9 one, was that used with any witness?

10 MR. WAYMEYER: Yes. All of these were
11 used. And I just don't want to misrepresent to the
12 Commission. I know they were used with
13 Mr. Knights [ph] who, again, his testimony wraps its
14 arms around the testimony of Dr. Davidson. And he
15 said he understood these and was familiar with them.

16 So he could have said, "I have no clue
17 how this would work into my testimony that wraps its
18 arms around Dr. Davidson's for validity." He didn't
19 say that. We talked through it at length. I think
20 two of them were also -- not this first one, but the
21 second two were also visited about with Mr. McBeth.

22 But the first one -- with
23 Mr. Knights [ph]. He didn't claim ignorance of them,
24 didn't claim he didn't know how they work or what they
25 demonstrate by way of his testimony. And then the

1 second two were also with Mr. McBeth.

2 THE HEARING OFFICER: All right. Thank
3 you. Let's move on to the one on -- what I have
4 labeled "Economic Sensitivity." There we go.

5 MR. RANKIN: Okay. So this slide, I
6 think -- just so I maybe can group them, Sharon, is
7 there another one about economics too after this?

8 MR. WAYMEYER: No.

9 MR. RANKIN: Okay. So this one here,
10 so I do have a serious concern about this, because it
11 is Empire's case in chief to demonstrate that there is
12 an economic basis for their proposal for this ROZ.
13 And this -- Mr. West dedicated two paragraphs to that
14 in his direct testimony and none in his rebuttal;
15 okay?

16 He did one model run for two different
17 sets of patterns. That was it. And if he wanted to
18 present, as he now feels he should have, a more robust
19 economic analysis with greater sensitivities across a
20 greater range of scenarios, that should have been done
21 in his direct when he filed it in August of 2024.

22 That was not done. And now they're
23 using cross to try to get that into the record, which
24 is improper. It should have been done in the direct
25 case. We pointed out the failures of the economic

1 model in our rebuttal, and we pointed it out again
2 here and on -- with Mr. McBeth's summary.

3 And my point about this is that it is
4 not appropriate to try to get in and to bolster their
5 direct case now with this additional exhibit.

6 THE HEARING OFFICER: Mr. Waymeyer, was
7 this exhibit used with Dr. West?

8 MR. WAYMEYER: It was not used with
9 Mr. West; it was used with Mr. McBeth. And may I
10 reply very, very briefly?

11 THE HEARING OFFICER: Okay.

12 MR. WAYMEYER: First, we disagree with
13 the characterization of an economic burden here by way
14 of this commission proceeding for Empire. We
15 vigorously disagree with that.

16 Secondly, again, you know, this is just
17 a math exercise based on the data that's -- the
18 underlying data that's already there.

19 Additionally, the Commission will
20 recall it allowed surrebuttals in the middle of this
21 proceeding by Dr. Davidson, by Mr. Knights, and I
22 think Mr. McBeth did a surrebuttal, too. Certainly
23 Preston McGuire did a surrebuttal.

24 So we've got brand new testimony on
25 economic things that came in three weeks ago and,

1 again, this is not controversial. This is a math
2 exercise. It's incredibly helpful to the Commission.

3 THE HEARING OFFICER: Was it
4 testified -- did a witness testify about these
5 numbers?

6 MR. WAYMEYER: Mr. McBeth did. We went
7 through them with him.

8 THE HEARING OFFICER: Okay. All right.
9 Next?

10 MR. RANKIN: So this next series of
11 slides all relate to Grayburg values, core
12 measurements in the Grayburg. So I think as to these,
13 as long as it's clearly marked for each of these that
14 they're Grayburg, no -- I mean these are all in, in
15 what everybody would call Grayburg. Every one of
16 these.

17 If I go through, I
18 think -- Ms. Shaheen, if you wouldn't mind scrolling
19 forward.

20 These are all within what everybody
21 would call Grayburg and I think they're all labeled as
22 such.

23 Is that the last one?

24 MS. SHAHEEN: Yes.

25 MR. RANKIN: Okay. Yeah. No objection

1 to these coming in.

2 THE HEARING OFFICER: All right. So
3 let's go back to Slide Number 1, 99-grid block.
4 That'll be admitted. Number 2, the vertical
5 permeability distribution slide, that'll be admitted.
6 Number 5, the Rice -- I have Rice EME depletion.

7 MR. RANKIN: Oh, maybe this one is
8 first, Mr. Hearing Officer, Exhibit Slide 3. Oh, I'm
9 sorry. You're just going over admissions. I
10 apologize for interjecting.

11 THE HEARING OFFICER: Right. So okay.
12 I believe you agreed to this one with -- no, you
13 didn't, because of the additions; right?

14 MR. RANKIN: Right.

15 THE HEARING OFFICER: What's the next
16 one? Next slide. Is this the one you agreed to?

17 MR. RANKIN: Correct.

18 THE HEARING OFFICER: That'll be
19 admitted, Rice's EME-20 wellbore diagram.

20 Then -- okay. And then the last four,
21 the Grayburg core measurements for EMSU 649, 656, 653,
22 and 710.

23 Okay. Then let's go back to Slide
24 Number 3. The 1959 pressure calculation for EME
25 Number 20. Okay. Now, I recall seeing this being

1 used as a demonstrative exhibit with some witness.
2 Who was this used with?

3 MR. WAYMEYER: This would've been used
4 with Mr. Knights who, again, his whole testimony wraps
5 itself around Dr. Davidson.

6 MR. RANKIN: Actually, I believe it was
7 Mr. McBeth, because it was about the model and, and
8 Mr. McBeth testified about the model. I believe this
9 was cross on Mr. McBeth. Not that it makes much of a
10 difference, but this is relating to
11 Dr. Buckwalter's [ph] model --

12 THE HEARING OFFICER: Okay. It'll be
13 admitted over your noted objection, Mr. Rankin.

14 Next slide.

15 And this is -- my understanding is you
16 object to this because it has the written-in comments
17 that weren't on the original?

18 MR. RANKIN: Correct. I don't mind the
19 calculations that were done, but I don't know a basis
20 or foundation for that and if it's merely meant to be
21 representative of Mr. West's testimony, which is
22 already in the record and is more accurate, because it
23 includes the range of historical values. And I don't
24 see the purpose of this, and I can't verify as I sit
25 here right now.

1 THE HEARING OFFICER: Okay. Well, at
2 best -- your objection is cumulative of what the
3 witness said, so that goes to the -- this slide will
4 be admitted.

5 Next.

6 Okay. This one was admitted.

7 Next.

8 And my understanding is you object to
9 this one as well, Mr. Rankin, basically because it's
10 cumulative of other exhibits?

11 MR. RANKIN: That's correct.

12 THE HEARING OFFICER: All right. It'll
13 be admitted over that objection.

14 Then the next three are the rock
15 facies, and -- all right. So I'm sorry. Refresh my
16 recollection on why you object to this.

17 MR. RANKIN: Sure. These were
18 directed -- these are petrophysical issues. I have no
19 problem with Mr. Waymeyer crossing Goodnight's
20 witnesses who did not prepare the petrophysical
21 analysis on this for their basis for relying on
22 Dr. Davidson and probing them on that.

23 However, I don't have the foundation
24 for the creation of these documents, and I do think it
25 was more appropriate -- should have been at least

1 directed to Dr. Davidson. If he was challenging the
2 basis for the petrophysics, these should have been
3 directed at least to Dr. Davidson to establish on a
4 petrophysical basis what they mean.

5 Instead, he used them against a
6 geologist and a reservoir engineer. And my point is,
7 like, if he wants to establish the validity and
8 reliability of these as representative of -- geologics
9 analysis or whether they're even reasonable, it should
10 have been directed to a petrophysical expert.

11 Instead, he avoided that and used them
12 against other folks who don't have that expertise.
13 Now, it's fair to use them for cross. I have no
14 problem with that. But my point is simply that it's
15 not a basis for laying a foundation for admission, and
16 for that reason it should be not admitted.

17 THE HEARING OFFICER: Okay. And I take
18 it that objection goes to all three of those sides?

19 MR. RANKIN: Yeah.

20 THE HEARING OFFICER: Let me have a
21 brief response from you, Mr. Waymeyer.

22 MR. WAYMEYER: Again, Mr. Knights and
23 Mr. McBeth testified to their understanding of the
24 information communicated. None of them said: "We
25 don't understand it. We disagree with it." There was

1 none of that. They testified at length about it and
2 identified no inaccuracy in it.

3 And, again, we don't have a rebuttal
4 case. If he wants these super formalities, we just
5 don't have that format here. And to Mr. Moander's
6 goose and gander these are appropriate under what
7 happened yesterday.

8 THE HEARING OFFICER: Okay. Well, you
9 know, the criticism that these were used with the
10 wrong witness, you know, you can certainly make that
11 argument, Mr. Rankin. I think that that goes to the
12 weight and not the admissibility of these exhibits.

13 And, you know, you can make the
14 argument that the Commission should disregard them
15 because they were brought up with the wrong witness.

16 I'm going to admit those three
17 exhibits. That takes us to the last objected one, the
18 economic certificate slide.

19 Okay. And -- all right. And, again,
20 this was, this was used with at least one of the
21 witnesses in the case, and so there's testimony about
22 all this information that's in the slide, is three
23 not, Mr. Rankin.

24 MR. RANKIN: Well, I think I'd have to
25 go back and review exactly what Mr. McBeth said. I

1 think he said he didn't know, hadn't seen these, so he
2 had to run the model. So he doesn't know -- he can't
3 represent the veracity or validity of these numbers,
4 is my recollection.

5 He was asked about them. He was
6 queried on them. I do believe he said he didn't know.
7 because he didn't have the model. These were -- my
8 point, again, is that they're attempting to back in
9 information and testimony that they failed to put in
10 on a direct case. And that's my point about this, and
11 it's improper.

12 And if -- you know, Mr. McBeth
13 addressed the, the in his rebuttal and there was no
14 discussion up until this cross exhibit from them about
15 the need or desire to put anything else in the record,
16 and so they're trying to back this in at the last
17 minute to bolster their economic case, and I think
18 that's inappropriate.

19 THE HEARING OFFICER: So this was used
20 as a demonstrative exhibit with Mr. McBeth; is that
21 right?

22 MR. WAYMEYER: Yes. You're correct.
23 We went through all of these columns and rows with
24 Mr. McBeth in detail.

25 THE HEARING OFFICER: All right. Well,

1 I'm going to give this one to Mr. Rankin. It's
2 cumulative of whatever testimony was elicited from the
3 witness with respect to this. So we won't admit this
4 economic sensitivity. That will be excluded.

5 MR. WAYMEYER: May I make an
6 alternative motion? I respect the decision. May we
7 alternatively request that this be appended to the
8 record as a demonstrative exhibit, not an exhibit
9 accepted for the accuracy of its context, but a
10 demonstrative exhibit to assist those reviewing the
11 flat testimonial record?

12 THE HEARING OFFICER: Well, you know,
13 that's a very creative motion. I've never heard it
14 before. I've never seen it entertained. I mean, the
15 reason it's a demonstrative exhibit is it's not a part
16 of the record in any way, shape, or form.

17 I mean, there's a distinction between
18 demonstrative aids and exhibits that have enough of a
19 foundation to be made part of the record. So motion
20 denied. Nice try.

21 MR. WAYMEYER: Thank you.
22 (Empire Cross Exhibits 1 through 11
23 were marked for identification and
24 received into evidence.)

25 THE HEARING OFFICER: Anything else?

1 It's 9:47. Do we have any other preliminary matters?

2 MR. RANKIN: I think we have another
3 matter, but I prefer to bring it up at another time.
4 I think --

5 MR. WAYMEYER: Well, I think we need to
6 bring it up now. Last night, after all of -- after
7 conferring per the Commission's request and reaching
8 an -- we reached a tentative agreement on time. That
9 was retraded. And after it being retraded, we agreed
10 to that.

11 And now, last night, after we all made
12 stipulations on the record in terms of buckets of time
13 to allow this to be concluded on Wednesday with time
14 for Commission questions and time for closing
15 argument, there's yet another attempt to retrade to
16 put more time into the Goodnight bucket.

17 We object strongly to that. Why we
18 have to retrade -- the stipulations could not have
19 been clearer in terms of the time buckets. And so
20 that's what he's alluding to, and we object to any
21 more time being moved around

22 THE HEARING OFFICER: Mr. Rankin --

23 MR. RANKIN: We can address it. So
24 when we -- it's absolutely correct. We had understood
25 something different than we thought we had reached an

1 agreement on. So when we sent an email over and maybe
2 Mr. Jurgensen can put up the spreadsheet that shows
3 what we thought we intended.

4 And the bottom line is here,
5 Mr. Hearing Officer, is we are asking for one
6 additional hour so that we can cross most of these
7 witnesses. What we had proposed to counsel in our
8 email exchange was time for Goodnight to do its direct
9 and redirect.

10 We did not, unfortunately, understand
11 or apprehend that what this was going to do was going
12 to limit our time to actually cross OCD's witness. I
13 made that realization yesterday as I was considering
14 what was sent over.

15 And I raised the issue with
16 Mr. Waymeyer yesterday. I said: "Hey, Mr. Waymeyer.
17 Considering this is our understanding, is it also your
18 understanding?" He said: "No, it is not. I do not
19 agree." We asked for an additional hour.

20 And after yesterday, understanding from
21 the hearing officer that we had actually
22 undercalculated the amount of time, even through
23 Wednesday and we had some additional time on Thursday,
24 I didn't think it would be a substantial issue to ask
25 for one additional hour to make sure we had a fair

1 opportunity to cross these witnesses.

2 So that's where it stands. We just was
3 just asked for an additional hour. Did not adjust in
4 any way or affect Empire's time or any of the other
5 party's time. We just wanted a little more time to
6 make sure we had time to cross OCD's witness.

7 MR. WAYMEYER: May I respond very
8 briefly?

9 THE HEARING OFFICER: Briefly.

10 MR. WAYMEYER: Yeah. So, again, first
11 and foremost, the Commission needs to be able to ask
12 its questions. Those are the most important
13 questions, and those have been the most focused and
14 relevant questions.

15 The reason we're in this time crunch is
16 the result of incredibly meandering cross-examinations
17 that looked far more like depositions than a
18 cross-examination. You've seen Empire's
19 cross-examinations have been to the point and tight.

20 And if we just -- let's just reality
21 check this time that we've got left. He has two
22 witnesses today, Preston McGuire on Monday, which is
23 likely to go into Tuesday. OCD has at least one
24 witness, possibly two.

25 This is an effort to just -- we agreed

1 to buckets and work within the buckets and allowing
2 sufficient time for commission questions. There's no
3 way we're going to get this done with an opportunity
4 for the closing arguments by monkeying with the time.

5 THE HEARING OFFICER: Okay. I'm going
6 to hold you both to the times you specified. What I
7 have here is Empire agreed to a total of 13 and a half
8 hours; Goodnight agreed to a total of seven and a half
9 hours; and one and a half hours cumulative between
10 OCD, Rice, and Pilot for a total of 22 and a half
11 hours.

12 I'm going to hold you all to that.
13 There's a reason for it, and we're just going to have
14 to work within those time constraints.

15 MR. RANKIN: Mr. Hearing Officer,
16 understood. And I just want to make sure Mr. Moander
17 understands that, because I don't think he understood,
18 and I don't think Mr. Waymeyer understood that this
19 agreement was limiting OCD's ability to put on its
20 case, and that that would be the effect of this
21 agreement.

22 MR. WAYMEYER: And I want to make my
23 position clear. As part of the stipulation, we said
24 that those buckets were plus OCD having reasonable
25 time, so absolutely we do not contend that they were

1 in that bucket. My understanding is that the quote
2 unquote reasonable time they're asking for is 1.25,
3 and of course we have no problem with that.

4 THE HEARING OFFICER: Mr. Moander, what
5 I have written down here is the one and a half hours
6 for others, which would be you, Rice, and Pilot.

7 MR. MOANDER: And from my perspective,
8 in order to get this moving forward, it is highly
9 likely I'm withdrawing one of my witnesses, because I
10 don't think they are going to do anything for any
11 parties or the Commission. That would leave my
12 primary expert, Mr. Gatz.

13 I think I've demonstrated I tend to be
14 in and out with witnesses, and my directs are frankly
15 no different. I would anticipate a maximum of an hour
16 on my direct, and I may even be able to shorten that
17 down with quick motions to admit resumes and things
18 like that in order to expedite.

19 Also, addressing my anticipation on
20 cross, despite the fact the next three Goodnight
21 witnesses have significant things to say to OCD, I
22 would be shocked if I end up taking a total of 90
23 minutes across all three of them.

24 I don't intend to spend lots of time,
25 you know, wrestling on nuance and stuff like that.

1 I've got some points I want to get in and score, and
2 that's it. So I will be running I think a tighter
3 ship than anybody thus far. Easy for me to do with
4 one witness.

5 So I think the bigger concern here is
6 going to be the cross examinations. I'm not clear on
7 what Empire may want to do with Mr. Gatz. My
8 suspicion is it'll be somewhat limited. And then
9 Goodnight will likely want some extensive time with
10 Mr. Gatz.

11 And if I were a betting man, which I'm
12 not, Dr. Ampomah is eagerly looking forward to having
13 an in-depth and lengthy discussion with Mr. Gatz.

14 THE HEARING OFFICER: Okay. Well, I
15 didn't hear any objection from OCD or the interveners
16 yesterday to the one and a half hours --

17 MR. MOANDER: No. And I did not
18 object --

19 THE HEARING OFFICER: -- to others, so
20 I'm going to hold you to the same agreement. You guys
21 agreed to the timeframes yesterday. Those are going
22 to be the timeframes.

23 MR. WAYMEYER: Thank you.

24 THE HEARING OFFICER: Absent a truly
25 extraordinary or extenuating circumstances, and

1 hopefully there won't be any.

2 Anything further from the parties?

3 MR. WAYMEYER: Not from Empire.

4 MR. RANKIN: Nothing from Goodnight.

5 Thank you.

6 THE HEARING OFFICER: All right.

7 MR. MOANDER: Nothing from OCD either.

8 THE HEARING OFFICER: Thank you.

9 Rice?

10 MR. BECK: Nothing from Rice.

11 THE HEARING OFFICER: Pilot?

12 MR. SUAZO: Nothing from Rice [sic].

13 Just to know that any questions that Pilot may ask are
14 going to be pretty limited probably to just one
15 witness and probably no more than five minutes,
16 Mr. Hearing Officer.

17 THE HEARING OFFICER: Okay. Thanks for
18 the heads up.

19 Your next witness, Mr. Rankin?

20 MR. RANKIN: Thank you, Mr. Hearing
21 Officer. Next witness is Mr. Thomas Tomastik.

22 THE HEARING OFFICER: Good morning, Mr.
23 Tomastik.

24 MR. TOMASTIK: Good morning.

25 THE HEARING OFFICER: You know the

1 drill. If you'll raise your right hand, please.

2 WHEREUPON,

3 THOMAS TOMASTIK,

4 called as a witness and having been first duly sworn

5 to tell the truth, the whole truth, and nothing but

6 the truth, was examined and testified as follows:

7 THE HEARING OFFICER: All right.

8 Mr. Rankin?

9 MR. RANKIN: Thank you, Mr. Hearing
10 Officer.

11 EXAMINATION

12 BY MR. RANKIN:

13 MR. RANKIN: Mr. Tomastik, will you
14 please state your name for the record.

15 MR. TOMASTIK: Thomas E. Tomastik.

16 MR. RANKIN: And by whom are you
17 employed and in what capacity?

18 MR. TOMASTIK: I'm employed by A-L-L
19 Consulting. I am chief geologist and regulatory
20 specialist.

21 MR. RANKIN: Have you previously
22 testified before the Commission?

23 MR. TOMASTIK: Yes. Approximately six
24 to eight times.

25 MR. RANKIN: And are you familiar with

1 the application filed by Goodnight in these
2 consolidated cases?

3 MR. TOMASTIK: Yes.

4 MR. RANKIN: And you're familiar with
5 the applications filed by Empire seeking to revoke
6 Goodnight's existing saltwater disposal wells?

7 MR. TOMASTIK: Yes.

8 MR. RANKIN: And is your education and
9 background included as an exhibit to your written
10 direct testimony?

11 MR. TOMASTIK: Yes.

12 MR. RANKIN: And does it outline that
13 you have a background and expertise in Safe Drinking
14 Water Act, underground injection control program, and
15 permitting?

16 MR. TOMASTIK: Yes.

17 MR. RANKIN: And regulation of
18 saltwater disposal wells?

19 MR. TOMASTIK: Yes.

20 MR. RANKIN: As well as carbon
21 sequestration and groundwater and fluid migration and
22 carbonate systems?

23 MR. TOMASTIK: Yes.

24 MR. RANKIN: And you also have
25 expertise in the evaluation of geochemistry issues as

1 it pertains to scaling and corrosion and oil and gas
2 injection operations?

3 MR. TOMASTIK: Yes.

4 MR. RANKIN: Have you conducted a study
5 of the history of production and operations at the
6 EMSU?

7 MR. TOMASTIK: Yes.

8 MR. RANKIN: And have you conducted a
9 study of the water encroachment from the edge water
10 around the EMSU and past and current geochemistry in
11 and around the EMSU?

12 MR. TOMASTIK: Yes.

13 MR. RANKIN: And are you familiar with
14 scaling issues and treatment in Class 2 injection
15 wells generally?

16 MR. TOMASTIK: Yes.

17 MR. RANKIN: And, in fact, were you not
18 previously a regulator of for State of Ohio overseeing
19 Class 2 injection operations?

20 MR. TOMASTIK: Yes.

21 MR. RANKIN: Have you also conducted
22 analysis of the history and factors affecting scaling
23 and corrosion in around the EMSU?

24 MR. TOMASTIK: Yes.

25 MR. RANKIN: And have you prepared

1 written rebuttal testimony in exhibits that are marked
2 as Exhibit C and Exhibit C1 through C27?

3 MR. TOMASTIK: Yes.

4 MR. RANKIN: Were the exhibits prepared
5 by you or compiled under your direction and
6 supervision?

7 MR. TOMASTIK: Yes.

8 MR. RANKIN: And any corrections or
9 changes to the testimony exhibits that were filed?

10 MR. TOMASTIK: No.

11 MR. RANKIN: Do you adopt the testimony
12 as your -- in your self-affirmed statement and
13 rebuttal statement that are marked as Exhibit C as
14 your sworn testimony today?

15 MR. TOMASTIK: Yes.

16 MR. RANKIN: Mr. Hearing Officer, I
17 would tender Mr. Tomastik as an expert witness in
18 petroleum geology, underground injection control
19 permitting of groundwater, and ejection wells; and has
20 been previously qualified as an expert in these fields
21 before the Commission.

22 THE HEARING OFFICER: Any objection
23 from Empire?

24 MS. SHAHEEN: No objection.

25 THE HEARING OFFICER: OCD?

1 MR. MOANDER: No objection.

2 THE HEARING OFFICER: Rice?

3 MR. BECK: No objection.

4 THE HEARING OFFICER: Pilot?

5 MR. SUAZO: No objection.

6 THE HEARING OFFICER: He'll be so
7 recognized.

8 MR. RANKIN: Mr. Hearing Officer, I
9 would also at this time move the admission into
10 evidence of Mr. Tomastik's direct testimony and
11 rebuttal testimony and his attached Exhibits C1
12 through C21.

13 THE HEARING OFFICER: Empire?

14 MS. SHAHEEN: No objection.

15 THE HEARING OFFICER: OCD?

16 MR. MOANDER: No objection.

17 THE HEARING OFFICER: Rice?

18 MR. BECK: No objection.

19 THE HEARING OFFICER: Pilot?

20 MR. SUAZO: No objection.

21 THE HEARING OFFICER: They'll be
22 admitted.

23 DIRECT EXAMINATION

24 BY MR. RANKIN:

25 MR. RANKIN: Mr. Tomastik, have you

1 been present for or did you listen to the summary
2 testimony, the cross examinations, and redirect of the
3 witnesses in this proceeding?

4 MR. TOMASTIK: Yes.

5 MR. RANKIN: Did you hear the direct
6 testimony and cross that has been conducted to date of
7 Goodnight's own witnesses as well?

8 MR. TOMASTIK: Yes.

9 MR. RANKIN: And did you prepare
10 summary slides reflecting your up-to-date opinions,
11 including any additional opinions formed as a result
12 of hearing that testimony and cross-examination?

13 MR. TOMASTIK: Yes.

14 MR. RANKIN: And did you prepare some
15 slides providing an overview of your testimony and
16 conclusions?

17 MR. TOMASTIK: Yes.

18 MR. RANKIN: Mr. Tomastik, I'll go
19 ahead and share my screen. If you would just walk
20 through at a very high level each of these slides so
21 we understand -- I'll direct you as we walk through
22 them -- what your opinions are and how they relate to
23 your testimony.

24 This first one, just give us an
25 overview of what topics you addressed -- Goodnight

1 asked you to address in your testimony.

2 MR. TOMASTIK: Yes. It's basically
3 addressing the issues of disagreement, water
4 encroachment, fractures in carbonate rocks, chemistry,
5 corrosion issues, the existence of the ROZ, the
6 allegations that the aids -- San Andres SWDs were in
7 communication with the Capitan Reef, the monitoring
8 wells in the Capitan Reef near the EMSU, well
9 integrity issues, and regulatory concerns and
10 solutions.

11 MR. RANKIN: Okay. Next slide here, I
12 think, gets you into the first top topic of
13 discussion, edge water encroachment into the EMSU.
14 Just give us a brief overview of the research you did
15 and the evaluation of the history of this issue in the
16 EMSU.

17 MR. TOMASTIK: Basically, I researched
18 all the historical publications, both published by the
19 Bureau of Mines and the New Mexico Bureau of Mines and
20 Geologic Survey. There's been documentation since the
21 1930s of water encroachment into the EMSU.

22 There's also states that it's both a
23 solution gas drive and a partial water drive. You
24 have Chevron publications from the 1990s and 2000s
25 that continue to show water encroachment from the

1 west, the southwest.

2 There is very strong evidence that with
3 water encroachment from the Goat Seep aquifer, which
4 is part of the Capitan Reef complex into the Grayburg
5 formation when the Grayburg production created a coat
6 of depression. The fracture systems in the Grayburg
7 and the carbonate rocks do not extend hundreds of feet
8 from in Goodnight's injection wells into the Grayburg.

9 There's documented evidence of high
10 water flows in the Penrose Zone 1 that Chevron
11 documented. There is no real evidence showing plumes
12 of water coming up from the San Andres, and there's no
13 communication for hundreds of feet through those
14 formations.

15 Additionally, there's historic
16 publication documentation of wells being drilled
17 deeper into the San Andres in the 1930s. One document
18 indicates at least 500 feet into the San Andres.

19 MR. RANKIN: Before I leave this slide,
20 Mr. Tomastik, real quick. On the third-to-last slide,
21 we talk about Chevron documented high-water flows.
22 Explain to me the significance of that finding and how
23 it relates to concerns about -- regulatory concerns
24 about containment of any ROZ project in the Grayburg
25 and also potential additional source of water in the

1 EMSU.

2 MR. TOMASTIK: Yes. The EMSU
3 Number 139 was one of the ones that was on the bubble
4 map Mr. West presented with over a million barrels of
5 water produced, and I was able to find sundry notice
6 that indicated that Chevron had shown that the water
7 influx was coming through the Penrose Zone 1, which is
8 indicative of water migration higher up and no
9 confinement.

10 That actually goes back through 2000
11 Chevron order that was asked for for the pressure
12 increase. That was objected to due to alleged
13 migration of water flood fluid moving off location and
14 into the shallower reservoir.

15 MR. RANKIN: What does this next slide
16 show and how does it relate to your analysis about the
17 encroachment of edge water into the EMSU?

18 MR. TOMASTIK: This was a rebuttal
19 exhibit from Mr. West, N18, and what I've highlighted
20 is -- is it shows both actually from Mr. -- or
21 Dr. Lindsay's [ph] testimony exhibit that there is
22 edge water coming in from the Goat Seep and into the
23 Grayburg reservoir. That's well documented both by
24 those experts.

25 MR. RANKIN: Explain to us what this

1 next slide shows, especially pointing out the red
2 arrows and what it relates to in terms of your opinion
3 about vertical migration of fluids.

4 MR. TOMASTIK: This is an example, and
5 I've done extensive work when I was with the Ohio
6 Department of Natural Resources during groundwater
7 investigations of fractured carbonate rocks.

8 And what is very evident that I've
9 learned and experienced over my career doing hundreds
10 of groundwater investigations related to fractured
11 carbonate rocks is fluid migration vertically moves
12 upward, but then hits bedding planes that serve as
13 horizontal barriers to flow.

14 As you can see in this photograph, the
15 red arrows are pointing to water actually flowing out
16 horizontally from a bedding plane that's actually
17 indicating that it's -- it's a barrier to continued
18 flow upwards.

19 You can see typically driving on the
20 highway along outcrops if you look at the rocks or the
21 road cuts, you can see water flowing out of the rocks
22 when it's rained or icicles are typically horizontally
23 indicating that that's where the barrier to the flow
24 has stopped.

25 So it's -- it's -- and Mr. Knight has

1 testified to this that bedding planes serve as a
2 barrier to vertical flow.

3 MR. RANKIN: And that would include
4 both tight rock, low vertical permeability rock, and
5 also very high permeability rock intervals; is that
6 right?

7 MR. TOMASTIK: Yes.

8 MR. RANKIN: Okay. What does this next
9 slide show? And explain what it relates to your
10 analysis about the potential for containment within
11 the EMSU of an ROZ and potential source of additional
12 water into the EMSU.

13 MR. TOMASTIK: Yeah. This is -- this
14 is the Chevron sundry notice that I referenced on my
15 slide before of the high water flows from the Penrose
16 Zone 1 in EMSU 139 that was documented in 1988.

17 Chevron basically said this well was a
18 candidate for a liner due to a high water production
19 from the Penrose Zone 1, and that's one of the wells
20 that was on Mr. West's bubble map that showed water
21 production over a million barrels.

22 MR. RANKIN: This next slide here, I
23 think we're moving to a new topic. If you would just
24 give the Commission an overview of what you have to
25 say here about geochemistry issues and potential

1 corrosion and scaling issues in the EMSU.

2 MR. TOMASTIK: So basically the
3 corrosion and scaling issues have been documented in
4 EMSU since 1940s. There -- there's documentation that
5 the Grayburg oil itself is sour oil with sulfur
6 contained in it.

7 There's chemistry data both from 1966
8 that shows hydrogen sulfide levels that are fairly
9 high in the Grayburg, which is a well-known corrosive
10 agent.

11 There's also been -- with the injection
12 of the 340 million barrels of San Andres water for
13 makeup water for the waterflood has increased the
14 corrosion and scaling issues in the EMSU water flood.

15 Chevron did extensive chemical analysis
16 of this data in the early 1990s, and they clearly
17 showed variability and chemistry changes not only in
18 chlorides and sulfide concentrations from year to
19 year, so which shows that there's no geochemical
20 fingerprinting constituent that can be used in EMSU,
21 especially not chloride concentrations.

22 Chevron and XTO had extensive
23 geochemical treatment programs to try to address the
24 scaling issues and the corrosion. Empire has really
25 provided very little detail of any kind of chemical

1 treatment program.

2 And they provided no physical evidence,
3 photographs, documents showing corrosion of downhole
4 equipment, wellheads, fittings, pipelines, or pumping
5 equipment that allegedly was caused by injection
6 operations by Goodnight.

7 MR. RANKIN: Mr. Tomastik, before I
8 leave this slide, I want to make sure something is
9 very clear. I'm going to ask you two questions.

10 It's your understanding based on the
11 representation at the time the waterflood was filed
12 with the commission that the applicant represented to
13 the Commission that the source of waterflood water in
14 the San Andres was, in fact, compatible with the
15 Grayburg formation fluids; is that correct?

16 MR. TOMASTIK: Yes.

17 MR. RANKIN: And then subsequently, was
18 it represented in published papers that the San Andres
19 water was known, in fact, to be incompatible with the
20 Grayburg; correct?

21 MR. TOMASTIK: Yes.

22 MR. RANKIN: And, in fact, as a result
23 of that incompatibility, what -- did that
24 relate -- did that give rise to the scaling that
25 Chevron encountered during its operations in

1 subsequent --

2 MR. TOMASTIK: It -- it furthered
3 the -- the corrosion and scaling problem that they
4 were already addressing.

5 MR. RANKIN: Thank you. This next
6 slide here addresses your overview of the ROZ issue.
7 If you'd just give a brief overview of, in your
8 opinion, what the evidence shows about a potential for
9 an ROZ here.

10 MR. TOMASTIK: Yep. Basically, XTO
11 drilled several wells in 2005 as an effort to allege
12 it produced the -- the San Andres oil. All three
13 wells swapped uneconomic and not-paying quantities of
14 oil.

15 Additionally, none of the six water
16 supply wells that Chevron drilled that were swapped
17 and pumped any oil was reported to be from those
18 tests. In fact, no oil has been reported or
19 documented during the withdrawal of at least 340
20 million barrels of makeup water from the San Andres
21 since the 1980s.

22 And -- and pumping the San Andres
23 would've been a primary oil production attempt. This
24 is not a greenfield ROZ. It has been produced, and
25 basically very minor, if any, oil was -- was

1 documented being produced.

2 And the depressurization of the
3 San Andres during that time of dewatering would've had
4 to produce some oil if it was mobile at that point,
5 and there's no indications of any accumulations of
6 economic or paying quantities of oil.

7 MR. RANKIN: On to the next topic here,
8 Mr. Tomastik. This next slide provides an overview of
9 your analysis and opinions regarding the potential of
10 communication between Goodnight's disposal zone and
11 the overlying formation and reservoir. Will you
12 please review your determinations as to that topic.

13 MR. TOMASTIK: Yes. Basically
14 publications by multiple authors clearly shows the
15 San Andres is not in geologic or hydrogeologic
16 communication with Capitan Reef complex.

17 The eastern section of the reef, based
18 on Lewis Land's recent work shows that concentrations
19 are above 10,000 total dissolved solids, so it's not a
20 underground source of drinking water of USDW.

21 The existence of the Hobbs channel is
22 seriously in doubt as a geologic feature or a
23 hydrodynamic feature that was first identified by
24 Hiss [ph] based on chloride concentrations that were
25 improperly contoured and then cited in Wilson and

1 Hollands Groundwater Protection Association 1984
2 publication.

3 That, again, was based on chlorides.
4 There was no actual groundwater measurements or a
5 potential metric surface mapping to determine
6 sub-surface groundwater flow direction.

7 And Jones in 2016 basically shows his
8 elimination of the Hobbs channel and the Capitan Reef
9 complex is in communication with the Grayburg and
10 possibly the Penrose, but not in communication with
11 the San Andres injection zone of Goodnight's wells.

12 MR. RANKIN: And, in fact,
13 Mr. Tomastik, Empire's experts agree on this point;
14 correct?

15 MR. TOMASTIK: Yes.

16 MR. RANKIN: Next slide here relates to
17 your comment about or analysis of the Jones work.
18 Just briefly explain what this shows with respect to
19 the Jones paper in 2016.

20 MR. TOMASTIK: Yes. This is -- this is
21 from OCD Exhibit Number 19, and this is from the Jones
22 paper. As we can see on the left, there is flow up to
23 the top right towards Hobbs, which is what they were
24 calling the Hobbs channel of Hiss in -- in 1980.

25 And then Jones altered that after the

1 development of Pecos River Complex and changed that
2 flow direction in -- in the groundwater, basically
3 eliminating the Hobbs channel as a geologic or
4 hydrodynamic feature.

5 MR. RANKIN: And then this next comment
6 addresses some aspects of OCD's proposal for
7 monitoring. If you would just give us a brief
8 overview of your opinion about what the fluid levels
9 reflect in terms of potential communication with the
10 San Andres based on the pressures you've evaluated
11 base.

12 MR. TOMASTIK: Basically, in 1966, the
13 United States Geologic Survey took over and plugged
14 back a number of existing deep oil and gas wells,
15 plugging them back into the Capitan Reef complex to
16 perform fluid-level monitoring.

17 Basically, they -- they monitored the
18 fluid levels from about 1966 to 1980. Then the
19 monitoring cease. And then they did come back and
20 start monitoring again in 2012 to 2017, but there was
21 no indication that there was communication between the
22 Capitan Leaf complex and Goodnight's San Andres SWDs.

23 MR. RANKIN: Next slide here,
24 Mr. Tomastik, relates to your assessment of the
25 potential for the EMSU to qualify for CO2 injection

1 based on the existence of the well boards, quality of
2 the wellboards, and whether any of the geology would
3 suffice to seal CO2 in place; correct?

4 MR. TOMASTIK: Yes.

5 MR. RANKIN: Just give us a brief
6 overview of your assessment.

7 MR. TOMASTIK: So, basically, I looked
8 at -- at the regulatory issues, looked at a lot of
9 well files, sundry notices, Chevron's published papers
10 in 1991, 1996, and 1998.

11 There's a number of documented casing
12 and liner leaks, cement squeeze jobs, fluid migration
13 to the surface, historic frack jobs, flood backs to
14 shallow reservoirs into the Queen, the Yates.

15 There's -- and -- and it clearly shows
16 that there's well integrity issues, which I'll just
17 talk about a little bit more on the next slide coming
18 up.

19 The injection of CO2 becomes a far
20 greater risk to migration into the underground sources
21 of drinking water into the surface with injection of
22 CO2 versus the injection of fluid CO2.

23 After it reaches a depth of less than
24 2,600 feet, it goes from super critical fluid to a
25 gas, gas obviously having a greater affinity migrate

1 to the USDWs and to the surface.

2 And Empire has not identified what
3 confining zones they're going to have to prevent
4 vertical migration of CO2 out of the ROZ that
5 potentially could impact the underground sources of
6 drinking water, which is the primary goal of the
7 underground injection control program.

8 MR. RANKIN: Next slide here, just give
9 us a brief overview of what this shows relating to
10 your concerns about potential for well integrity
11 issues across the EMSU.

12 MR. TOMASTIK: So this is from Chevron,
13 Tracy Love, et al., 1998 SPE paper, and this is us
14 showing some of the conformance focus issues they've
15 had. There's a list of 26 wells on this little chart
16 here.

17 22 of the wells have showed squeeze
18 jobs, acid communications with other parts of the
19 formation behind pipe, integrity issues, leaks.
20 This -- this is -- becomes a serious concern when
21 you're going from water flooding to CO2 tertiary
22 injection.

23 The integrity, the fact that CO2 as
24 far -- going to be corrosive, not only to steel pipe,
25 but also to Portland cements, presents a higher risk

1 for loss of integrity confinement into the injection
2 interval.

3 MR. RANKIN: And, Mr. Tomastik, as it
4 relates to Empire's proposal, whether it's a
5 continuous CO2 injection or a WAG, is there a
6 difference in your opinion about the concerns with the
7 quality of these wells, whether it's WAG or continuous
8 CO2?

9 MR. TOMASTIK: No.

10 MR. RANKIN: Give us an overview of
11 your conclusions based on your assessment and
12 evaluation.

13 MR. TOMASTIK: So, basically, water
14 encroachment is well documented coming from the Goat
15 Seep, the Capitan Reef complex. There's no proof of
16 vertical fracturing communication between the Grayburg
17 and the San Andres SWDs of Goodnight. That
18 would've -- it needed to exceed hundreds of feet of
19 vertical height to reach the Grayburg saltwater
20 disposal zones.

21 Dr. Lindsay [ph] testified the maximum
22 vertical height he saw in the core was 1 to 3 feet.
23 I've gone back and looked at Dr. Lindsay's [ph] PhD
24 dissertation of his outcrop photos from the Guadalupe
25 Mountains of showing hundreds of feet of Grayburg and

1 San Andres exposure in the rocks.

2 And there's no evidence of hundreds of
3 feet of vertical fracture extension at the surface
4 where actually fractures are more likely to be open;
5 whereas in the subsurface, fractures tended to be
6 closed or mineralized with a separate mineral as a
7 secondary mineralization.

8 Corrosion has been historically
9 documented in the MSU. There's been no -- no evidence
10 provided by Empire that the corrosion of the injection
11 from Goodnight's SWDs has caused any -- any corrosion
12 issues. They provided no documentation or evidence of
13 corrosion.

14 Their chlorides -- and I've dealt with
15 chloride injection across the United States.
16 Chlorides is not a viable corrosion issue as much as
17 CO2 or microbial bacteria corrosion or hydrogen
18 sulfide corrosion or barium sulfide scale formations.

19 Additionally, Goodnight treats all of
20 their injection fluids with a very robust treatment
21 system that's documented in my self-affirmed statemen.
22 On the ROZ, we've had no confirmation of paying
23 quantities of oil, even though 340 million barrels of
24 water have been withdrawn and depressurized.

25 The formation, we would've expected

1 some kind of oil production injection operations by
2 Goodnight in the San Andres, and their injection zone
3 is not in communication with the Capitan Reef complex.

4 And then it's well documented on the
5 eastern portion of the Capitan Reef that the total
6 dissolved salts exceed 10,000 milligrams per liter, so
7 they're not a USDW.

8 The well integrity issues in the EMSU
9 are well documented. And if CO2 injection occurs,
10 they prevent far greater risk to CO2 migrating out of
11 the ROZ injection zone, converting to gas, and
12 potentially contaminating underground sources of
13 drinking water and possibly reaching the surface.

14 MR. RANKIN: Thank you, Mr. Tomastik.

15 Mr. Hearing Officer, I have no further
16 questions of Mr. Tomastik and make him available for
17 cross-examination.

18 THE HEARING OFFICER: Okay. Thank you,
19 Mr. Rankin. It's almost 10:20 a.m. Let's take our
20 morning break and come back at 10:35.

21 THE REPORTER: We are off the record at
22 10:35.

23 (Off the record.)

24 THE REPORTER: All right. We are back
25 on -- we are back on the record. The time is -- y'all

1 are an hour behind; right? Yeah. 10:35 a.m.

2 MS. HARDY: Thank you.

3 CROSS-EXAMINATION

4 BY MS. HARDY:

5 MS. HARDY: Hello, Mr. Tomastik.

6 MR. TOMASTIK: Hello.

7 MS. HARDY: I just want to be sure that
8 it's very clear for the record what you are testifying
9 about and what you're background is. You don't have a
10 degree in any type of engineering; correct?

11 MR. TOMASTIK: I do not have a degree
12 in engineering, but I've done a lot of petroleum
13 engineering work in my career.

14 MS. HARDY: Okay. And if you would
15 just answer the question I've asked, I think this will
16 go faster.

17 You're not licensed as an engineer in
18 any state, are you?

19 MR. TOMASTIK: No.

20 MS. HARDY: And you don't have the
21 ability to stamp documents with a professional
22 engineering stamp, do you?

23 MR. TOMASTIK: No.

24 MS. HARDY: And you've never been
25 qualified as an expert in petroleum engineering by any

1 tribunal; correct?

2 MR. TOMASTIK: No.

3 MS. HARDY: And your work as a
4 petroleum geologist focuses on injection wells;
5 correct?

6 MR. TOMASTIK: No. I've done geologic
7 work in groundwater investigations, injection wells.
8 I drilled 26 oil and gas wells in the '80s. I
9 converted six wells to Class 2 injection. I've
10 plumbed up wellheads. So I've done about every aspect
11 of the oil and gas industry in my career.

12 MS. HARDY: And let me just share,
13 then, your CV that is attached to your testimony.
14 I've looked at the matters that it includes. And I'm
15 looking -- do you see my screen?

16 MR. TOMASTIK: Yes.

17 MS. HARDY: Here starting at page 2,
18 you list relevant experience; correct?

19 MR. TOMASTIK: Yes. That's my last
20 relevant experience in my over ten years with ALL
21 Consulting. My other experience below that has 25 and
22 a half years with the Ohio Department of Natural
23 Resources Division of Oil and Gas and then six years
24 as a consulting geologist drilling and completing oil
25 and gas wells and converting wells to injection in

1 Ohio.

2 MS. HARDY: And, Mr. Tomastik, I'm
3 scrolling through here, and I think, you know, going
4 from about page 2 to page 13 of your CV, you list
5 relevant experience; correct?

6 MR. TOMASTIK: Yes.

7 MS. HARDY: And I've actually looked at
8 those, and I think everything but about five of them
9 relates to injection; is that fair?

10 MR. TOMASTIK: A lot of it does, yes.

11 MS. HARDY: Okay. And you've never
12 worked on an enhanced oil recovery project in
13 New Mexico, have you?

14 MR. TOMASTIK: No.

15 MS. HARDY: And you've never been the
16 lead geologist on a carbon sequestration project, have
17 you?

18 MR. TOMASTIK: Not a lead geologist,
19 but I've been involved on a national level since about
20 2005 with all the major oil companies and also was
21 instrumental with the major companies, working with
22 US EPA --

23 MS. HARDY: Mr. Tomastik, I'm going to
24 jump in here, because --

25 And I'm going to move to strike that.

1 My question was, you've never been the
2 lead geologist on a carbon sequestration projection --

3 MR. TOMASTIK: No.

4 MS. HARDY: -- and I think your answer
5 is yes; correct?

6 MR. TOMASTIK: I have not, no.

7 MS. HARDY: Okay. Thank you. In none
8 of the matters identified on your CV involve
9 development of a residual oil zone; correct?

10 MR. TOMASTIK: Correct.

11 MS. HARDY: And you've never worked on
12 any residual oil zones anywhere; correct?

13 MR. TOMASTIK: Correct.

14 MS. HARDY: You've never been involved
15 in converting a waterflood project to a CO2 project,
16 have you?

17 MR. TOMASTIK: I regulated and
18 permitted a huff and puff that Mr. Meltzer [ph] was
19 involved with back in the mid-2000s.

20 MS. HARDY: Okay. And do you remember
21 when you were deposed in this case?

22 MR. TOMASTIK: Yes.

23 MS. HARDY: And that was on
24 December 10, 2024?

25 MR. TOMASTIK: Yes.

1 MS. HARDY: Okay. And let's look at
2 page 6 here of your testimony, starting at line 18,
3 and I'm going to read this. The question is, "Have
4 you ever been involved in a conversion from waterflood
5 to CO2"; and your answer was, "No." Did I read that
6 correctly?

7 MR. TOMASTIK: Yes. I've not been
8 involved, but I permitted one.

9 MS. HARDY: Okay. Thank you. And
10 you've never designed a waterflood, have you?

11 MR. TOMASTIK: No.

12 MS. HARDY: As a geologist, you're not
13 giving opinions here on economics, are you?

14 MR. TOMASTIK: No.

15 MS. HARDY: Okay. You've testified for
16 Goodnight in all of its New Mexico SWD hearings;
17 correct?

18 MR. TOMASTIK: Yes.

19 MS. HARDY: You're familiar with
20 New Mexico laws, rules, and regulations that apply to
21 injection wells; correct?

22 MR. TOMASTIK: Yes.

23 MS. HARDY: And wouldn't that include
24 division and commission orders that govern injection
25 and production in the area where an injection well

1 will be located?

2 MR. TOMASTIK: That was typically not
3 my part of the work on completing C108s. Typically
4 Nate Alleman or Oliver Seekins would've done that kind
5 of work.

6 MS. HARDY: Let's talk for a minute
7 about your involvement in this case. You consulted
8 with Preston McGuire in preparing your testimony;
9 correct?

10 MR. TOMASTIK: Excuse me?

11 MS. HARDY: You consulted with Preston
12 McGuire in preparing your testimony that you've
13 submitted; correct?

14 MR. TOMASTIK: I've had discussions
15 with both the attorneys and Preston McGuire. But
16 Preston McGurie did not, you know, basically write any
17 of my testimony, no.

18 MS. HARDY: Well, you consulted with
19 him, didn't you?

20 MR. TOMASTIK: I had discussions with
21 him, yes.

22 MS. HARDY: Okay. And Mr. McGuire is
23 employed by Goodnight; correct?

24 MR. TOMASTIK: Yes.

25 MS. HARDY: And you met with him three

1 to five times about your testimony; right?

2 MR. TOMASTIK: I don't know how many
3 times. Several.

4 MS. HARDY: Okay. And he reviewed
5 drafts of your testimony, and he gave you input;
6 correct?

7 MR. TOMASTIK: My drafts went through
8 the attorneys, so I don't know.

9 MS. HARDY: And let me just pull up
10 here -- and I'm looking at page 13 of your deposition
11 testimony. Starting at line 10, you stated that you
12 had meetings with Mr. McGuire; correct?

13 MR. TOMASTIK: Yes.

14 MS. HARDY: Okay.

15 MR. TOMASTIK: With -- with the
16 attorneys.

17 MS. HARDY: Right. And then here, at
18 line 19, you stated that you probably met with them
19 three to five times; correct?

20 MR. TOMASTIK: That's probably
21 accurate.

22 MS. HARDY: Okay. And then you go on
23 to state that you submitted drafts of your statement
24 for approval and discussion; right?

25 MR. TOMASTIK: Yes.

1 MS. HARDY: Okay. And how many times
2 have you talked with Mr. McGuire since you submitted
3 your testimony?

4 MR. TOMASTIK: Several.

5 MS. HARDY: You don't have a range?

6 MR. TOMASTIK: No.

7 MS. HARDY: Okay. You didn't do any
8 original work on the geology in this case, did you?

9 MR. TOMASTIK: No.

10 MS. HARDY: You didn't prepare any
11 cross-sections; correct?

12 MR. TOMASTIK: No.

13 MS. HARDY: You relied on information
14 your received from Mr. McGuire; correct?

15 MR. TOMASTIK: Yes.

16 MS. HARDY: And you didn't do any
17 independent evaluation regarding whether there is a
18 residual oil zone within the San Andres in the EMSU,
19 did you?

20 MR. TOMASTIK: No.

21 MS. HARDY: Let's talk about your
22 opinions a little bit on water encroachment, and I
23 want to pull up the slide that you showed earlier
24 during your summary. I believe it is your Slide
25 Number 6. Can you see that there?

1 MR. TOMASTIK: Yes.

2 MS. HARDY: Let me enlarge it. Okay.

3 And my understanding of your summary
4 was that this --

5 THE REPORTER: Can we go off the
6 record?

7 THE HEARING OFFICER: I'm sorry. What
8 was that?

9 THE REPORTER: Can we go off the
10 record?

11 UNIDENTIFIED SPEAKER: The court
12 reporter wants to go off the record.

13 THE HEARING OFFICER: Okay. Madam
14 Court Reporter, what's going on?

15 THE REPORTER: I'm having tech issues.
16 It's not registering any -- any volume or -- or
17 language. It just stopped --

18 MS. HARDY: She said she's having her
19 technical issues, but --

20 THE HEARING OFFICER: Okay.

21 THE REPORTER: I apologize. We are off
22 the record at 10:44.

23 (Off the record.)

24 THE REPORTER: We are back on the
25 record. The time is 10:46 a.m.

1 THE HEARING OFFICER: You want to
2 repeat that question, Ms. Hardy, please.

3 MS. HARDY: I'm not sure what my
4 last -- I think he answered my last question.

5 UNIDENTIFIED SPEAKER: Yeah. You
6 didn't ask. You were bringing this up.

7 THE HEARING OFFICER: Oh, okay. All
8 right. Go ahead, please proceed.

9 MS. HARDY: Okay. Thank you.

10 Okay. Mr. Tomastik, during your
11 summary, you testified regarding this Slide 6 that
12 references the 139 well, the M2 139. And I think
13 you -- my understanding of your testimony was that it
14 shows evidence of high water flows from the Penrose;
15 right?

16 MR. TOMASTIK: Correct.

17 MS. HARDY: And I think you referenced
18 the bubble map that was provided by Mr. West --

19 MR. TOMASTIK: Correct?

20 MS. HARDY: And the location of the
21 139 well?

22 MR. TOMASTIK: Yes.

23 MS. HARDY: Okay. And my understanding
24 was that you were stating that this 139 well, was
25 located in the middle of the bubble map and shows high

1 water flows from the Penrose; is that correct --

2 MR. TOMASTIK: I did not say where it
3 was located. I said based on my recollection of
4 writing down the information from the bubble map of
5 Mr. West's testimony that that well produced over a
6 million barrels of water.

7 MS. HARDY: Okay. And this document
8 here, it's difficult to read, but it looks like -- I
9 guess you can see it there at the bottom. The date is
10 1988; correct?

11 MR. TOMASTIK: Yes.

12 MS. HARDY: Okay. And I'm going to
13 show Mr. West's bubble map, which has been admitted
14 into evidence. And if you look here, the 139 well is
15 over here where I'm denoting with my cursor. Can you
16 see that?

17 MR. TOMASTIK: Yes.

18 MS. HARDY: Okay. And then the 239
19 well is here more in the center where I'm now marking
20 with my cursor; is that correct?

21 MR. TOMASTIK: Yes.

22 MS. HARDY: Okay. So the 139 is
23 located to the west; correct?

24 MR. TOMASTIK: Yes.

25 MS. HARDY: Okay. And Empire has

1 agreed, hasn't it, that there is some edge water
2 migration to the east --

3 MR. TOMASTIK: Yes.

4 MS. HARDY: Okay.

5 MR. RANKIN: Ms. Hardy, just for my
6 benefit, which exhibit was this that was admitted? I
7 can't -- I don't recall the number.

8 MS. HARDY: I actually don't have the
9 number off the top of my head, Mr. Rankin, but it was
10 in Mr. West's redirect.

11 MR. RANKIN: Okay.

12 MS. HARDY: Thank you.

13 In your testimony -- and I can pull
14 that up if you'd like -- at page 8, you state there
15 was a low porosity and low permeability barrier at the
16 top of the San Andres; correct?

17 MR. TOMASTIK: Yes.

18 MS. HARDY: You didn't actually pick
19 the top of the San Andres, did you?

20 MR. TOMASTIK: No.

21 MS. HARDY: You relied on Preston
22 McGuire's pick?

23 MR. TOMASTIK: Yes.

24 MS. HARDY: Isn't it true that in some
25 locations, Goodnight has determined that the top of

1 the San Andres is below the Lovington Sand?

2 MR. TOMASTIK: I really didn't evaluate
3 that. I was evaluating confinement of their injection
4 zone and whether there was a confining interval above
5 the injection interval.

6 MS. HARDY: And at your deposition, you
7 stated that you had never heard of the Lovington Sand;
8 correct?

9 MR. TOMASTIK: That's true.

10 MS. HARDY: And you state in your file
11 testimony that there's no evidence of vertical
12 fractures extending from the Grayburg into the
13 San Andres; correct?

14 MR. TOMASTIK: I said there is no -- no
15 evidence of it extending hundreds of feet from the
16 Grayburg into Goodnight's saltwater injections zone.

17 MS. HARDY: And here I've pulled up
18 page --

19 THE HEARING OFFICER: Madam Court
20 reporter, are we having issues?

21 UNIDENTIFIED SPEAKER: Mr. Hearing
22 Examiner, taking --

23 THE HEARING OFFICER: Okay.

24 MS. HARDY: Okay. Thank you. That
25 seems to be resolved now.

1 Mr. Tomastik, I've pulled up your
2 direct testimony, and I'm looking at page 8 here. And
3 you state "There is no evidence of vertical fractures
4 extending from the Grayburg into the San Andres and no
5 evidence of fluids migrating between the formations."
6 Is that what your testimony states?

7 MR. TOMASTIK: That was my original
8 self-affirmed statement, yes.

9 MS. HARDY: Okay. And you didn't do a
10 geomechanical fracture study in this case, did you?

11 MR. TOMASTIK: No.

12 MS. HARDY: Okay. Regarding chemistry
13 and corrosion, you don't have a degree in chemistry;
14 correct?

15 MR. TOMASTIK: No.

16 MS. HARDY: And have you ever been
17 responsible for a chemical program in a producing
18 field?

19 MR. TOMASTIK: I have worked with a
20 number of my clients and with ChemTreat. ChemTreat is
21 the second largest chemical treatment company in the
22 United States and has been involved in the oil and gas
23 industry since probably 2015, 2016.

24 And I've worked with them with a number
25 of clients, helping them develop a treatment program

1 to ensure that the injection fluids are not causing
2 downhole plugging or scaling issues or corrosion.

3 MS. HARDY: Have you ever done a
4 geochemical fingerprinting analysis?

5 MR. TOMASTIK: I've done analysis,
6 and -- and I've done groundwater sampling analysis
7 when I was at the Ohio Division of Oil and Gas. And
8 I -- so I'm aware of sampling protocols, chain of
9 custody commands, and -- and have reviewed and
10 fingerprinted when I do have a constituent that can be
11 used as a -- as a fingerprinting mechanism.

12 MS. HARDY: So is the answer to my
13 question yes? That you have done a geochemical
14 fingerprinting analysis? Or that you haven't --

15 MR. TOMASTIK: I have not done a
16 laboratory geo-fingerprinting analysis, but I have
17 testified on geochemical fingerprinting in the
18 tall -- the K&H Partners litigation from several years
19 ago.

20 MS. HARDY: Okay. And you didn't
21 obtain a geochemical fingerprinting analysis here, did
22 you?

23 MR. TOMASTIK: I did no -- no sampling,
24 no.

25 MS. HARDY: Okay. Goodnight is

1 injecting produced water from the Delaware Basin into
2 the San Andres; correct?

3 MR. TOMASTIK: Yes.

4 MS. HARDY: And the water is from other
5 leases; correct?

6 MR. TOMASTIK: Yes.

7 MS. HARDY: And formations other than
8 the San Andres?

9 MR. TOMASTIK: Yes.

10 MS. HARDY: And those include the Bone
11 Spring and the Wolfcamp; right?

12 MR. TOMASTIK: Yes.

13 MS. HARDY: The produced water would
14 include frack fluid, wouldn't it?

15 MR. TOMASTIK: It would be some
16 intermixing of frack fluids.

17 MS. HARDY: And the TDS of the injected
18 water is higher than the San Andres formation water;
19 correct?

20 MR. TOMASTIK: Yes.

21 MS. HARDY: And Goodnight's injected
22 water also has higher salinity than the San Andres
23 water; correct?

24 MR. TOMASTIK: Yes.

25 MS. HARDY: Your testimony doesn't

1 discuss strontium sulfate scale, does it?

2 MR. TOMASTIK: No.

3 MS. HARDY: And you didn't perform a
4 water compatibility study, did you?

5 MR. TOMASTIK: No.

6 MS. HARDY: Are you aware that
7 Goodnight had to rework its rhino [ph] well?

8 MR. TOMASTIK: I think it's been
9 brought up somewhere in testimony. But I'm not
10 familiar with it, no.

11 MS. HARDY: So you don't know whether
12 that reworking was necessary due to scale?

13 MR. TOMASTIK: I do not know.

14 MS. HARDY: Okay. Regarding the
15 existence of the San Andres residual oil zone,
16 paragraph 64 of your testimony states the water supply
17 wells would've produced oil if a ROZ exists in the
18 San Andres; correct?

19 MR. TOMASTIK: Typically, when
20 you -- when you've depressurized a reservoir to the
21 point where gas starts coming out of solution, some
22 oil is produced.

23 And I actually used an example from
24 Oklahoma from the hunton limestone where they've
25 actually had depressurized a reservoir and then

1 produced hundreds of thousands of barrels of water a
2 day and started making oil from that zone after the
3 fact.

4 So you would expect to see some movable
5 oil from the depressurization of the ROZ when you
6 withdrew 340 million barrels of water out of the
7 reservoir.

8 MS. HARDY: Okay. And you have no idea
9 whether there is a ROZ at the top of the San Andrews,
10 do you?

11 MR. TOMASTIK: I've not looked into
12 that, no.

13 MS. HARDY: Okay. And I think as
14 you've already testified, you've never been involved
15 in a tertiary recovery project to produce a ROZ;
16 correct?

17 MR. TOMASTIK: No.

18 MS. HARDY: And regarding the hunton
19 limestone that you just mentioned -- and that is
20 mentioned here in your testimony -- that didn't
21 involve a ROZ, did it?

22 MR. TOMASTIK: I'm not aware if it did
23 or not. I didn't do -- look at that.

24 MS. HARDY: And regarding your
25 testimony and your summary on well integrity issues in

1 the EMSU, again, you're not an engineer; correct?

2 MR. TOMASTIK: No.

3 MS. HARDY: Let me just pull up the
4 slide I wanted to ask you about here, and I'm looking
5 here at your Slide 13.

6 And before I ask you about that, isn't
7 it true that a professional engineer stamp would be
8 required for a Class 2 injection well design?

9 MR. TOMASTIK: Some states -- lots of
10 states do not require. Class 1 injection in some
11 states do require or Class 6, but a lot of
12 states -- New Mexico does not require a PE stamp on a
13 Class 2 application.

14 MS. HARDY: Okay. And here on your
15 Slide 13, you have no idea what well reworking would
16 be done to convert the wells in EMSU to a CO2 project,
17 do you?

18 MR. TOMASTIK: I have not seen Empire's
19 plan for reworking of the wells in the EMSU.

20 MS. HARDY: Okay. And regarding this
21 slide, I think you testified earlier that this is from
22 the Love SPE paper; correct?

23 MR. TOMASTIK: Correct.

24 MS. HARDY: And the Love paper
25 addresses conformance issues in the top two zones in

1 the Grayburg; correct?

2 MR. TOMASTIK: Yes.

3 MS. HARDY: Okay. And, again, you've
4 never managed an EOR project; right?

5 MR. TOMASTIK: No.

6 MS. HARDY: And isn't it -- or do you
7 know whether in an EOR project, it's necessary to do
8 squeeze work to divert flow as part of conformance
9 work?

10 MR. TOMASTIK: That does occur, yes.

11 MS. HARDY: Okay. Thank you.

12 I have no further questions for

13 Mr. Tomastik.

14 THE HEARING OFFICER: Okay. Thank you,
15 Ms. Hardy.

16 OCD, cross-examination for
17 Mr. Tomastik?

18 MR. MOANDER: OCD has no questions for
19 this witness and will pass the witness.

20 THE HEARING OFFICER: Thank you.

21 Mr. Beck, for Rice?

22 MR. BECK: No questions.

23 THE HEARING OFFICER: All right.

24 Mr. Suazo, for Pilot?

25 MR. SUAZO: Yes. Mr. Hearing Officer,

1 I do have a few questions for Mr. Tomastik.

2 THE HEARING OFFICER: Okay.

3 CROSS-EXAMINATION

4 BY MR. SUAZO:

5 MR. SUAZO: Good morning, Mr. Tomastik.
6 My name is Miguel Suazo; I'm representing Pilot Water.
7 And I would just like to kind of clarify some of the
8 information in your slides with regard to the Hobbs
9 channel. And as I understood your slides, your
10 testimony today is that there is communication between
11 the Capitan Reef and the Hobbs channel.

12 MR. TOMASTIK: No. My testimony
13 is -- is saying that based on the published works
14 of -- or I think it was Jones, yes, 2016, his -- his
15 figures show the elimination of the Hobbes channel,
16 which is basically the two arrows coming out at the
17 top of the northwest of that figure with the
18 development of the Pecos River system that -- that
19 outflow no longer existed.

20 Basically, his work in 1976 and 1980
21 was done mapping chloride concentrations from multiple
22 reservoirs, including the San Andres, Queen. I mean,
23 there was multiple formations. And the contouring was
24 not done based on standard geologic principles for
25 contouring, and chloride concentrations have nothing

1 to do with groundwater flow direction.

2 So there's only been really two
3 publications, the Hiss -- the Hiss work and then the
4 work done in -- by Holland and the -- and the other
5 author in 1984 regarding the existence of the quote
6 unquote Hobbs channel. It's not documented in any
7 geologic or hydrogeologic or hydrodynamic publication
8 as a unique geologic feature.

9 MR. SUAZO: Okay. So then if there's
10 no Hobbs channel, there clearly can't be communication
11 between the Hobbs and the Capitan Reef; is that right?

12 MR. TOMASTIK: Yes.

13 MR. SUAZO: Okay. And did you look
14 beyond, you know, the Hobbs to other, you know, places
15 where there might be communication like the Jal [ph]?

16 MR. TOMASTIK: No, I did not.

17 MR. SUAZO: Okay. All right. Thank
18 you.

19 No further questions for this witness,
20 Mr. Hearing Officer.

21 THE HEARING OFFICER: Thank you,
22 Mr. Suazo.

23 All right. Why don't we start with the
24 remote commission members.

25 Mr. Lampkin, questions for

1 Mr. Tomastik?

2 MR. LAMPKIN: I do have a couple
3 questions.

4 CROSS-EXAMINATION

5 BY MR. LAMPKIN:

6 MR. LAMPKIN: Good morning,
7 Mr. Tomastik.

8 MR. TOMASTIK: Good morning.

9 MR. LAMPKIN: Thank you for your
10 testimony.

11 Did you find any wells besides the 139
12 that had a potential explanation for higher water
13 production?

14 MR. TOMASTIK: I didn't look. I mean,
15 I looked at dozens of wells, but unfortunately I
16 didn't look at every well in the EMSU and all the
17 sundry notices.

18 When I have looked at a lot of the
19 sundry notices, I have found, you know, issues with
20 well integrity, casing leaks, intermediate casing
21 flows to the surface. But I -- I had not found any
22 additional information regarding water inflows

23 MR. LAMPKIN: For the issues that
24 Chevron documented with casing and cement integrity
25 previously in the EMSU, did you correlate any of that

1 to potential communication pathways between the
2 San Andres and the Grayburg?

3 MR. TOMASTIK: No. Those -- those were
4 basically well-integrity issues that they were
5 experiencing in the Grayburg. The way I looked
6 at -- and the way I'm looking at well integrity is
7 from my former career of 25 and a half years as a
8 regulatory person overseeing Class 2 and Class 3
9 injection.

10 That well integrity issue becomes a
11 critical aspect of Class 2 CO2 permitting because of
12 the corrosive nature of CO2 with steel and Portland
13 cement.

14 So the fact that we've had evidence of
15 communication on acid jobs on the back side of pipe
16 and -- and flows to surface, those are serious
17 concerns from moving from a tertiary -- or from a
18 waterflood scenario to a tertiary CO2 scenario from a
19 regulatory standpoint.

20 MR. LAMPKIN: Okay. And then with
21 respect to your comment about fluid level monitoring,
22 wasn't there data presented yesterday showing that
23 fluid levels had risen in the Goodnight wells?

24 MR. TOMASTIK: That -- that has -- was
25 showed yesterday. One of the things that nobody

1 mentioned, every one of those wells were still on
2 vacuum, but what -- those were limited shut-ins other
3 than the piper [ph], which was shut in, I think, for
4 two months, and you could see a drop of about 300
5 feet.

6 Likely if all of those injection wells
7 were shut in for a longer period of time, your static
8 fluid levels would reach an equilibrium, and most
9 likely every one of those wells would be pretty well
10 balanced out at the -- pretty much the same level and
11 would drop.

12 MR. LAMPKIN: Okay. Thank you.

13 Those are all my questions.

14 THE HEARING OFFICER: Thank you,
15 Mr. Lampkin.

16 Mr. Razatos, questions for
17 Mr. Tomastik?

18 MR. RAZATOS: No, I do not.

19 Thank you, Mr. Tomastik, for your time.
20 We appreciate it.

21 THE HEARING OFFICER: All right.
22 Dr. Ampomah, you're up.

23 CROSS-EXAMINATION

24 BY DR. AMPOMAH:

25 DR. AMPOMAH: Thank you, sir, for your

1 testimony today. I do have a couple of questions for
2 you. So we can have your slides up and then also your
3 direct testimony up. I do have couple of questions
4 through that.

5 So we'll start with your Slide
6 Number 3. You described the water encroachment and
7 then the fracture flow. Now, with regards
8 to -- you're saying that fracture system in the
9 Grayburg and San Andres carbonates do not extend
10 hundreds of feet vertically. Do you have any evidence
11 to back this up?

12 MR. TOMASTIK: Again, I -- I looked at
13 Dr. Lindsay's [ph] outcrop photographs that show
14 hundreds of feet of Grayburg with his -- his contact
15 with the San Andres in the Guadalupe Mountains, and
16 there's no evidence of vertical fracture communication
17 extending hundreds of feet in those rocks at the
18 surface.

19 Dr. Lindsay [ph] testified or in his
20 self-affirmed statement that the vertical fracture in
21 the core extended only one to three feet, and there's
22 no evidence of vertical fracturing extending that
23 high. And as Mr. Knights testified and I've
24 testified, vertical fractures will hit a horizontal
25 bedding plane that acts as a barrier to flow and then

1 flow will go horizontal.

2 And that's likely the -- the scenarios
3 that we're seeing not only in the Grayburg, but also
4 in the lost-circulation zones in the San Andres.
5 Those are horizontal permeability zones that have been
6 stopped by a barrier above that.

7 DR. AMPOMAH: And I read that in your
8 direct testimony, so thank you for confirming that.

9 So Ms. Hardy brought up the bubble map
10 of the production history in the Grayburg. Do you
11 recall that?

12 MR. TOMASTIK: Yes.

13 DR. AMPOMAH: So here on your Point
14 Number 4, you are describing where you believe that
15 there is water encroaching into the Grayburg. Now,
16 does this section that you are presenting to the
17 Commission here explains the high water production
18 that we are seeing in isolated wells that was shown in
19 the bubble map?

20 MR. TOMASTIK: Yes. That -- although I
21 believe the one bubble map I saw from Mr. West's
22 testimony actually had volumes on it that actually had
23 showed how much water had been produced. Again, based
24 on the Bureau of Mines 1939 publication, edge water
25 encroachment had been going on since the '30s, mainly

1 from the east, but also from the south or from the
2 west and from the south.

3 But there's -- there's -- you're
4 dealing geologically with a ramp, platform-type
5 system, so water is going to -- as you're
6 depressurizing the -- the Grayburg from primary
7 production, you're going to cone water in from outside
8 lower elevation areas.

9 DR. AMPOMAH: Okay. You know, you make
10 mention of a vacuum. Yeah. You've used that term.
11 And when my other colleague commissioner asked you
12 about the fluid levels, you attributed that nobody
13 talked about the vacuum. I want to talk about the
14 vacuum. How do you define the vacuum?

15 MR. TOMASTIK: Basically vacuum
16 at -- at the surface that the injection fluid is going
17 down the tubing at no pressure other than atmospheric,
18 and sometimes you could even put your hand over the
19 tubing and it will actually suck on your tubing, so
20 it's actually pulling the fluid down the borehole.

21 DR. AMPOMAH: So you are not
22 necessarily referring to the reservoir that the fluid
23 is going in there?

24 MR. TOMASTIK: In the -- in the
25 Goodnight San Andres injection wells, yes.

1 DR. AMPOMAH: But you are not referring
2 to the reservoir itself that is in the vacuum, so it's
3 taking all the fluid that comes in it?

4 MR. TOMASTIK: I -- I
5 mean -- it -- it's under the vacuum system at the
6 surface. And also when -- when Chevron started
7 injection in the EMSU in 1986 and '87 -- you can go
8 through the sundry notices -- most of the injection
9 wells in the Grayburg started under vacuum conditions.

10 DR. AMPOMAH: Do you certainly know the
11 fluid flow path within the San Andres from Goodnight's
12 injection?

13 MR. TOMASTIK: I -- I -- from what
14 we've seen from Mr. Meltzer [ph] and
15 Dr. Trentom's [ph] testimony, the San Andres over that
16 central basin platform is basically an open system.

17 There's really no boundary to
18 horizontal flow from that standpoint, so it -- it's
19 not a closed system, although the injection zone that
20 we're -- that Goodnight is injecting to -- into in the
21 San Andres is a confined aquifer.

22 DR. AMPOMAH: It's a confined aquifer?
23 How does that square up with open system?

24 MR. TOMASTIK: Well, the -- the water
25 is moving laterally out of the system basically.

1 DR. AMPOMAH: To where?

2 MR. TOMASTIK: One of -- one of the
3 other areas of the San Andres maybe where our other
4 production is -- is pulling it in. I -- I mean, that
5 could get into a lot of complex geologic and
6 engineering development.

7 DR. AMPOMAH: Well, did Goodnight did
8 any analysis to prove to the Commission that this is
9 the flow path of the injection?

10 MR. TOMASTIK: That -- I mean -- I
11 mean, you could -- you would have to have multiple
12 wells outside of the EMSU where you had static fluid
13 levels and wells probably would be -- have to be shut
14 in to be able to reach equilibrium to try to develop a
15 potential metric sub-service groundwater flow map of
16 the San Andres.

17 But that would -- that would
18 require -- like I said, I think there's, what,
19 somebody said 60 well -- injection wells and a 5-mile
20 radius. But you have to have the data to be able to
21 map the groundwater flow out of -- out of the system.

22 DR. AMPOMAH: But you've listened to
23 other testimony. Now, do you believe that Empire
24 through their models presented an alternative
25 potential flow path to the Commission?

1 MR. TOMASTIK: A flow path in the
2 San Andres?

3 DR. AMPOMAH: Yes.

4 MR. TOMASTIK: Or a flow path
5 communication with the Grayburg?

6 DR. AMPOMAH: All of it.

7 MR. TOMASTIK: The -- if -- if
8 there -- and -- and Empire's experts have testified
9 that there's communication between the San Andres.
10 If -- if the ROZ is limited to the San Andres, then
11 you have a regulatory confining zone issue, because
12 now you're moving fluid out of the proposed ROZ
13 injection zone.

14 Again, that becomes a regulatory
15 problem, 'cause you're not allowed to migrate fluid
16 out of your confining zone.

17 DR. AMPOMAH: You know, so you're
18 saying that you believe that the San Andres is an open
19 system, but Goodnight's injection is in the closed
20 system? I mean, I don't know how that squares out.
21 But you are saying that the fluid that has been
22 displayed is more or less going horizontally.

23 Now, we've listened to testimonies
24 about fractures even from Goodnights's experts. So do
25 you have any evidence to prove to the Commission that

1 your testimony saying that the fluid path is going
2 horizontally? Taking into consideration all these
3 geological features, is there no potential vertical
4 migration?

5 MR. TOMASTIK: Well, everything that
6 we've seen between the -- the work that Chevron has
7 done with the attempts to squeeze off high
8 permeability flow zones in the Grayburg all seem
9 to -- to relate to horizontal flow. Again, as Mr.
10 Knights testified that he believes also that bedding
11 planes are acting as a barrier.

12 There -- there is a confining zone
13 within the Goodnight SWDs above the injection zone;
14 otherwise, they would not be permitted. You have to
15 have a confining zone that prohibits vertical
16 migration of fluid out of your injection zone.

17 So -- and -- and there's been no
18 evidence other than the core data that supposedly
19 shows a one-to-three-foot vertical fracture. How are
20 we extending vertical fracture height hundreds of feet
21 from Goodnight's injection zone in the San Andres into
22 the Grayburg? We don't -- we don't see that.

23 Now, as I testified, and also in my
24 self-affirmed statement, there is documentation since
25 the 1930s that there were wells drilled deeper into

1 the San Andres. Were those wells properly plugged
2 back? That, we don't know.

3 DR. AMPOMAH: So you said something
4 that I thought was very interesting. You are saying
5 that there's no way Goodnight would have been allowed
6 to inject into the San Andres if there is no caprock
7 or, let's say, any barrier?

8 MR. TOMASTIK: Yes.

9 DR. AMPOMAH: So from all the
10 testimonies that we've listened to throughout -- we
11 are in the third week. Can you show a strat column
12 delineating the well-established barrier that has been
13 presented to the Commission?

14 MR. TOMASTIK: I believe on the -- the
15 C108 permit applications and testimony at that time by
16 Steve Drake, who was the former geologist with
17 Goodnight, that they presented cross-sections showing
18 the -- the barrier zone above their proposed injection
19 zones in their San Andres SWDs.

20 DR. AMPOMAH: And has that been
21 presented to the Commissioner or tendered in as an
22 evidence?

23 MR. TOMASTIK: I suspect Mr. McGuire
24 may be presenting that.

25 DR. AMPOMAH: I'll look forward to

1 that. Thank you.

2 Let's go to your Slide Number 8. While
3 the Slide Number 8 is coming up, I want to ask you.
4 Do you have any changes to your conclusions that
5 you've made or any of the analysis that you've made
6 based on all the testimonies that you've listened to
7 throughout the whole weeks?

8 MR. TOMASTIK: No. I'm -- I'm pretty
9 well affirmed with my conclusions.

10 DR. AMPOMAH: Okay. So you're talking
11 about there's been a lot of wells being drilled into
12 the San Andres being tested and oil produced water.
13 Is that a fair description?

14 MR. TOMASTIK: There have -- have
15 been -- I don't say there's a lot, but there's been a
16 number of wells drilled into the San Andres, yes.

17 DR. AMPOMAH: Do you believe there is
18 any ROZ in the San Andres?

19 MR. TOMASTIK: I think there might be a
20 ROZ in the San Andres directly below the base of the
21 Grayburg, but I've not done any studies on that.

22 DR. AMPOMAH: So when Empire's experts
23 and also even Goodnight's experts, they've
24 all -- they've all presented to the Commission, at
25 least based on the evidence, there is an ROZ. Do

1 you -- does that change your perspective about whether
2 there is existence of ROZ or not?

3 MR. TOMASTIK: Well, as -- as we've
4 heard testimony, the ROZ changed from 400 feet to a
5 1,000 feet, so we -- I do not believe there's an ROZ
6 in the -- the part of the San Andres where Goodnight
7 is injecting in the San Andres.

8 DR. AMPOMAH: Now, within the
9 unitization, is there any distinction between what we
10 call the upper San Andres and the lower San Andres?

11 MR. TOMASTIK: I really haven't got
12 into that. I -- I focus more on the injection zone in
13 the San Andres for the Goodnight wells.

14 DR. AMPOMAH: So let me ask you. Since
15 you -- you discussed about the geochemistry and the
16 impacts, you know, and all of that, why do the
17 regulators ask for water compatibility analysis?

18 MR. TOMASTIK: Basically, I mean -- I
19 mean, the -- the C108 applications require the
20 submittal of your -- your produced water, which has
21 been shown in -- in testimony and then also an
22 analysis of your -- of your fluid within the
23 reservoir.

24 Typically, Oil Conservation Division
25 has required swabbing of the wells to see if there's

1 any -- any commercial or paying quantity oil
2 production. I know that Goodnight performed those, so
3 that's probably where the fluid analysis for the
4 San Andres came from: from their wells.

5 DR. AMPOMAH: So was Goodnight's
6 treated water chemistry and all of that presented to
7 the Commission as part of these hearings?

8 MR. TOMASTIK: In -- in my
9 self-affirmed statement, I -- I went into great detail
10 into how Goodnight is treating their injection fluid
11 prior to injection. There's basically a list of all
12 of the chemical treatments they're doing: scale
13 inhibitors, acid -- acid surfactants. They're using
14 corrosion inhibitors.

15 So in my self-affirm statement, I -- I
16 had got all that information from Goodnight, because
17 that's what I had to see. And most of your Class 2
18 saltwater disposal operators will treat their fluid.
19 Injecting produced water that's untreated or
20 unfiltered typically leads to downhole scaling or
21 plugging of the -- of the reservoir for injection
22 in -- in basically the wellbore.

23 And Chevron basically in their paper
24 that was published made that statement that the
25 scaling that they were seeing, the barium sulfate was

1 occurring within the wellbore and not within the
2 reservoir.

3 DR. AMPOMAH: Okay. Thank you for
4 that. So you do have a regulatory background; right?

5 MR. TOMASTIK: A what?

6 DR. AMPOMAH: Regulatory background?
7 You -- you've helped --

8 MR. TOMASTIK: Over my career, I've
9 done pretty much every aspect of the oil and gas
10 industry. Like I said, I -- I drilled wells, I -- I
11 ran casing, cemented, perforated, hydraulic fracture,
12 sample descriptions. When we weren't drilling, I had
13 a client -- I mean, he had me help plumb up wellheads.

14 I pumped wells, free-flowed. We didn't
15 have pump jacks. We free-flowed wells. So I
16 learned -- I learned a lot in the six -- first six
17 years of my career in the 1980s in oil and gas, and
18 then 25 and a half years of doing Class 2 and Class 3
19 injection permitting and oversight.

20 But I also would go out in the field
21 and witness mechanical integrity tests. I plugged
22 wells, and then I also conducted hundreds of
23 groundwater investigation related to --

24 DR. AMPOMAH: So sorry to interject.
25 You know, the timing. So, you know --

1 MR. TOMASTIK: I -- I have a unique
2 career.

3 DR. AMPOMAH: Okay. I appreciate that.
4 And sorry to interject, but the timing. So I just
5 wanted to know that you have experience in Class 2
6 wells?

7 MR. TOMASTIK: Yes.

8 DR. AMPOMAH: Now, you've established
9 that. Now, let me ask you. For several years of your
10 experience, have you seen any operator that does not
11 have any interest in the unit being allowed to inject
12 into the unit?

13 MR. TOMASTIK: Again, on the -- on the
14 permitting aspect here in -- in New Mexico or Texas, I
15 pretty much focus on doing the -- the geologic
16 analysis. I do look at the induced seismicity
17 potential with my geophysicist.

18 So most of the actual work on a C108
19 here in New Mexico, like I said, was done either by
20 Nate Alleman before he -- he left; and then Oliver
21 Seekins replaced him, and now he's moved on, and Reed
22 Davis is now handling most of that application
23 process.

24 DR. AMPOMAH: Okay. So you are not
25 necessarily involved with regards to whether they can

1 inject or not inject? Is that your testimony?

2 MR. TOMASTIK: Other than if there's a
3 problem well, an area of review, or there's not a
4 confining zone above the injection interval. Those
5 are the kind of things that I look at on the
6 applications.

7 DR. AMPOMAH: Okay. Yeah. So I do
8 have a question that probably I'll hold on for
9 Mr. McGuire about the rights and obligations of unit
10 operators.

11 Section 10 of Empire's Exhibit Number 1
12 that I believe that was presented to us by
13 Mr. Willow [ph] on that, so I do have a question on
14 that. And since you said that you are not involved in
15 whether they have the -- they have the opportunity to
16 inject or not; so if Mr. McGuire is in the room,
17 probably he can be ready for that.

18 Section 10 of the -- that is going to
19 be the unitization documentation. Under the last
20 Section 10, there is a rights and obligations of the
21 unit operator. So I'll move on.

22 Now, on Number 89 of your -- I think
23 we've talked about the vacuum, how you described the
24 vacuum. So I'll move on from that one.

25 Now, 91 of your direct -- that would be

1 page 28 if Mr. Rankin can bring that up. Page 28,
2 that will be item number 91.

3 MR. RANKIN: I apologize, Dr. Ampomah.
4 I was momentarily not paying attention. Direct
5 testimony?

6 DR. AMPOMAH: Yes.

7 MR. RANKIN: Page 28?

8 DR. AMPOMAH: Page 28, Item 91.

9 So on Item 91, you made a lot of
10 important statements here, and I just want to know,
11 are you -- and I don't want to read all of that. But
12 is it based on someone's testimony? Or is it based on
13 your own analysis?

14 MR. TOMASTIK: This is based on my
15 analysis of a number of existing EMSU Grayburg
16 completions and looking at the lower-most perforation
17 or the total depth of the open hole and the depth
18 below those production areas within the Grayburg to
19 the top of the perforations in the Goodnight Midstream
20 San Andres saltwater disposal wells. And those are
21 anywhere from 285 feet to 463 feet deeper than the
22 production from the Grayburg.

23 DR. AMPOMAH: So, sir, you said that
24 additionally, according to Steve Drake's [ph]
25 self-affirmed statement and cross-section exhibits

1 from 2002, there is not only a low porosity and a low
2 permeability barrier that separates the producer zone
3 in the Grayburg from the disposal zone in the
4 San Andres. Do you have evidence to support this?

5 MR. TOMASTIK: I relied on those
6 exhibits.

7 DR. AMPOMAH: And is this exhibits in
8 evidence as presented to the Commission?

9 MR. TOMASTIK: I -- I believe
10 they -- they were probably presented within Nate
11 Alleman's C108 exhibits, and it's possible Preston
12 McGuire may present them also.

13 DR. AMPOMAH: So are you saying
14 all -- so Mr. Knights testified about the barriers,
15 whether there's going to be a communication. He
16 showed some barrier. So if there is an established
17 barrier, then why did he not show the Commission? Or
18 you said Mr. McGuire will probably show us?

19 MR. TOMASTIK: That's what we're
20 assuming, yes.

21 DR. AMPOMAH: Okay. I'll move on to
22 Section 101, Item 101. So on Item 101, you are more
23 or less alluding to Dr. Lindsay's [ph] PhD
24 dissertation. Let me ask. Did you -- again, also did
25 you only depend on the analysis to substantiate this

1 as you are relying upon as part of your testimony?

2 MR. TOMASTIK: I -- I did not do my own
3 analysis, but -- but I did find that Dr. Lindsay [ph],
4 some of his self-affirmed statement or testimony
5 contradicted with statements that he had in his PhD
6 dissertation.

7 DR. AMPOMAH: So let's move on to 103.
8 You made a very important statement there, which I
9 really want to know more about it. So on
10 Item 103 -- I'm reading from line 3 -- you said that
11 Goodnight Midstream's SWD injection fluids into the
12 San Andres would not migrate upward, since the
13 San Andres formation pressure is now under pressured.

14 Do you know whether the San Andres has
15 ever been a normal-pressured reservoir?

16 MR. TOMASTIK: That, I don't know. We
17 would need -- and, I -- I mean, obviously maybe based
18 on the Rice work that they had presented from the well
19 from 1959, there was indication that it's been on
20 vacuum since. That's an indication that the
21 San Andres has been under-pressured for -- I guess for
22 time at that point.

23 With the withdrawal of 340 million
24 barrels, I'm sure it helped bring the pressure down
25 even more.

1 DR. AMPOMAH: Yeah. But -- so when you
2 say "now," so is it your testimony that you believe
3 that it has -- it has probably in the past been a
4 normal-pressured reservoir?

5 MR. TOMASTIK: I -- I mean, everything
6 that we've -- based on what data that we have on the
7 San Andres before the water flooding and before the
8 use of the San Andres for makeup water, I did not have
9 that -- that data from the Rice well when I did this,
10 so I did not know that it was under pressurized at
11 that point.

12 DR. AMPOMAH: Okay. And, you know,
13 Item 104, you went ahead and said that in order for
14 the San Andres reservoir to even start
15 repressurization all of the pore space in the
16 reservoir would need to be refilled to accommodate the
17 reconstructed estimate that over 340 million barrels
18 of water has been redrawn from the San Andres
19 formation within the EMSU alone.

20 My question to you is, has Goodnight
21 done any analysis to account for how the pressure is
22 going to change with the existing injection wells and
23 then also the proposed injection wells?

24 MR. TOMASTIK: That, I don't know.
25 Preston McGuire would be the person to ask that

1 question of.

2 DR. AMPOMAH: Do you know that Empire
3 did that analysis and presented it to the Commission?

4 MR. TOMASTIK: I believe there was a
5 slide presented showing the depressurization during
6 the withdrawal of the 300 million -- 340 million
7 barrels of water and then the start of
8 repressurization and then the dash line projecting out
9 to 2030.

10 The problem with that graph is Empire
11 is using the injection volumes from the applications
12 there. They -- they were estimating, I think, 323
13 million barrels a day. There is no Class 2 injection
14 well that I'm familiar with that injects continuously
15 the same amount day in and day out.

16 Class 1, where you have an industrial
17 waste product, that's 24/7, 365 days a year. You're
18 injecting constantly. On Class 2, it's based on
19 supply and demand.

20 When you -- when you have horizontal
21 well flowbacks that start, obviously you're going to
22 have a big increase in injection volumes. But when
23 that's slows down, then injection volume slows down.
24 So it's not a continuous day and day out at that
25 injection rate.

1 DR. AMPOMAH: And I'm glad that you
2 were able to recollect that -- that testimony or even
3 that exhibit, 'cause I don't want to pull it up to
4 delay our time here.

5 Now, you talked about the methodology
6 that Empire used. You told me that the water has been
7 displaced -- that water that has been injected has
8 been displaced. And I asked you, "Do you know where
9 it's going?" You said, "No" --

10 MR. TOMASTIK: Well, again, as my
11 statement above, like, that's why you do a waterflood,
12 you know, is -- is if you've taken fluid out of the
13 reservoir, you have to refill the pore spaces, as
14 you're aware.

15 So if we've taken 340 million barrels
16 out, you really have to refill that fluid before you
17 start seeing a pressure increase, and that's how
18 waterflood operates.

19 And that's what we see in the Grayburg.
20 The Grayburg was down to about 200 pounds when the
21 waterflood initiated, and -- and that, you know, by
22 refilling the -- the reservoir is how waterflood works
23 and how you repressurize the reservoir and move the
24 oil front to your producing wells.

25 And based on the data that I looked at

1 from the Oil Conservation Division on the
2 waterflooding in the Grayburg, they've run over a
3 billion barrels through that water flood; so --

4 DR. AMPOMAH: Well, so based on the
5 methodology that Mr. West presented to us, I mean, he
6 was just being generous in such a way that he said:
7 "Okay. You take one fluid. You put it in there." So
8 he was using the permitted rates that Goodnight, you
9 know, do have, and then even the newer ones as well
10 that they are requesting.

11 He used that to do more or less
12 material balance. You put this one in; you take this
13 one out. So I'm not sure what -- so is it your
14 testimony that Goodnight is going to present to us an
15 alternative as to how they view how the pressure is
16 going to build up as a result of their injection? Is
17 that your testimony?

18 MR. TOMASTIK: Again, I'm not sure
19 exactly how Mr. McGuire is going to present the
20 testimony on that. But like I just testified to, you
21 cannot use an injection rate on a permit as a
22 continuous injection rate for a Class 2 well. That
23 never happens. They -- they go up and down based on
24 supply and demand.

25 So one day I might be injecting 40,000

1 barrels, and the next day I'm injecting three, because
2 I don't have the supply of water to get rid of at that
3 point.

4 DR. AMPOMAH: So, sir, let me ask you.
5 Assuming we have one single pool, San Andres, and then
6 Goodnight is injecting -- they do have their
7 permit -- that they are injecting, and another company
8 comes in and also wants to inject, is Goodnight not
9 going to use the permitted injection rate to contest
10 whether they are going to have interference?

11 MR. TOMASTIK: As -- as far as I know,
12 I've not -- not seen any evidence from Goodnight that
13 there's well interference on any of the wells at this
14 point.

15 DR. AMPOMAH: Okay. Let me -- I was
16 just putting a hypothetical case, you know, because
17 you are saying that the rates that NMOCD puts on
18 permits are not relevant. Is that your testimony?

19 MR. TOMASTIK: Well, that -- no.
20 You -- you have an area of review that limits the
21 spacing of your injection wells. I mean, so
22 you're -- you're not putting injection wells right
23 next to each other.

24 DR. AMPOMAH: Well, you use your
25 injection rate to delineate your area of review?

1 MR. TOMASTIK: No -- no.

2 That's -- that's not what that's based on.

3 The area of review is -- is based on
4 either a fixed radius that is part of the UIC primacy
5 program, or it's based on a zone of endangering
6 influence calculation, which I don't -- have not seen
7 in New Mexico, anybody actually going in and doing a
8 zone of endangering influence calculation, which is
9 basically a modified Theis [ph] equation, which is
10 based on homogeneous rocks and -- and that -- that
11 really doesn't work in the geologic realm. So -- so
12 basically your area of review is based on a fixed
13 radius.

14 Now, there has been changes in New
15 Mexico to the Delaware Mountain Group where you're now
16 moving a mile between two wells due to the potential
17 of not well interference between the injection well,
18 but pressuring the formation up that would impact
19 producing wells drilling through the injection
20 interval.

21 DR. AMPOMAH: You know, I will hold it
22 on there, and then probably we will have more
23 discussion with Mr. McGuire, so I'll just leave it
24 there.

25 Now, just to confirm, on your Item 105,

1 you talk about -- 105, you talk about these verticals.
2 So you describe that there is 285 feet to 463 below
3 the lowest producing Empire's Grayburg oil production.
4 I know you've talked about this, but I just want to
5 put it on record.

6 You're saying that this vertical
7 separation comprised of tight intervals with low
8 porosities and higher resistivities with anhydrate
9 immediately above the top of the injection zone would
10 serve as an additional barrier to vertical fluid
11 migration into the Grayburg formation.

12 My question to you is, do you have any
13 evidence where you've mapped what you are alluding
14 here and showing to the Commission?

15 MR. TOMASTIK: Again, that is based on
16 the -- the cross-section work that Steve Drake [ph]
17 did in 2022 for -- with the submittal of the
18 applications.

19 DR. AMPOMAH: And Mr. McGuire will show
20 us?

21 MR. TOMASTIK: Yes.

22 DR. AMPOMAH: Okay. Thank you, sir,
23 for your time.

24 THE HEARING OFFICER: Thank you,
25 Dr. Ampomah.

1 Redirect examination, Mr. Rankin?

2 REDIRECT EXAMINATION

3 BY MR. RANKIN:

4 MR. RANKIN: Mr. Tomastik, do you
5 recall questions from Ms. Hardy regarding whether or
6 not the produced water that Goodnight is disposing
7 would contain fracture fluids from the Delaware Basin?

8 MR. TOMASTIK: Yes.

9 MR. RANKIN: Do you recall in your
10 review of the history of well completions and
11 production in the EMSU whether or not the EMSU
12 operators in the Grayburg also fractured their wells?

13 MS. HARDY: I'm going to object to the
14 question. I think that Mr. Rankin is testifying about
15 information that Mr. Tomastik has not testified about.
16 I don't think you can put words in the witnesses
17 mount.

18 THE HEARING OFFICER: Overruled.

19 MR. RANKIN: Mr. Tomastik, I didn't get
20 the chance to finish my question. But you reviewed
21 the well completion history of the operators in the
22 EMSU and the Grayburg; correct?

23 MR. TOMASTIK: Yes.

24 MR. RANKIN: Did those operators
25 fracture their wells?

1 MR. TOMASTIK: Yes. There's not only
2 hydraulic fracturing that's been performed in the
3 Grayburg, but also in the Penrose and the Queen and
4 the Yates.

5 MR. RANKIN: Ms. Hardy asked you about
6 strontium scaling. Do you recall those questions?

7 MR. TOMASTIK: Yes.

8 MR. RANKIN: Did Mr. West address
9 strontium scaling in either his direct testimony or
10 his rebuttal testimony?

11 MR. TOMASTIK: I believe he mentioned
12 it. I don't know if it was in testimony. But
13 I've -- I've seen no indication of strontium sulfate.
14 Barium sulfate seems to be the main scale problem that
15 has been addressed in the EMSU.

16 MR. RANKIN: Do you recall questions
17 from the Commission regarding the potential direction
18 or pathway of flow in the San Andres?

19 MR. TOMASTIK: Yes. And -- and that's
20 just totally relying on that -- that Jones paper from
21 2016.

22 MR. RANKIN: Well, actually I -- I
23 think what I was asking you about was the Commission's
24 questions to you about which direction the flow in the
25 San Andres may go; right? Which direction it is

1 going?

2 MR. TOMASTIK: Oh, horizontally
3 basically, and it's an open system.

4 MR. RANKIN: Okay. I'm going to ask
5 you a couple questions about that.

6 MR. TOMASTIK: Yes.

7 MR. RANKIN: But do you recall
8 Dr. Trentom's [ph] testimony about the ROZ, the
9 creation of the ROZ in the EMSU through the San Andres
10 fairway?

11 MR. TOMASTIK: Yes.

12 MR. RANKIN: And do you recall that
13 Dr. Trentom [ph] identified the flow pathway in the
14 San Andres through that fairway?

15 MR. TOMASTIK: Yes.

16 MR. RANKIN: Which direction was that
17 flow?

18 MR. TOMASTIK: To the east mainly, some
19 to the south.

20 MR. RANKIN: Okay. So looking at this
21 chart where he's identified the EMSU and AGUB, which
22 direction is that pathway, that flow?

23 MR. TOMASTIK: It looks -- in the EMSU,
24 it looks like he has it going from the west to east
25 and then to the south.

1 MR. RANKIN: Okay. And through
2 the -- from the EMSU, which direction is it going?

3 MR. TOMASTIK: South.

4 MR. RANKIN: You referred to, I
5 believe, Mr. West's exhibit where he showed the
6 volumes of water. He did a mass balance of volumes of
7 water injected and withdrawn from the San Andres in
8 and around the EMSU. Do you recall that?

9 MR. TOMASTIK: Yes.

10 MR. RANKIN: And those volumes, do
11 those volumes equate to pressure? Is there an
12 equation -- I mean, you don't know what the effect on
13 pressure is going to be based those --

14 MR. TOMASTIK: I -- I didn't look at
15 that, no.

16 MR. RANKIN: But did Mr. West look at
17 that in that --

18 MR. TOMASTIK: I believe he did.

19 MR. RANKIN: In that exhibit, was it
20 just addressing volumes? Or was it also addressing
21 pressures?

22 MR. TOMASTIK: I recall -- I definitely
23 remember volumes. I don't remember if there was
24 pressure on there or not. It may have been.

25 MR. RANKIN: Okay. But you don't

1 recall as you sit here today?

2 MR. TOMASTIK: No. I'd have to see
3 the -- the diagrams.

4 MR. RANKIN: The exhibit speaks for
5 itself that we're referring to?

6 MR. TOMASTIK: Yes.

7 MR. RANKIN: Okay. Mr. Hearing
8 Officer, I have no further questions for Mr. Tomastik
9 at this time.

10 THE HEARING OFFICER: Okay. Thank you.
11 It's 11:41. I'm assuming you have one last witness,
12 Mr. McGuire; is that correct?

13 MR. RANKIN: Mr. Hearing Officer, we're
14 going to do Mr. David White today because of the time
15 frames. We don't have a lot of time to do Mr. McGuire
16 today. We can finish Mr. White, and that we would
17 give us uninterrupted time for Mr. McGuire on
18 May 19th.

19 THE HEARING OFFICER: Mr. White?

20 MR. RANKIN: Yeah.

21 THE HEARING OFFICER: I don't have him
22 on your list.

23 MR. RANKIN: Mr. White is our rebuttal
24 witness to address the Capitan issues. He's on our
25 list as a rebuttal witness.

1 THE HEARING OFFICER: Okay. All right.
2 Empire's on board with that.

3 Let me ask you, Mr. Rozatos. What
4 would be the Commission's preference on this?

5 MR. MOANDER: So, Mr. Hearing Officer,
6 I've got an issue. Are we releasing this witness?
7 That's first question, and then I got an issue I do
8 want to bring up, but I want to do these in order.

9 MR. RAZATOS: That was going to be my
10 question, too, Mr. Hearing Officer. Are we releasing
11 this witness?

12 THE HEARING OFFICER: Any objection to
13 that, Empire?

14 MS. HARDY: No objection.

15 THE HEARING OFFICER: Mr. Tomastik,
16 thank you for your time. You're free to go or stay.
17 All right. Okay.

18 MR. MOANDER: I do need to bring this
19 up now, Mr. Hearing Officer. So in
20 Mr. Tomastik's -- it's both his rebuttal and his
21 amended rebuttal -- OCD needs to move to strike
22 paragraphs 28 through 39 and exhibits C23 through C27.
23 Those were not testified to in any way today.

24 And OCD's position is they are highly
25 prejudicial. They were not brought up on direct, and

1 so were not a subject of cross-examination. My
2 concern here is if this were before a jury, it would
3 be very easy to give an instruction to the jury to
4 disregard something like that.

5 In this instance, the OCD -- or the OCC
6 has seen these. In this case, we've had a couple
7 months where these documents have been out floating.
8 They've been filed.

9 And I've got a concern at this point
10 that it -- I don't have any assurances or what I would
11 maybe otherwise describe as a corrective instruction
12 that could be issued to basically instruct the jury or
13 a decision maker that these were not actually
14 statements that were put into evidence, nor were the
15 exhibits.

16 And I would like to see some type of
17 remedy crafted for that, if possible.

18 THE HEARING OFFICER: Okay. Well, can
19 we see what we're talking about here? Can you bring
20 them up?

21 MR. MOANDER: Well, my concern is if I
22 put it up, I'm actually just making my situation
23 worse --

24 THE HEARING OFFICER: Okay. Let's hear
25 from Mr. Rankin.

1 MR. RANKIN: Mr. Moander, can you tell
2 me what paragraphs you're talking about?

3 MR. MOANDER: It would be
4 paragraphs -- and this is for both the original
5 rebuttal and the amended -- paragraphs 28 through 39
6 and Exhibits C23 through C27.

7 MR. BECK: Okay. Mr. Hearing Officer,
8 weren't these admitted into evidence the beginning of
9 Mr. Tomastik's presentation of evidence?

10 THE HEARING OFFICER: Well, that's a
11 good question, Mr. Beck.

12 Mr. Rankin, were those moved into
13 evidence?

14 MR. RANKIN: They were.

15 MR. MOANDER: And I was not entitled to
16 the knowledge that that would not be covered until
17 pretty much the end of testimony, so I had no ability
18 to -- I would've had no basis to object at that point.
19 I was only alerted to this at the end -- essentially
20 the end of his direct --

21 THE HEARING OFFICER: Well, you
22 could --

23 MR. RAZATOS: Mr. Rankin, before you
24 speak. Mr. Rankin, you're sharing your screen. Since
25 there is that concern, you may want to stop sharing

1 your screen.

2 MR. MOANDER: I mean, Mr. Hearing
3 Officer, I had no -- there was no way of me knowing
4 this until those had already been entered into
5 evidence; otherwise, I would've quite obviously
6 objected. And this is the only remedy I'm left with.

7 THE HEARING OFFICER: Well, weren't
8 these provided to OCD by Goodnight --

9 MR. MOANDER: Absolutely.

10 THE HEARING OFFICER: -- for the
11 hearing?

12 MR. MOANDER: They were.

13 THE HEARING OFFICER: All right. And
14 then you heard Mr. Rankin move the exhibits into
15 evidence?

16 MR. MOANDER: Absolutely. But at this
17 point --

18 THE HEARING OFFICER: And you didn't
19 object?

20 MR. MOANDER: Of course not, because I
21 didn't realize there would be no testimony. I
22 couldn't even examine. I would've been objected to if
23 I had started examining that witness about --

24 THE HEARING OFFICER: Yes. But your
25 remedy was to try and make the record and then rebut

1 Mr. Rankin's objection; instead, you didn't question
2 the witness about it, and you're asking me to strike
3 the testimony.

4 MR. MOANDER: Of course I wouldn't have
5 asked the -- I would not have asked a question about
6 something that was totally outside the scope at that
7 point of the direct.

8 THE HEARING OFFICER: It's not outside
9 the scope of the exhibits that were presented --

10 MR. MOANDER: All right. Well, I'm
11 making my record on this, because it's prejudicial
12 regardless.

13 THE HEARING OFFICER: All right.

14 MR. MOANDER: So I guess we got one
15 more appellate issue we'll be dealing with in a few
16 weeks.

17 THE HEARING OFFICER: Okay. I'm not
18 going to strike the evidence. Anything further,
19 Mr. Moander?

20 MR. MOANDER: No, Mr. Hearing Officer.

21 THE HEARING OFFICER: Okay. All right.
22 So let's see. That brings us back to the issue of
23 timing. It's now 11:47.

24 Mr. Razatos, so what are your thoughts?
25 Should we break now and come back a little earlier

1 than 1:15 for the next witness?

2 MR. RAZATOS: Yeah. Why don't we break
3 now, and we'll come back? Let's do 1:05 just to give
4 some time, 'cause one o'clock sometime gets a little
5 rough for people. So we'll be back at 1:05.

6 THE HEARING OFFICER: All right.
7 Great. With your next rebuttal witness, Mr. White?

8 MR. RANKIN: Mr. White. We don't have
9 a Mr. Green today, but sometimes we've had that
10 situation. We've had a Mr. Green and Mr. White, but
11 today it's just Mr. White. And hopefully we'll get
12 done with him by the end of the day.

13 THE HEARING OFFICER: Thank you,
14 Mr. Rankin.

15 (Off the record.)

16 THE REPORTER: We are back on the
17 record. The time is 1:06 p.m.

18 THE HEARING OFFICER: Okay.
19 Mr. Rankin, you have another witness, David White; is
20 that correct?

21 MR. RANKIN: Thank you, Mr. Hearing
22 Officer. Yeah. Mr. David White will be our next
23 witness.

24 THE HEARING OFFICER: And I'm assuming
25 he's remote? I don't --

1 MR. RANKIN: No. Actually, Mr. White
2 is here. He drove from Albuquerque this morning.

3 THE HEARING OFFICER: All right. I
4 thought I saw a new face in the audience.

5 Mr. White, if you'll raise your right
6 hand.

7 WHEREUPON,

8 DAVID WHITE,
9 called as a witness and having been first duly sworn
10 to tell the truth, the whole truth, and nothing but
11 the truth, was examined and testified as follows:

12 THE HEARING OFFICER: Thank you, sir.
13 Mr. Rankin?

14 MR. RANKIN: Thank you, Mr. Hearing
15 Officer.

16 EXAMINATION

17 BY MR. RANKIN:

18 MR. RANKIN: Mr. White, good afternoon.
19 Will you please state your full name for the record.

20 MR. WHITE: David Allen White.

21 MR. RANKIN: By whom are you employed
22 and in what capacity?

23 MR. WHITE: I am employed by Geolex,
24 Incorporated. I serve as the vice president and
25 senior geologist.

1 MR. RANKIN: And have you previously
2 testified before the Commission?

3 MR. WHITE: I have.

4 MR. RANKIN: Are you familiar with
5 Goodnight's application filed in these consolidated
6 cases?

7 MR. WHITE: I am.

8 MR. RANKIN: Have your credentials as
9 an expert witness in saltwater disposal and acid gas
10 injection, well permitting and design, petroleum
11 geology, hydrogeology, seismic interpretation, and
12 fault-slip probability modeling been accepted and made
13 a matter of record before the Commission?

14 MR. WHITE: Yes.

15 MR. RANKIN: Did you conduct an
16 independent review of the geology and stratigraphy in
17 the area of Goodnight Midstream's SWDs within the
18 EMSU?

19 MR. WHITE: Yes, I did.

20 MR. RANKIN: And did you also
21 investigate the relationship between the San Andres's
22 Formation and the geologic formations adjacent to and
23 overlying it?

24 MR. WHITE: Yes, I did.

25 MR. RANKIN: And did you do a peer

1 review of Goodnight's analysis of its updated regional
2 evaluation of the San Andres Formation groundwater
3 characteristics?

4 MR. WHITE: Yes, I did.

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

7 MR. WHITE: No.

8 MR. RANKIN: Do you adopt the testimony
9 in the self-affirmed rebuttal statement marked as
10 Exhibit I as your own sworn testimony today?

11 MR. WHITE: I do.

12 MR. RANKIN: At this time, Mr. Hearing
13 Officer, I would move -- or rather tender Mr. White as
14 an expert witness in saltwater disposal and acid gas
15 injection, well permitting and design, petroleum
16 geology, seismic interpretation, and fault-slip
17 probability modeling.

18 THE HEARING OFFICER: That's a long
19 list.

20 MR. RANKIN: It is.

21 THE HEARING OFFICER: Empire, any
22 objection?

23 MR. PADILLA: No objection,
24 Mr. Examiner.

25 THE HEARING OFFICER: Thank you,

1 Mr. Padilla.
2 OCD?
3 MR. MOANDER: No objection.
4 THE HEARING OFFICER: Rice?
5 MR. BECK: No objection as long as I
6 get a list of what those things are afterwards.
7 MR. RANKIN: I didn't want Mr. White to
8 be downgraded, because he's got a list. And then I
9 want to make sure that every time he appears, he's
10 always qualified on that list; so --
11 THE HEARING OFFICER: Okay. Fair
12 enough.
13 Pilot?
14 MR. SUAZO: No objections.
15 THE HEARING OFFICER: He'll be so
16 recognized.
17 MR. RANKIN: At this time, also,
18 Mr. Hearing Officer, I move the admission into
19 evidence of Mr. White's rebuttal testimony in Exhibit
20 I, Attachment 1, and Exhibits I one through I13.
21 THE HEARING OFFICER: Empire, any
22 objection?
23 MR. PADILLA: No objection, Mr.
24 Examiner.
25 THE HEARING OFFICER: OCD?

1 MR. MOANDER: I'm going to object to
2 this to be admitted until the completion of his full
3 examination to confirm that it actually reflects his
4 testimony.

5 THE HEARING OFFICER: Okay.

6 Mr. Beck?

7 MR. BECK: No objection.

8 THE HEARING OFFICER: And Pilot?

9 MR. SUAZO: No objection.

10 THE HEARING OFFICER: All right. We'll
11 reserve -- well, I'm not sure how to -- I'm going to
12 admit the exhibits over OCD's objection.

13 OCD, you're going to need to keep track
14 of what is and isn't covered in that objection -- I
15 mean in the exhibits. And, you know, you're welcome
16 to cross-examine on all of it, including stuff that
17 wasn't covered; okay?

18 MR. MOANDER: I'm acutely aware of
19 that, Mr. Hearing Officer. Thank you, though.

20 THE HEARING OFFICER: All right.

21 Mr. Rankin?

22 MR. RANKIN: I guess if I -- depending
23 on what happens with his objection, I just wanted to
24 reserve the right to respond to anything, because my
25 understanding has been that we're simply providing a

1 summary opinion and/or any additional responses to
2 testimony provided. So yeah.

3 THE HEARING OFFICER: Absolutely.
4 You'll have the right to respond. I guess, you know,
5 if you tender an exhibit from an expert witness that
6 has listed areas that -- you know, of testimony and
7 information that are covered, basically you're opening
8 the door, in my view, to cross-examination on that,
9 whether you examine the witness on direct on those
10 points or not.

11 MR. RANKIN: I understand. That's my
12 understanding as well.

13 THE HEARING OFFICER: Okay. Good.

14 DIRECT EXAMINATION

15 BY MR. RANKIN:

16 MR. RANKIN: Mr. White, did you prepare
17 summary slides reflecting your analysis and opinions?

18 MR. WHITE: I did.

19 MR. RANKIN: I'm going to move to these
20 slides. I'll walk you through them. And if you
21 would, Mr. White, at a high level just review for the
22 commission -- one second. Not working. Give us an
23 explanation of what you did with -- your analysis was
24 with respect to the stratigraphic analysis and what
25 are your opinions based on your work.

1 MR. WHITE: Yeah. So as we'll -- we'll
2 cover in -- in some of the slides in this overview
3 presentation, one of our objectives was to review the
4 stratigraphy of -- of what we'd refer to as the
5 project area, the area in and around Goodnight's SWD
6 injection wells for the purposes of confirming
7 stratigraphic relationships that have been delineated
8 in -- in regional stratigraphic models.

9 To provide a little bit of overview in
10 the slide that's currently shown, we summarize
11 information relevant and opinions relating to that
12 stratigraphic analysis, first being that Goodnight's
13 existing and proposed wells are located on the western
14 edge of the central basin platform, which to the west
15 transitions into the Delaware Basin.

16 Strata of the Capitan Reef and the Goat
17 Seep are not present or have not been identified in
18 Goodnight's well locations and the San Andres margin
19 and Capitan Reef complex from our stratigraphic
20 analysis appear to be separated laterally by about two
21 to 2.6 miles.

22 In reviewing regional stratigraphic
23 models and -- and as demonstrated by local well
24 control, we interpret that the -- and confirm that the
25 San Andres formation is not stratigraphically or

1 temporarily equivalent to the Capitan Reef Complex.

2 Down towards the basin, San Andres
3 shelf facies, which are utilized as -- as saltwater
4 disposal injection zone grade to slope carbonates and
5 basinal equivalent strata.

6 Specifically the San Andres is
7 more -- is correlative to the lower Cherry Canyon and
8 Brushy Canyon, members of the Delaware Mountain Group,
9 all of which, as we'll see, underlie the Capitan Reef
10 Complex.

11 The San Andres formation in general
12 reflects cyclic deposition of shallow marine
13 carbonates and fore-slope carbonates, which grade, as
14 we mentioned, into the deeper basin to fine-grained,
15 low-porosity, and low-permeability slope carbonates
16 and further to tight silt stones, shales in some
17 instances, and fine sandstones further from the shelf
18 basin -- shelf-edge and basin-equivalent strata.

19 Porosity within the San Andres
20 Formation, as I think some of the testimony has -- has
21 mentioned at times in this case, is generally
22 facies-specific. As sediments transition basin-ward
23 to more slope fine-grained carbonates, we see a
24 general diminishment of porosity from that
25 shelf-to-slope transition and fore-slope environments.

1 And ultimately facies tracks,
2 and -- and as shown in some of the work of other
3 authors, ultimately preserves porous and non-porous
4 zones in a particularly torturous way.

5 MR. RANKIN: Just for clarification,
6 Mr. White, I think I heard you say "temporarily
7 equivalent," but I think you meant to say
8 "temporally"?

9 MR. WHITE: Temporally. That's
10 correct.

11 MR. RANKIN: Thank you. Explain what
12 this next image shows and how it relates to your
13 stratigraphic analysis.

14 MR. WHITE: So as I mentioned, what
15 we -- one of our objectives was ultimately confirm
16 results of regional stratigraphic models that are more
17 modern and are commonly presented in -- in literature
18 and -- and what we view as being -- reflecting the
19 best understanding of stratigraphic relationships.

20 This slide shows work by multiple
21 authors, including Charlie Kerans [ph], which is
22 presented in recent conferences and literature and
23 would be one of the most widely accepted stratigraphic
24 models.

25 In this model, which as you can see

1 from some of the annotations, is an exhibit that has
2 been submitted already as part of this case by other
3 experts. It shows the has annotations for the
4 Grayburg formation as well as the San Andres
5 formation.

6 And my apologies that that some of the
7 detailed information in this is probably a little
8 difficult to read.

9 But ultimately showing the Grayburg
10 formation being stratigraphically equivalent to the
11 Goat Seep and Bell Canyon geologic intervals as it
12 moves from shelf to basin sediments, whereas the San
13 Andres is stratigraphically equivalent to the Brushy
14 Canyon and the Cherry Canyon portion of the
15 stratigraphy.

16 MR. RANKIN: And just for
17 clarification, Mr. White, the additional annotations
18 here were inserted by Mr. McGuire; correct?

19 MR. WHITE: I believe that's correct,
20 yes.

21 MR. RANKIN: Anything further on this
22 slide?

23 MR. WHITE: No. Only to that effect
24 that some of the -- the text on the diagram itself is
25 in accordance with those annotations.

1 MR. RANKIN: Okay. Explain what this
2 next graph shows and where it came from and what you
3 did to annotate or change it in any way.

4 MR. WHITE: Absolutely. And this
5 is -- what is shown in here is -- is a more simplified
6 stratigraphic model that has similar interpretations
7 of the relation -- the stratigraphic relationships
8 published as noted there in Mellum and Shoal [ph],
9 which, again, in a more simplified way and -- and
10 probably easier to read, shows the stratigraphic
11 relationships of the Grayburg formation adjacent to
12 the Goat Seep Formation and Bell Canyon members as
13 well as the San Andres and -- and Cherry Canyon tongue
14 being equivalent to the Cherry Canyon and Brushy
15 Canyon Formations.

16 Now, what was modified from this
17 diagram was the portion of the diagram to the left of
18 the vertical red bar. The original publication did
19 not include the San Andres. But as we're using this
20 as a means to more clearly show those relationships,
21 that area was filled in -- in accordance with the
22 stratigraphic relationships shown in the Kerans [ph]
23 model.

24 MR. RANKIN: Anything further on this?

25 MR. WHITE: No.

1 MR. RANKIN: Okay. In this next graph
2 here or slide here, explain what these cross-section
3 lines are and how they relate to your analysis that
4 you're going to address in the subsequent slides.

5 MR. WHITE: Sure. In the general
6 location map shown to the right, we have wells in the
7 greater project area plotted as well as the transect
8 lines of four cross-sections, which were evaluated
9 to -- with the -- the primary objective of
10 confirming -- or with an objective of confirming that
11 regional stratigraphic model interpretations are what
12 is observed and the relationships of the San Andres
13 and the Capitan Reef Complex are in agreement with
14 those regional interpretations.

15 MR. RANKIN: Anything further on this
16 slide?

17 MR. WHITE: No.

18 MR. RANKIN: Next slide here, is this
19 one of the cross-section lines that you showed on the
20 previous map?

21 MR. WHITE: That's correct.

22 MR. RANKIN: Will you review what this
23 shows in your analysis?

24 MR. WHITE: Yes. And -- and this is
25 one of the cross-sections from the written testimony

1 that was submitted previously. This cross-section is
2 cross-section T1 through T2 -- T1 prime, which would
3 be the northernmost cross section in the location map
4 on the previous slide.

5 And just to make sure everybody's clear
6 with this, the cross-sections move from east to west
7 or towards the basin, such that for clarity of -- of
8 reviewing them and comparison to regional models, they
9 are both oriented in the same way.

10 So what we see as we move from the left
11 side of the cross-section, you see various colored
12 lines connecting well log information, in which
13 various geologic formations have been identified.

14 The interval that is a matter of this
15 hearing, the San Andres formation, has been
16 illustrated with the -- the background and -- and
17 annotation for disposal zone.

18 Where we interpret the transition of
19 the San Andres into various basinal-equivalent facies
20 or slope-to-basin facies have been illustrated with
21 brown and various infilled backgrounds.

22 MR. RANKIN: And just to be clear, Mr.
23 White, if I'm looking at this from -- on the left side
24 is east and the right side is west; correct?

25 MR. WHITE: That is correct. Moving

1 from shelf to basin environments.

2 MR. RANKIN: And that's true for each
3 of the following cross sections; right? Is that true
4 for each of the following --

5 MR. WHITE: That would be -- that would
6 be correct. However, for -- for the purposes of -- of
7 this overview presentation, this is the only cross
8 section that is included in this presentation.

9 MR. RANKIN: Got it.

10 MR. WHITE: However, the other
11 cross-sections that were shown in the location map are
12 included in the written testimony.

13 MR. RANKIN: Thank you. Okay. What
14 does this next slide show and, again, how does it
15 relate to your analysis regarding es stratigraphy in
16 the area?

17 MR. WHITE: Could we -- could we also
18 go back to the previous slide so I can make one more
19 kind of description?

20 MR. RANKIN: Oh, yeah.

21 MR. WHITE: So overall as we look at
22 the cross-section, what we interpret is that the
23 stratigraphy and through the analysis of -- of other
24 cross sections as we moved from basin -- or from shelf
25 to basin, north to south across the project area is

1 that we do see results that are in agreement with
2 regional stratigraphic models where
3 Delaware Basin-equivalent strata are -- are
4 stratigraphically equivalent to San Andres Formation
5 in the way of the Brushy Canyon member and the
6 Cherry -- the lower Cherry Canyon member of the
7 Delaware Mountain Group.

8 We also see in the westernmost portion
9 of this cross section the last and the previous wells
10 as being the wells where we interpret the Capitan Reef
11 and/or Goat Seep brief being present.

12 MR. RANKIN: Thank you. Anything
13 further on this slide, Mr. White?

14 MR. WHITE: No.

15 MR. RANKIN: Okay. Next slide here,
16 explain what these two diagrams show and how they
17 relate to your analysis of the San Andres.

18 MR. WHITE: So in conjunction with the
19 stratigraphic analysis, we also want to understand any
20 potential connectivity to overlying an adjacent
21 strata.

22 And what our research and log analysis
23 has yielded is ultimately we expect that towards the
24 basin -- as San Andres formation shelf deposits
25 transition to finer grain muds and slope transitional

1 sediments into the deeper basin, we expect and
2 literature would support a diminishment of porosity in
3 that direction.

4 And what is shown in Panel A of this
5 slide is a figure modified from Sarge and Leman [ph]
6 1986 in which San Andrew's formation facies tracks
7 were -- were assessed in about -- described. And the
8 Panel A shows the facies tracks associated with the
9 San Andres from left, more landward facies progressing
10 to the right to more basinal facies or basin-ward
11 facies.

12 And I think it's been provided in
13 testimony and in characterization of the San Andres
14 formation, porosity generally is most frequently found
15 in grainstone-dominated facies; whereas more landward
16 evaporite facies, porosity is less developed and also
17 less developed within the basin or -- or the
18 shelf-to-basin transition intervals.

19 And so what's shown here
20 diagrammatically in Panel A is as the San Andres
21 formation is a progradation or a reflection of
22 progradation systems, these facies, of which porosity
23 develops at times and facies in which -- are less
24 likely to have porosity development, as these shelf
25 systems prograde basin-ward, it ultimately can produce

1 complex vertical units of porous and non-porous
2 carbonates.

3 MR. RANKIN: Anything further on that
4 slide, Mr. White?

5 MR. WHITE: Yeah. I'd like to move to
6 Panel B.

7 MR. RANKIN: Oh, yeah.

8 MR. WHITE: Panel B is the result of
9 the work of one of our geologists in a consulting
10 fashion, which was completed on the Penwell field in
11 Ector County, Texas.

12 And what we're seeing is the resultant
13 interpretation of that work, which included the
14 description and collection of core from the San Andres
15 as well as the description and investigation utilizing
16 cuttings.

17 And based on these spacing -- or -- or
18 based on this analysis, the final interpretation was
19 in accordance with the -- the reservoir
20 characteristics in Panel A in that the interpretation
21 included intervals of stacked and more complicated
22 intervals of porous and -- and non-porous carbonates.

23 MR. RANKIN: Didn't mean to cut you off
24 on Panel B. Anything further on this one?

25 MR. WHITE: No. I don't think so.

1 MR. RANKIN: Okay. This next slide
2 here, Mr. White, explain what these two images show
3 and how they relate to your assessment about the
4 San Andres relative to the Capitan Reef.

5 MR. WHITE: So the diagrams included in
6 this slide are ultimately a product of -- of
7 demonstrating the results of our stratigraphic
8 analysis.

9 The first shown in the top left, which
10 is annotated as Panel B illustrates a cross-sectional
11 view of the project area as we understand it from well
12 log analysis; whereas we see the approximate western
13 extent of the San Andres shelf, the approximate
14 western extent of the Grayburg shelf, and an
15 annotation of the lateral distance between the
16 San Andres shelf margin and the back reef extent of
17 the Capitan Reef Complex. That's denoted by the red
18 double-ended arrow.

19 Also, what is shown is diagrammatically
20 the vertical offset and the intervening strata of the
21 Bell Canyon member that separates basinal equivalent
22 San Andres Formation sediments from the base of the
23 Capitan Reef Complex.

24 In the panel to the right, which is
25 labeled as A, we see a map view of that interpretation

1 where based on the well log data we approximate the
2 San Andres shelf edge we -- and to approximate the
3 basin-to-slope transition area and the -- the
4 eastern-most edge of the Capitan Reef Complex.

5 MR. RANKIN: Anything further on this
6 one, Mr. White?

7 MR. WHITE: No.

8 MR. RANKIN: Review for us what you did
9 in terms of reviewing and confirming the work that
10 Goodnight had done evaluating the chemistry aspects of
11 the San Andres.

12 MR. WHITE: Sure. And similar to one
13 of the previous slides, the information in this slide
14 just provides a review of some of the critical
15 information about this work as well as our opinions
16 regarding this work.

17 And as stated here, Geolex was asked to
18 conduct essentially what would be a peer review of
19 Goodnight's methodology for verification of
20 groundwater data.

21 This was based ultimately on their
22 objectives to better characterize what available
23 groundwater data they had for the San Andres
24 formation, which as part of our peer review included
25 USGS-reported sampling, the NATCARB, gotech databases

1 as well as review of the Hiss 1975 data within the
2 greater project area.

3 In completing this review data, you
4 know, reported samples were scrutinized to gather as
5 much information about the well construction history.
6 Well documents were reviewed to verify if the
7 circumstances of each particular well or sample was
8 adequate for identifying it to be solely sourced from
9 the San Andres formation rather than being a
10 commingled sample, a sample that was incorrectly
11 reported or incorrectly transcribed.

12 And as part of this, the -- Goodnight
13 had, I believe through a FOIA request, attained some
14 of the supplemental tabulated information from the
15 Hiss 1975 work. So those data were crosschecked
16 against map data to -- to ensure that all of the data
17 could be confirmed.

18 So some of the examples of a sample
19 that couldn't be verified is -- I -- I briefly
20 mentioned would be looking at the data and seeing that
21 a well never was drilled to the depth to reach the
22 San Andres. In those instances, those data would not
23 be included in a regional analysis, as they could not
24 be verified to be solely reflective of San Andres.

25 Additionally, if well documents or

1 records suggested that the sampling was done in an
2 open hole that -- that appeared to be commingled with
3 another formation, those would not be included in
4 Goodnight's kind of regional compilation of data and
5 verification of data.

6 With respect to the area that we
7 reviewed, which is, I believe, 14 contiguous sections
8 in the area of -- of Goodnight's wells near Hobbs,
9 New Mexico, we have on a sample-by-sample basis
10 reviewed those documents and -- and agree with
11 Goodnight's verification of those data.

12 MR. RANKIN: Anything further on this
13 slide?

14 MR. WHITE: Yes. But -- but there's a
15 little bit of -- one more thing. So kind of separate
16 from this, moving to a different topic, as described
17 in the last bullet point here, as the topic of
18 potential communication with the Capitan Reef and
19 underground sources of drinking water, we also
20 reviewed and did brief -- brief review of -- of
21 documents in and around the Hobbs and Eunice,
22 New Mexico, area to understand if those communities or
23 municipalities had any reliance on the Capitan Reef.

24 MR. RANKIN: And you'll address that in
25 a subsequent slide?

1 MR. WHITE: That's correct.

2 MR. RANKIN: Okay. Anything further in
3 this slide?

4 MR. WHITE: No.

5 MR. RANKIN: Okay. Here, explain what
6 you've done to verify the data and what the results
7 show.

8 MR. WHITE: Shown in this slide is the
9 result of our peer review, which show the mapped
10 locations for groundwater sample data that were
11 available to us for the review. Ultimately, this
12 verification process was applied, as I mentioned
13 previously, to the USGS data, the NATCARB, and -- and
14 gotech data.

15 And in this map, we show those data
16 points which have -- can be confidently verified as
17 being sourced from the San Andres formation. This map
18 also includes additional data that have been reported
19 in -- in published literature, for example, of
20 Strickland, et al, and samples that were the analysis
21 records were provided and are reflective of Goodnight
22 Midstream's SWD wells.

23 MR. RANKIN: Anything further on this
24 slide?

25 MR. WHITE: Only that the -- it may be

1 a little difficult to see -- but kind of the -- the
2 pinkish, reddish polygons that are coloring in certain
3 township and ranges are the location -- or are the
4 locations for which our review was completed.

5 MR. RANKIN: Okay. I think this is
6 your last slide. Mr. White, just explain what you did
7 in addition to the chemistry study to evaluate
8 potential reliance on drinking water in the
9 communities around this area.

10 MR. WHITE: Yes. This slide shows
11 essentially three excerpts and -- and sources of
12 information about groundwater supplies or water
13 supplies for areas of Hobbs, New Mexico; Eunice,
14 New Mexico; and a quick excerpt from a regional water
15 plan developed by the office of the State engineer.

16 What excerpts of the text of these
17 reports is included is for Hobbs and Eunice,
18 respectively, statements in these reports that confirm
19 that these municipalities currently have no reliance
20 on the Capitan, solely sourcing their municipal water
21 supplies from shallow groundwater of the Ogallala
22 aquifer.

23 These reports are -- were -- or were
24 distributed in 2023. Since submittal of my written
25 testimony, I have reviewed 2024 Hobbs, New Mexico,

1 reports that -- that show that this is still in
2 accordance.

3 The Lea County regional water plan, the
4 excerpt that is included here ultimately speaks to the
5 quality of groundwater resources in the Capitan being
6 characterized as very poor and as has been
7 communicated by other experts in this case, ultimately
8 that total dissolved solids concentrations range in
9 excess of 10,000 parts per million or milligrams per
10 liter and ultimately exceed thresholds required for
11 USDW groundwater.

12 MR. RANKIN: Anything further on this
13 last side, Mr. White?

14 MR. WHITE: No.

15 MR. RANKIN: Now, Mr. White, this
16 testimony you just provided is a summary of the
17 testimony that you've adopted as your own in your
18 Rebuttal Exhibit I; correct?

19 MR. WHITE: That is correct.

20 MR. RANKIN: And each of these reports
21 that you refer to, they're included in their entirety
22 and as attachments or exhibits to your testimony?

23 MR. WHITE: That is correct.

24 MR. RANKIN: And you didn't address
25 every one of your exhibits in your testimony, but

1 through the adoption of your rebuttal testimony, those
2 exhibits are incorporated and referenced in your
3 testimony; correct? In your written testimony?

4 MR. WHITE: That is correct.

5 MR. RANKIN: Mr. Hearing Officer, I
6 don't believe I have any further questions of
7 Mr. White and make them available for
8 cross-examination on not only what he said here, but
9 on his written rebuttal testimony as well.

10 THE HEARING OFFICER: Thank you for
11 making that perfectly clear.

12 Empire?

13 MR. PADILLA: Mr. Examiner, we've
14 agreed with Mr. Moander that he be allowed to go
15 first. We don't have any cross-examination of
16 Mr. White unless Mr. Moander can come up with
17 something dramatically different.

18 THE HEARING OFFICER: That piques your
19 interest? All right.

20 Mr. Moander, you're up.

21 MR. MOANDER: And I'll represent that
22 that is correct from Mr. Padilla. I don't anticipate
23 going into areas that will arouse a need for further
24 examination or any examination by Goodnight.

25 //

1 CROSS-EXAMINATION

2 BY MR. MOANDER:

3 MR. MOANDER: Mr. White, I'm going to
4 need just a second to get my screens up, and my poor
5 computer is really tired of my PDF collection. All
6 right. There we go. All right. And can -- do I need
7 to zoom in for you a little bit, Mr. White? Because
8 that's -- I realize I highlighted it. It also doesn't
9 look great on the screen.

10 MR. WHITE: No, sir. I can -- I can
11 navigate it.

12 MR. MOANDER: Excellent. And I think
13 you could probably guess just reading this that this
14 comes from your rebuttal testimony; is that right?

15 MR. WHITE: That is correct.

16 MR. MOANDER: And that'd be -- at this
17 point we're looking at paragraphs 13 and 14, so
18 paragraph 13 outlines what I'll describe here as sort
19 of data sources that both, I'd say, you and Goodnight
20 relied upon; is that correct?

21 MR. WHITE: That's correct.

22 MR. MOANDER: That includes -- and this
23 won't be a comprehensive list, but to give some
24 examples and particularity -- USGS data?

25 MR. WHITE: That's correct.

1 MR. MOANDER: Gotech data?
2 MR. WHITE: That's correct.
3 MR. MOANDER: NATCARB as well?
4 MR. WHITE: That's correct.
5 MR. MOANDER: Independent well data?
6 MR. WHITE: That's correct.
7 MR. MOANDER: And we saw just saw the
8 municipal reports on the last document; is that right?
9 We'll call them municipal or county documents that
10 you --
11 MR. WHITE: You -- you mean summarized
12 on the last slide?
13 MR. MOANDER: Yes.
14 MR. WHITE: Oh, yes. That's correct.
15 MR. MOANDER: And then you had some
16 test data from individual wells?
17 MR. WHITE: That's correct.
18 MR. MOANDER: So then going to
19 paragraph 14, this is what I've labeled sort of the
20 methods or methodology. For example, one of the
21 things that was done is data was controlled through
22 screening for confirming formations and interval
23 depth?
24 MR. WHITE: That's correct.
25 MR. MOANDER: Would it surprise you to

1 hear that OCD thinks this is a good model, and we
2 appreciate the work that was done on it?

3 MR. WHITE: No. I don't think so.

4 MR. MOANDER: And in your opinion,
5 would you construe this as comprehensive, your report
6 and your analysis?

7 MR. WHITE: I mean as a -- as a
8 scientist, I think it is comprehensive in -- with
9 respect to the available data.

10 MR. MOANDER: That's an excellent
11 point, Mr. White. I appreciate that. So more quality
12 data improves analysis, doesn't it?

13 MR. WHITE: Absolutely. And -- and I
14 think ultimately that is some of the motivation for
15 this work in making sure however these reservoirs
16 and -- and relationships are interpreted, they are
17 based on data that there is a confidence in.

18 MR. MOANDER: And OCD absolutely agrees
19 with you. And, in fact, if we look at paragraph 13,
20 the second sentence says "Goodnight has completed a
21 review of available groundwater data for the purpose
22 of developing a more thorough spatial assessment of
23 regional groundwater characteristics and building upon
24 the work of prior investigators"; right?

25 MR. WHITE: That's correct.

1 MR. MOANDER: And then Geolex also
2 seems to really believe in that, because the first
3 sentence in paragraph 15 says "As part of our
4 retention, Geolex completed a peer review of Goodnight
5 Midstream's methodology for the verification of
6 groundwater chemistry data"; right?

7 MR. WHITE: That's correct.

8 MR. MOANDER: I do not have any
9 additional questions for this witness. I will pass
10 the witness.

11 THE HEARING OFFICER: All right. We're
12 going to call him one of OCD's witnesses based on that
13 cross-exam. Just kidding.

14 All right. Rice, questions for
15 Mr. White? Oh, I'm sorry.

16 MR. MOANDER: I'm going to stop the
17 sharing here, too.

18 THE HEARING OFFICER: Thank you.

19 Mr. Padilla, was there anything there
20 that was of such significance to Empire that you would
21 like to cross examine Mr. White?

22 MR. PADILLA: Nothing, Mr. Examiner.

23 THE HEARING OFFICER: Thank you.

24 All right. Mr. Beck, for Rice?

25 MR. BECK: No questions.

1 THE HEARING OFFICER: And, Mr. Suazo,
2 for Pilot?

3 MR. SUAZO: No questions.

4 THE HEARING OFFICER: Okay. Thank you.

5 MR. SUAZO: Let's reverse order.

6 Dr. Ampomah, let's start with you.

7 CROSS-EXAMINATION

8 BY DR. AMPOMAH:

9 DR. AMPOMAH: Thank you, Mr. White, for
10 your testimony today. I probably will be very, very
11 short and brief.

12 So I want to know. So from -- if we
13 can have your Slide Number 3 up, I do have a quick
14 question there. Okay. Now, and probably maybe let's
15 go to the Number 4. I think that one was more or less
16 much better. Yeah. Right here.

17 So is the -- is the Goat Seep in
18 communication with the Capitan Reef based on your
19 analysis?

20 MR. WHITE: So we didn't really look at
21 the relationship of the Goat Seep Reef to the Capitan
22 and that interface and what to expect in terms
23 of -- of communication between the two.

24 In looking at the base of the Goat Seep
25 and the Grayburg, it -- it does look like the base of

1 the Goat Seep is more dolomitic. It seems a little
2 tighter, at least for a limited interval at that
3 interface. But didn't explore the relationship
4 between the Goat Seep and Capitan with respect to
5 communication.

6 DR. AMPOMAH: Now, let me ask. Is the
7 Goat Seep an aquifer that is a concern?

8 MR. WHITE: An aquifer in terms of a
9 USDW?

10 DR. AMPOMAH: Yeah.

11 MR. WHITE: I don't believe so.

12 DR. AMPOMAH: Now, you said you did not
13 really look into the relationship between the go see
14 and the Capitan Reef.

15 Now, don't you believe -- or could
16 there be a possibility where, let's say, if there is
17 any communication between the Goat Seep and the
18 reservoir, either the Greenberg, or the San Andres,
19 there could be a the point in time where there can be
20 some impact, you know, on the Capitan Reef from the
21 Goat Seep?

22 MR. WHITE: Well, I think ultimately
23 the characteristics of the -- the geologic strata that
24 separate vertically those two intervals, we have
25 confidence and they -- and they display

1 characteristics that I -- that I don't think they
2 would have much transmission capability between them.

3 As we move out of the San Andres in the
4 basin-ward direction, we expect to see and
5 facies-tracked progression would expect to see low
6 permeability, and -- and thus reduced communication in
7 the basin-ward direction.

8 Additionally, when we're transitioning
9 into the silts and the finer grain clastic sediments,
10 again, we would expect not a lot in terms of vertical
11 communication potential.

12 DR. AMPOMAH: Are there any existing
13 monitoring -- monitoring wells -- or let's say
14 monitoring capabilities that is probably in
15 the -- that exist in the Capitan Reef that you know?

16 MR. WHITE: Not that I am immediately
17 aware of at this moment. I know -- I know there's
18 limited data I think at times in terms of -- of being
19 able to monitor it.

20 DR. AMPOMAH: Now, do we know the
21 chemistry of the Capitan Reef? The water chemistry?

22 MR. WHITE: While we didn't, you know,
23 complete any comprehensive water chemistry study, I
24 think, you know, the aggregate of -- of kind of water
25 compilation data could be utilized for that.

1 DR. AMPOMAH: So if OCD is requesting
2 for monitoring in the Capitan Reef as a result of any
3 operations that is ongoing, do we have a baseline?

4 MR. WHITE: Well, I think we would -- I
5 think we would need to establish one.

6 DR. AMPOMAH: Okay. Thank you, sir.
7 No further questions.

8 THE HEARING OFFICER: Okay.
9 Mr. Lampkin?

10 MR. LAMPKIN: I do not have any
11 questions for Mr. White. Thank you.

12 THE HEARING OFFICER: All right.
13 Chairman Razatos, questions for
14 Mr. White?

15 MR. RAZATOS: I do not have any
16 questions for Mr. White either.

17 Thank you, Mr. White.

18 THE HEARING OFFICER: Mr. Shandler, any
19 questions from you?

20 All right. Then we come back to
21 Mr. Rankin for redirect of Mr. White.

22 MR. RANKIN: Mr. Hearing Officer, I
23 have no redirect for Mr. White.

24 THE HEARING OFFICER: Okay.

25 Empire, may this witness be excused?

1 MR. PADILLA: Yes, sir, he may.

2 THE HEARING OFFICER: OCD?

3 MR. MOANDER: Yes, sir.

4 THE HEARING OFFICER: Rice?

5 MR. BECK: Yes.

6 THE HEARING OFFICER: Pilot?

7 MR. SUAZO: Yes.

8 THE HEARING OFFICER: All right. Thank
9 you. I think, for the record, that sets a record for
10 witness duration in this case.

11 MR. WHITE: I'm glad that I hold it.

12 THE HEARING OFFICER: Okay. So what
13 are we going to do now, Mr. Rankin?

14 MR. RANKIN: I want to stick around for
15 the duck quack. I'm just kidding. I think we can all
16 get 15 minutes of our lives back. We will -- at the
17 pleasure of the Commission, I would ask that we resume
18 on May 19th with our final witness, Mr. Preston
19 McGuire.

20 THE HEARING OFFICER: Okay. He's not
21 available now?

22 MR. RANKIN: No. Nor have we completed
23 a summary slide, since we haven't shared them with
24 counsel. I did not expect that we would've set a
25 record today, so I didn't know that we were going to

1 be done.

2 THE HEARING OFFICER: Well, I'll just
3 tell you what John Conway told me a number of years
4 ago: when you're out of witnesses, you are out of
5 trial.

6 MR. RANKIN: Well --

7 UNIDENTIFIED SPEAKER: I second that
8 motion.

9 MR. RANKIN: Yeah. I understand.

10 THE HEARING OFFICER: All right. Okay.
11 Well, you guys have done really well on the timing.
12 It makes me wish that we'd impose these time limits
13 three weeks ago.

14 MR. RANKIN: Mr. Hearing Officer, I
15 guess there's one item that's open still on the last
16 witness, and that was I guess Mr. Moander's objection
17 to admission of that Exhibit I, so -- and his
18 attachment, so I just want to make sure that that's
19 been resolved.

20 MR. MOANDER: I'll withdraw my
21 objection.

22 THE HEARING OFFICER: Okay. Thank you.
23 They were admitted over your objection now they're
24 admitted under your objection. Thank you.

25 MR. RANKIN: I just wanted to make sure

1 that was -- I didn't know if the record was clear.

2 THE HEARING OFFICER: Okay. Appreciate
3 it.

4 Mr. Shandler?

5 MR. SHANDLER: During the next break of
6 time, are the parties going to get together and have a
7 stipulated post-hearing schedule of findings of fact,
8 et cetera? And when would we expect to see that?

9 MR. MOANDER: Just to clarify you mean
10 not right now? Like, during the interim, prior to the
11 reconvening of the hearing?

12 MR. SHANDLER: Mr. Hearing Officer.
13 Yeah. I'm not going to put you on the spot now, but I
14 would like you during the interim to work together and
15 have a stipulated calendar post hearing.

16 MR. MOANDER: OCD will agree to work on
17 that. I don't think that should pose a problem unless
18 somebody else does.

19 MR. RANKIN: I think that's a good
20 idea, Mr. Shandler. And we will engage with parties
21 to confer.

22 THE HEARING OFFICER: And we're just
23 talking about the timing of those submissions? Or --

24 MR. SHANDLER: Mr. Hearing Officer,
25 that's probably going to be an important point. I

1 would like the parties to think about page limits, but
2 I'm not dictating things. Hopefully, they can agree
3 to what they think they can make their presentation
4 with without being cumulative.

5 MR. RANKIN: One other item,
6 Mr. Shandler, I guess you mentioned findings of facts
7 and conclusions of law. Are there other post-hearing
8 submissions that you were contemplating we confer
9 about?

10 MR. SHANDLER: So, Mr. Hearing Officer,
11 I remember someone saying they wanted to legal briefs.
12 I don't know if that can be wrapped into the
13 conclusions. I'll let you guys figure that out.

14 MR. RANKIN: Okay. And then on the
15 assumption that we will be able to complete, I guess
16 it's an open question whether we'll be able to reserve
17 time for closing arguments. In the event we don't,
18 does the Commission prefer written closings to go with
19 the findings of fact and conclusions of law in the
20 event we do not have time for oral closings?

21 MR. SHANDLER: These are all details
22 for the lawyers to figure out.

23 MR. RANKIN: Okay. Very good. Before
24 we confer, I wanted to know if there was a preference
25 from the commission. I guess that was my -- that's

1 why I raised it; so --

2 MR. SHANDLER: I guess my last word is
3 concise and excellent findings of fact that I can cut
4 and paste.

5 MR. RANKIN: Sure. That will be all of
6 our goals. Yeah. Thank you.

7 THE HEARING OFFICER: I think
8 Mr. Shandler's at a bit of a disadvantage, because he
9 wasn't here when these issues were first discussed.
10 So, you know, you guys wanted the oral closing
11 arguments, and if there's time, we'll hear that.

12 I think the point that was made early
13 on in these proceedings is that the Commission is
14 probably more interested in findings of fact and
15 conclusions of law than it is -- I mean, I know that
16 your erudite closing arguments will be of great
17 assistance to the Commission.

18 But by the same token, we all have
19 heard -- and cringed, probably -- at the jury
20 instruction that says that, you know, what lawyers say
21 is not evidence. So that's just to recap, you know,
22 what we discussed early on before Mr. Shandler took
23 over the reins here.

24 All right. Well, I guess you guys
25 unless you want to hang around for the duck quack.

1 MR. WAYMEYER: And I apologize. My
2 understanding was that there had been some request
3 that on the exhibits we handled earlier today, that
4 we, that we clicked through them with a number
5 assigned to them just for the record.

6 I'm happy to do that. If that's not
7 something productive, I don't need to do that. But my
8 understanding was someone made that request. Ms.
9 Apodaca. This will take two minutes or less. I'll
10 put on the record --

11 THE HEARING OFFICER: Are these the 14
12 exhibits that we went over this morning?

13 MR. WAYMEYER: So what I have is Empire
14 Cross, all of these will be Empire Cross Exhibits.
15 Number 1 will be the simulation model vertical
16 permeability spreadsheet. Number 2 will be simulation
17 model vertical permeability distribution.

18 Number 3 will be 1959 pressure
19 calculation for EME Number 20. Number 4 will be
20 Rice's EME 20 bottom hole pressure survey. Number 5
21 will be Rice's EME 20 wellboard diagram. Number 6
22 will be pressure depletion from EME 20 BHP in 1959 to
23 RFT pressure points in 1986.

24 Number 7 will be the impact of rock
25 facies on oil saturation. Those are three slides.

1 Those are the Scott Birkhead slides. Number 8 will be
2 Grayburg conventional core measurements. Those are
3 four slides, being the EMSU 649, 650, 653 and 710.
4 Number 9 will be the SPE 122921 estimates of potential
5 CO2 demand for CO2 EOR in Wyoming basins.

6 Number 10 will be Goodnight fluid level
7 data as of April 7, 2025. Number 11 will be water
8 saturation from EMSU working interest owners meeting
9 in 1990.

10 That concludes the numbered exhibits
11 that'll be coming for filing.

12 THE HEARING OFFICER: Okay. And that
13 doesn't include the one that I have that was not
14 admitted, the economic sensitivity?

15 MR. WAYMEYER: That's correct. That
16 one is not in that list.

17 THE HEARING OFFICER: Okay. Well, all
18 right. Okay. Well, thank you for -- that'll, I
19 guess, make the record clear.

20 Anything further from Goodnight for
21 today, at least?

22 MR. RANKIN: No. Thank you very much.

23 THE HEARING OFFICER: Anything further
24 from Empire?

25 MR. WAYMEYER: Nothing further from

1 Empire, and we thank the Commission and all
2 participants for their patience and time.

3 THE HEARING OFFICER: I see OCD packing
4 up. I suspect that means nothing further for --

5 MR. MOANDER: I have nothing further to
6 discuss, say, or talk about this case for the rest of
7 the day. I've said all I got to say.

8 THE HEARING OFFICER: Rice?

9 MR. BECK: Nothing from Rice.

10 THE HEARING OFFICER: And Pilot?

11 MR. SUAZO: Nothing further from Pilot.

12 THE HEARING OFFICER: All right. Well,
13 thank you all for an interesting week. We'll see you
14 back again on May the 19th.

15 Mr. Razatos, any parting comments or
16 items you need to cover before we go off the record?

17 MR. RAZATOS: No, I do not have
18 anything. Thank you, everybody. Have a great
19 weekend.

20 THE HEARING OFFICER: Okay. Thank you
21 all.

22 Madam Court Reporter, we'll be off the
23 record until May the 19th.

24 THE REPORTER: We are off the record.
25 The time is 1:59 p.m.

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(Whereupon, at 1:59 p.m., the
proceeding was concluded.)

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CERTIFICATE

I, NICOLE JOHNS, 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 8, 2025



NICOLE JOHNS
Notary Public in and for the
State of Texas

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May 8, 2025



JACOB MYERS

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