

Examination by COMMISSION AMPOMAH

1

1 PUBLIC HEARING

2 STATE OF NEW MEXICO

3 OIL CONSERVATION COMMISSION

4 Pecos Hall, 1st Floor, Wendell Chino Building

5 1220 S. Saint Francis Drive

6 Santa Fe, New Mexico

7 TRANSCRIPT OF PROCEEDINGS

8 April 7, 2025

9 9:01 a.m.

10 HEARD BEFORE: HEARING OFFICER RIPLEY HARWOOD

11 COMMISSION MEMBERS:

12 GERASIMOS ROZATOS, Chair

BAYLEN LAMKIN, Member

13 DR. WILLIAM AMPOMAH, Member

14 COUNSEL FOR THE COMMISSION: ZACHARY SHANDLER, ESQ.

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1 CHAIRMAN RAZATOS: I am Gerasimos  
2 Razatos. I am the acting chair, the acting director  
3 for the Oil Conservation Division. And I'm also the  
4 acting chair for the Oil Conservation Commission. I  
5 just want to make sure that you-all can hear me in  
6 Pecos Hall. Can someone just let me know that they  
7 can hear me?

8 UNIDENTIFIED SPEAKER: Yes.

9 UNIDENTIFIED SPEAKER: We can hear  
10 you.

11 CHAIRMAN RAZATOS: Excellent. Thank  
12 you.

13 This is the continuation of our hearing  
14 for -- that was set for April 7 through the 11th.  
15 It is the Oil Conservation Commission hearing that  
16 we have. I am under the weather, so I am in my  
17 office on -- I will be on the Teams platform for the  
18 meeting. I did want to bring our meeting to a start  
19 and get it started for us today.

20 So I'd like to do a roll call. As I said,  
21 I'm Gerasimos Razatos. I am the acting division  
22 director for the Oil Conservation Division. And I'm  
23 also the acting commission chair for the Oil  
24 Conservation Commission.

25 I will now switch it over to Commissioner

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1 Ampomah.

2 I'll switch it over to you for roll call.

3 COMMISSIONER AMPOHAM: Thank you.

4 Good morning. My name is Dr. William  
5 Ampomah, professor for engineering from New Mexico  
6 Tech and also designee of the NMT faculty. Thank  
7 you.

8 CHAIRMAN RAZATOS: Excellent, thank  
9 you.

10 Then, Mr. Rankin.

11 COMMISSIONER LAMKIN: I don't know if  
12 you wanted to call Greg or myself.

13 CHAIRMAN RAZATOS: I was -- well,  
14 let's do -- let's do you right now for the actual  
15 hearing, and then I'll also get Commissioner Bloom  
16 as well. I'll be leaving him last.

17 COMMISSIONER LAMKIN: Okay. Adam  
18 Rankin, designated commissioner of public lands.

19 CHAIRMAN RAZATOS: Excellent, thank  
20 you.

21 And Commissioner Bloom.

22 COMMISSIONER BLOOM: Yes, good  
23 morning, everyone. I'm Greg Bloom. I'm the  
24 assistant commissioner for Mineral Resources, the  
25 New Mexico State Land Office. I'm the designee of

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1 the commissioner of Public Lands. I'll be stepping  
2 out -- the meeting after we finish up some  
3 preliminary matters. I'm not participating in the  
4 Goodnight Empire case. Mr. Lamkin will be hearing  
5 that for the Land Office.

6 Thank you.

7 CHAIRMAN RAZATOS: Excellent. Thank  
8 you, Commissioner Bloom.

9 So that brings our meeting to the -- to  
10 its start. The next item on the agenda is the  
11 approval of the April 7 through the 11th, 2025,  
12 agenda. Can I get a motion to approve the agenda?

13 COMMISSIONER BLOOM: I so move.

14 CHAIRMAN RAZATOS: Excellent. So our  
15 agenda is approved for today.

16 Our third item is the approval of the  
17 March 11 and March 20, 2025, meeting minutes. Were  
18 there anything that we needed to discuss for the  
19 meeting minutes? If not, can I get a motion to  
20 approve?

21 COMMISSIONER BLOOM: Mr. Chair, I  
22 have not had time to review the March 11th meeting  
23 minutes. I'd just like to go over those and check  
24 them against my notes. If we could do that at a  
25 future meeting, I'd appreciate it.

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1 CHAIRMAN RAZATOS: Okay. We could  
2 potentially move them. Okay. Are you okay with  
3 March 20th meeting notes, Commissioner?

4 COMMISSIONER BLOOM: Mr. Chair, I am,  
5 and I would move to approve those.

6 CHAIRMAN RAZATOS: Okay.  
7 Commissioner Ampomah, are you okay with the meeting  
8 minutes?

9 COMMISSIONER AMPOHAM: Yes. And I  
10 second.

11 CHAIRMAN RAZATOS: Okay. So we'll  
12 approve the March 20th Commission minutes.

13 Commissioner Bloom, maybe in two weeks if  
14 you can pop back on for the next phase of the  
15 hearing that we have scheduled, and hopefully we can  
16 get the March 11th meeting minutes approved at that  
17 point. Is that okay?

18 COMMISSIONER BLOOM: Absolutely, Mr.  
19 Chair. Thank you for the --

20 CHAIRMAN RAZATOS: Excellent, thank  
21 you.

22 Sheila, we'll approve the March 20th  
23 Commission minutes, and we'll move the approval of  
24 the March 11th Commission minutes to our next  
25 meeting in two weeks.

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1 MS. APODACA: Okay.

2 CHAIRMAN RAZATOS: Excellent, thank  
3 you.

4 Okay. That takes us now to our pending  
5 cases. The first case that we have for today is  
6 Case Number 24683, which is the application of the  
7 Western Environmental Law Center, Citizens Caring  
8 for the Future, Conservation Voters New Mexico  
9 Education Fund, Diné C.A.R.E., Earthworks, Naeva,  
10 New Mexico Interfaith Power and Light, and San Juan  
11 Citizens Alliance, and the Sierra Club, to amend  
12 19.15.2, 19.15.5, 19.15.8, 19.15.9 and 19.15.25 of  
13 the New Mexico Administrative Code. The matter to  
14 be heard is a status conference.

15 Are all the parties present?

16 I always usually start when I'm there on  
17 the left-hand side -- I mean on the right-hand side  
18 of the screen. So in this instance, I will start  
19 with --

20 Mr. Rankin, is that you? I can't see very  
21 well.

22 COMMISSIONER LAMKIN: Good morning,  
23 Mr. Chair. Adam Rankin appearing on behalf of Oxy  
24 in this case.

25 CHAIRMAN RAZATOS: Excellent, thank

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1 you.

2 Who's next to you? I apologize.

3 COMMISSIONER LAMKIN: My colleague,  
4 Mr. Nathan Jurgensen, who is actually not appearing  
5 in that case with me, but he is sitting next to me.

6 CHAIRMAN RAZATOS: Okay. Great.

7 Well, let's just say who else is here for  
8 the -- for the Case Number 24683? It will just make  
9 it easier.

10 Ms. Fox.

11 MS. FOX: Good morning,  
12 Commissioners. Thank you, Chair.

13 Commission, my name is Tannis Fox. I'm a  
14 lawyer with Western Environmental Law Center  
15 representing applicants in the matter. With me  
16 today is Morgan O'Grady and online is Matt Nykiel.

17 CHAIRMAN RAZATOS: Excellent, thank  
18 you, Ms. Fox.

19 Mr. Tremaine?

20 MR. TREMAINE: Good morning,  
21 Mr. Chair, Commissioners. My name is Jesse Tremaine  
22 representing the Oil Conservation Division.

23 CHAIRMAN RAZATOS: Excellent.

24 Anybody on the platform that I may have missed?

25 MR. CLOUTIER: Good morning,

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1 Mr. Chair. Andrew Cloutier and Ann Tripp of Hinkle  
2 Shanor on behalf of Independent Petroleum  
3 Association of New Mexico.

4 CHAIRMAN RAZATOS: Excellent. Thank  
5 you, sir.

6 Anybody else?

7 MR. SUAZO: Yes. Good morning  
8 Mr. Chair, Commissioners. This is Miguel Suazo with  
9 Beatty & Wozniak appearing on behalf of the New  
10 Mexico Oil and Gas Association.

11 CHAIRMAN RAZATOS: Excellent. Thank  
12 you, Mr. Suazo.

13 Anybody else?

14 MR. SAYER: Mr. Chair, this is  
15 Mattias Sayer appearing on behalf of EOG.

16 CHAIRMAN RAZATOS: Excellent, thank  
17 you, Mr. Sayer. Appreciate it.

18 Anybody else, just to make sure we get  
19 everybody?

20 Perfect. I believe we had left it off,  
21 Ms. Fox and Mr. Tremaine, you were leading the  
22 conversations the last time we had met. So which  
23 one of you would like to start for us?

24 MR. TREMAINE: Mr. Chair, this is  
25 Jesse Tremaine. I circulated this morning an

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1 updated draft, Third Amended Notice that includes  
2 some new dates. The goal of that was to represent  
3 to the Commission that I think we largely have  
4 agreement on the direct and rebuttal filing dates,  
5 which were the primary drivers of previous  
6 discussions about scheduling.

7 It's been -- I also caught that we needed  
8 to change another date or two in there, but it's  
9 been pointed out to me that we actually need to  
10 address a couple of other residual April dates that  
11 I did not catch. And I believe Ms. Fox has some  
12 comment on those.

13 CHAIRMAN RAZATOS: Okay. Ms. Cox.

14 Thank you, Mr. Tremaine.

15 MS. FOX: Thank you, Mr. Chair,  
16 members of the Commission. The proposal now is --  
17 you might recall at the last meeting, the Commission  
18 set the hearing date for October 20th of this -- of  
19 this year. We hope that the hearing will go only  
20 two weeks, but we've set aside three.

21 And the parties have agreed, I believe, to  
22 filing direct testimony and exhibits on July 25th  
23 and filing rebuttal testimony exhibits on  
24 September 5th.

25 And then preliminary to that, applicants

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1 have committed to filing an amended complaint,  
2 amended application on April 25th. That date hasn't  
3 changed from what we proposed during the -- during  
4 the last status conference.

5 And so what we would intend to do is when  
6 we file that amended application, we will file an  
7 amended notice of hearing with the dates that I just  
8 identified, along with any significant changes to  
9 our proposals. And we appreciate all the parties'  
10 coordination on these dates.

11 CHAIRMAN RAZATOS: Excellent.

12 Ms. Fox, I do have a question for you. You stated  
13 October -- starting October the 20th, correct, that  
14 you'll be --

15 MS. FOX: October 20th.

16 CHAIRMAN RAZATOS: Okay, yes.

17 So, Mr. Tremaine, your amended Exhibit B  
18 has that the hearing begins October the 14th.

19 MR. TREMAINE: Yes, Mr. Chair. That  
20 was -- I did not catch that that needed to change --

21 CHAIRMAN RAZATOS: Okay.

22 MR. TREMAINE: -- when I updated. So  
23 my thinking was, we just needed to update the direct  
24 testimony and rebuttal dates. And then I saw the  
25 other April date and changed that, but I think there

1 actually is still another April date that needs to  
2 be updated. And then I neglected -- or did not  
3 notice that we needed to change that hearing date.

4 CHAIRMAN RAZATOS: So should we set  
5 this to come back next -- in two weeks to have  
6 another scheduling conference?

7 MR. TREMAINE: Mr. Chair, I would say  
8 no. I believe that we have -- we've settled  
9 everything that the parties had concerns with,  
10 resolved that by agreement. And so I think we can  
11 just make those updates. As Ms. Fox indicated, as  
12 the Petitioner, they will have -- they're submitting  
13 a revised petition here by April 25th. So the  
14 Commission will have that, an updated one along with  
15 that petition as an exhibit to that petition in a  
16 couple weeks.

17 CHAIRMAN RAZATOS: Okay. So then if  
18 I am hearing everything correctly, we are set to go  
19 to get this ball rolling, right?

20 MS. FOX: Mr. Chair, we are set to  
21 go.

22 CHAIRMAN RAZATOS: Excellent. Okay.  
23 It will be monumental for all of us, and it's a good  
24 task that we're going to be on. So if there's  
25 nothing else for this one, I think we are kind of

1 set. We'll get all the paperwork from you-all.  
2 Once you finalize it, you'll submit it to the  
3 Commission. And we are going to start having  
4 deadlines, people, so let's definitely make sure  
5 that we get it all straightened and the Commission  
6 has its work cut out.

7 But thank you, everybody. We appreciate  
8 it. If there's no other comments on this one --

9 COMMISSIONER AMPOMAH: Mr. Chair? So  
10 this is --

11 CHAIRMAN RAZATOS: Yes.

12 COMMISSIONER AMPOMAH: -- Dr.  
13 Ampomah. I want to be sure. Are we set on  
14 October 20th to when?

15 CHAIRMAN RAZATOS: Well, as Ms. Fox  
16 stated, they've initially set it for two weeks, so  
17 for sure, October 20th through probably the 31st,  
18 which is a two-week stint. Is that doable, Doctor,  
19 with your schedule?

20 COMMISSIONER AMPOMAH: Yeah, that is  
21 doable, but if we get into the full week, then I'm  
22 not available.

23 CHAIRMAN RAZATOS: Okay. So I think  
24 what we do is, let's start it on the 20th, like  
25 we've set. And then if we have some scheduling

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1 issues or if we see that it gets a little out of  
2 hand, we can pick a date at that time. Or we can  
3 just not meet a specific date if you -- if you have  
4 a date that you can't do.

5 COMMISSIONER AMPOMAH: Thank you.

6 CHAIRMAN RAZATOS: Is that okay?

7 COMMISSIONER BLOOM: Mr. Chair?

8 CHAIRMAN RAZATOS: Yeah. Go ahead,  
9 Commissioner.

10 COMMISSIONER BLOOM: Yeah, thank you,  
11 Mr. Chair. I've already reserved that week of  
12 November 3rd. I don't know if other people did as  
13 well in the case we needed. I guess leave it there  
14 and we can see if there's a few days that  
15 Dr. Ampomah could meet that week if necessary.

16 Dr. Ampomah, do you need to be off the  
17 entire week?

18 COMMISSIONER AMPOMAH: No. I can be  
19 around, let's say, at the earlier portion of the  
20 week, probably up until Wednesday. And I have to --  
21 I do have international travel.

22 CHAIRMAN RAZATOS: Okay.

23 COMMISSIONER BLOOM: Very good. I'll  
24 leave it reserved on my schedule and . . .

25 CHAIRMAN RAZATOS: Yeah, let's leave

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1 it on the schedule as needed.

2 Ms. Fox and Mr. Tremaine, let's try to  
3 make the two weeks if we possibly can. Okay?

4 Excellent. I see the back of your heads  
5 nodding. I've got the back side view this time.  
6 So, great, thank you, all.

7 Okay. If nothing else on this particular  
8 case, we can move on to our actual case. Thank you,  
9 everybody.

10 COMMISSIONER BLOOM: I'm going to  
11 step out. Thank you, all. Take care.

12 CHAIRMAN RAZATOS: Thank you,  
13 Commissioner Bloom.

14 Okay. We're going to switch over now to  
15 our second case for the day. It is Consolidated  
16 Cases by Goodnight Midstream and Empire New Mexico.

17 They are Case Numbers 24123, 23614 through  
18 17, Case Number 23775, and Case Numbers 24018  
19 through 24020 and 24025. This is the matter to be  
20 heard by the Commission. It's the continuation of  
21 the evidentiary hearing.

22 I'll just start off as always to make sure  
23 that all of our parties are present. I will start  
24 again on the right-hand side of the room with Mr. --  
25 Adam, your last name?

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1 COMMISSIONER LAMKIN: Rankin.

2 CHAIRMAN RAZATOS: Rankin. Thank  
3 you, Mr. Rankin. My apologies.

4 COMMISSIONER LAMKIN: No problem.

5 Good morning, Mr. Chair, Commissioners.  
6 Adam Rankin with the Santa Fe office of Holland &  
7 Hart appearing on behalf of Goodnight Midstream and  
8 Permian, LLC, in the cases. And to my right is my  
9 colleague Mr. Nathan Jurgensen, who is also  
10 appearing in these cases as well.

11 CHAIRMAN RAZATOS: Thank you, sir.

12 Mr. Padilla, we'll switch over to you.

13 MR. PADILLA: Mr. Chairman, Ernest L.  
14 Padilla for Empire. With me are Dana Hardy and  
15 Sharon Shaheen.

16 CHAIRMAN RAZATOS: Excellent, thank  
17 you.

18 We'll go to the back table, next to  
19 Ms. Shaheen.

20 MS. SHAHEEN: That is our client  
21 here.

22 CHAIRMAN RAZATOS: Oh, I forgot.  
23 Yes, my apologies. Thank you, Ms. Shaheen.

24 MS. SHAHEEN: No worries.

25 CHAIRMAN RAZATOS: I am under the

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1 weather. I apologize for that.

2 Mr. Beck, we'll move on to you.

3 MR. BECK: Good morning,  
4 Commissioners. Matt Beck, Peifer Law Firm, on  
5 behalf of Rice Operating Company and Permian Line  
6 Service, LLC.

7 CHAIRMAN RAZATOS: Excellent, thank  
8 you.

9 MR. MOANDER: Good morning,  
10 Mr. Chair, Commissioners. Chris Moander on behalf  
11 the New Mexico Oil Conservation Division.

12 CHAIRMAN RAZATOS: Excellent,  
13 Mr. Moander. Thank you.

14 On the platform, who do we have?

15 MR. SUAZO: Good morning, Mr. Chair,  
16 Commissioners, and Mr. Hearing Examiner. This is  
17 Miguel Suazo with Beatty & Wozniak, appearing today  
18 on behalf of Pilot Water.

19 CHAIRMAN RAZATOS: Excellent.  
20 Anybody else on the platform?

21 I believe that's all of us. So everybody  
22 is present.

23 Mr. Hearing Officer, we transfer the  
24 hearing over to you. Thank you.

25 HEARING OFFICER HARWOOD: Okay.

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1 Thank you, Chairman Razatos. Sorry you're under the  
2 weather. The weather this week is supposed to be  
3 great, so hopefully you'll improve along with it.

4 Do we have -- Ms. Apodaca, do we have a  
5 court reporter present and typing?

6 MS. APODACA: Yes, we do.

7 HEARING OFFICER HARWOOD: Is that  
8 Kendra Tellez?

9 THE REPORTER: Yes.

10 HEARING OFFICER HARWOOD: Good  
11 morning, Kendra. Nice to see you again.

12 All right. Okay. So Mr. -- Chairman  
13 Razatos did all the heavy lifting, and I do have  
14 from Ms. Hardy an email from March 25th setting out  
15 the order of your next five and last five witnesses.  
16 Correct?

17 MS. HARDY: That's correct.

18 HEARING OFFICER HARWOOD: Ms. Hardy,  
19 let me ask you: Is this first witness Deacon  
20 Marek -- is that synonymous with the Frank Marek in  
21 this unopposed motion that's pending?

22 MS. HARDY: It is, yes. Thank you.

23 HEARING OFFICER HARWOOD: Okay. All  
24 right. So with that preamble, let me ask the  
25 parties, are there any preliminary matters?

1 MS. HARDY: I had one, Mr. Examiner.  
2 I don't know if Mr. Rankin has any, but . . .

3 HEARING OFFICER HARWOOD: Okay.

4 MS. HARDY: And I wanted to raise  
5 this at this point for the Commission's  
6 consideration, and I know we're not to our closing  
7 arguments yet. But Empire would prefer to have oral  
8 closing arguments rather than written, and I don't  
9 know what the Commission's position is on that. I  
10 think, you know, Empire would like to have a  
11 decision as soon as possible due to the ongoing  
12 injection into its unitized interval.

13 And in these cases, occasionally we do  
14 written closings, and occasionally we do oral  
15 closings. And here, we wanted to request an oral  
16 closing so that we can avoid waiting for transcripts  
17 and then waiting for briefing deadlines and a  
18 written closing. But I understand that's up to the  
19 Commission, but wanted to mention that issue for  
20 the -- consideration today.

21 HEARING OFFICER HARWOOD: Okay.  
22 Thanks. Have you discussed that with your  
23 opponents --

24 MS. HARDY: I have not --

25 HEARING OFFICER HARWOOD: -- Mr.

1 Rankin?

2 MS. HARDY: -- had a chance to do  
3 that.

4 HEARING OFFICER HARWOOD: Okay.  
5 What's Goodnight's delight?

6 COMMISSIONER LAMKIN: Well, we had  
7 previously kind of discussed it some time ago, about  
8 what we all thought. And I think at that time we  
9 were thinking, given the nature of the case and the  
10 importance of it and the record that would need to  
11 be established, that at least as to findings of fact  
12 and conclusions of law, that it would be beneficial,  
13 both to the Commission in its review of the  
14 extensive record and the facts and evidence, and to  
15 any appellate court reviewing the record, to have  
16 each party's final presentation of the findings of  
17 fact and conclusions of law.

18 And in addition to having that, I think it  
19 would be also helpful for the Commission and for any  
20 reviewing Court to have the parties' positions on  
21 the legal issues that are entwined with this -- with  
22 this case.

23 So I don't disagree with Ms. Hardy, that I  
24 think we could do an oral closing. But I do,  
25 however, believe it would be important for the

1 Commission to have written findings of fact and  
2 conclusions of law and have some representation on  
3 the record of the -- what the parties' views are on  
4 the standards -- applicable for each of these cases  
5 and the evidentiary burden, which has been an issue  
6 that's been discussed throughout the preliminaries  
7 of this case.

8           So I'll just say, you know, in short, to  
9 sum, that I have no problem summering orally the  
10 arguments and -- legal arguments at the conclusion,  
11 but I do believe I would -- I would lobby for  
12 written findings of fact and conclusions and at  
13 least a legal brief, some kind of legal closing so  
14 that the Commission has that to consider.

15           HEARING OFFICER HARWOOD: Ms. Hardy?

16           MS. HARDY: Mr. Examiner, I think  
17 that oral closings would be most expedient. I think  
18 that that sounds like it's fine with Goodnight.

19           Findings of fact and conclusions of law,  
20 in other cases I know that the Commission has  
21 actually ruled and then requested them from the  
22 parties. I've had that happen.

23           But we don't object to providing written  
24 findings and conclusions. We just do want to  
25 expedite as quickly as possible a final decision in

1 this matter, given the impact that's happening to  
2 Empire.

3 HEARING OFFICER HARWOOD: Okay.  
4 Thank you.

5 MR. MOANDER: Mr. Hearing Officer?

6 HEARING OFFICER HARWOOD: Yes, OCD.

7 MR. MOANDER: I'm sorry.

8 HEARING OFFICER HARWOOD: Mr.  
9 Moander, go ahead.

10 MR. MOANDER: I'm sitting in the back  
11 seats here.

12 OCD's perspective, I prefer oral closings.  
13 They can be -- I think they're more effective, but I  
14 also would support the idea of submitting  
15 conclusions of law and findings of fact as well so  
16 there's a paper roadmap. So this sounds like we're  
17 in the ballpark. OCD is pretty flexible on this.

18 HEARING OFFICER HARWOOD: Okay.  
19 Thank you. I guess I should round out the field by  
20 asking Pilot and Rice.

21 Mr. Beck for Rice.

22 MR. BECK: I imagine that my closing  
23 will be pretty brief. So you probably don't need  
24 the benefit of a paragraph or two written down from  
25 me.

1 HEARING OFFICER HARWOOD: Okay.

2 Mr. Suazo?

3 MR. SUAZO: I think what Mr. Rankin  
4 and Ms. Hardy and Mr. Moander have proposed is  
5 reasonable. And Pilot's very much in the same  
6 position as Mr. Beck's client. So I think -- you  
7 know, I agree with him and Mr. Rankin.

8 HEARING OFFICER HARWOOD: Okay.

9 Thank you.

10 Mr. Chairman, I guess my thoughts are that  
11 we should maybe discuss this on a break. My  
12 concern -- we don't need to rule at this time on  
13 this. We've got time to think about this. And why  
14 don't -- I guess my thoughts on the subject, at  
15 least preliminarily, is let's see where we are at  
16 the end of this, whether we're down to 5:00 p.m. on  
17 day whatever, the last day of the hearing, you know,  
18 or whether there's time for oral argument.

19 But anyway, why don't we discuss it -- the  
20 Commission discuss it, and we'll get back to you on  
21 it, as they say.

22 MS. HARDY: Thank you.

23 HEARING OFFICER HARWOOD: All right.

24 Now, there's a motion -- an unopposed Motion for  
25 Leave to File Amended Testimony of Frank J., AKA

1 "Deacon", Marek.

2 My understanding, Mr. Rankin, is it's  
3 unopposed?

4 COMMISSIONER LAMKIN: Yeah,  
5 Mr. Hearing Officer, I -- Goodnight does not oppose  
6 the submission of the revised testimony. It's  
7 mostly in the nature of correcting, updating some  
8 details, and referring now to updated testimony from  
9 Empire.

10 So we don't have a problem with the  
11 revisions, and I'll be able to cross Mr. Marek on  
12 his revisions that he's proposed.

13 HEARING OFFICER HARWOOD: Okay. The  
14 motion says, "Several clarifying technical  
15 corrections to his previous submitted testimony."

16 So, all right, if the motion's unopposed,  
17 it will be granted, and the Commission will accept  
18 the corrected self-affirmed statement of Frank J.  
19 Marek for filing.

20 Any further preliminary matters?

21 COMMISSIONER LAMKIN: Just to  
22 coattail on Ms. Hardy's email that she sent out last  
23 week, we have an update on our end in terms of our  
24 witness availability. We have -- one of our main  
25 witnesses -- one of first two witnesses, his wife --

1 he's now a father, so he is going to be unavailable  
2 this week. If we get to -- which I anticipate we  
3 would get to him in our order, so we've had to  
4 re-sequence our witnesses a little bit because of  
5 that.

6 And I'm happy to send it in an email, but  
7 I'm also happy just to state I gave Ms. Hardy what  
8 our witness -- what I believe our witness order  
9 would be, at first our first four witnesses. I  
10 believe it would be Mr. Nate Alleman, Mr. John  
11 McBeath, Dr. Jim Davidson, and then Mr. Bill  
12 Knights.

13 And then from there, hopefully Mr. McGuire  
14 be able to step in when we resume the following  
15 week.

16 So that -- that's our -- what I anticipate  
17 our witness order to be at this point.

18 HEARING OFFICER HARWOOD: All right.  
19 Okay. Thanks. Of course, the most important things  
20 have already been taken care of. You let Ms. Hardy  
21 and Empire know, so . . .

22 All right. Anything further before we  
23 proceed to your next witness? Ms. Hardy?  
24 Mr. Padilla? Ms. Sheehan?

25 MR. PADILLA: Mr. Harwood, Mr. Marek

Direct Examination by Mr. Padilla

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1 should be online. He's going to testify remotely.

2 HEARING OFFICER HARWOOD: Oh, okay.

3 Great.

4 All right. There you are, Mr. Marek. All  
5 right. You're unmuted. Are you ready to proceed,  
6 Mr. Marek? Or is it doctor?

7 FRANK MAREK: It's not doctor. It is  
8 mister. Thank you, though.

9 HEARING OFFICER HARWOOD: If you'll  
10 please raise your right hand, sir.

11 FRANK MAREK  
12 having been first duly sworn, testified as follows:

13 CHAIRMAN RAZATOS: All right.  
14 Mr. Padilla.

15 DIRECT EXAMINATION

16 BY MR. PADILLA:

17 Q. Mr. Marek, for the record, please state  
18 your name.

19 A. My name is Frank J. Marek.

20 Q. Mr. Marek, what is your profession?

21 A. I am a consulting petroleum reservoir  
22 engineer.

23 Q. Can you give the Commission a background  
24 of your education --

25 A. Yes, sir.

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1 Q. -- as an engineer?

2 A. Yes. I received a BS degree in petroleum  
3 engineering from Texas A&M University in May of  
4 1977. And I have been a registered professional  
5 engineer since 1983.

6 Q. Tell the Commission what your work  
7 experience has been in terms of a petroleum  
8 engineer.

9 A. I started my career in Beeville, Texas,  
10 for a company called Hughes and Hughes Oil and Gas  
11 where I was a petroleum engineer. And then I moved  
12 up to Dallas in 1981 and worked briefly for a  
13 company called Butte Resources Company as a Rocky  
14 Mountain district engineer.

15 And then in 1982, I joined Cornell Oil  
16 Company in Dallas as a reservoir engineering  
17 manager, and I was there from 1982 to 1984. And the  
18 gentleman who hired me at Cornell was named William  
19 M. Cobb, and he left shortly after I joined Cornell  
20 to form William M. Cobb & Associates, petroleum  
21 engineering consulting firm. And I joined him as  
22 the first employee in December of 1984.

23 And I was with Cobb & Associates for my  
24 entire career until I -- our firm, Cobb &  
25 Associates, merged with another consulting firm,

1 Haas Petroleum Consulting to form Haas & Cobb  
2 Petroleum Consultants, and I've been with that firm  
3 as a senior technical adviser since 2024.

4 Q. Mr. Marek, do you belong to any industry  
5 organizations?

6 A. Yes, sir. I have been a member of the  
7 Society of Petroleum Engineers, commonly called the  
8 SPE, for over 50 years. And I have been a -- also  
9 been a member of the Society of Petroleum Evaluation  
10 Engineers -- that's referred to as the SPEE -- since  
11 1985. I had leadership positions -- many leadership  
12 positions in both of those organizations.

13 Q. Mr. Marek, what does a petroleum  
14 evaluation engineer do?

15 A. Yes. The SPEE is almost a subset of the  
16 SPE. And the Society of Petroleum Evaluation  
17 Engineers deals wholly with the area of our industry  
18 that's involved in evaluating oil and gas  
19 properties.

20 Q. Mr. Marek, have you had any experience  
21 with the Eunice Monument South Unit?

22 A. I have. Back in August of 1987 at Cobb &  
23 Associates, we prepared a report for a client  
24 looking at investing in Eunice Monument Unit, and  
25 that original report in August of '87, we studied

1 waterflooding the EMSU on 80-acre well spacing. And  
2 then in April of '88, we did a follow-up study for  
3 that same client, looking at down-spacing to 40-acre  
4 spacing and waterflooding the EMSU with 80-acre  
5 five-spot patterns.

6 Q. Mr. Marek, what other experience do you  
7 have with Grayburg's and Andres oil developments?

8 A. Well, I have been involved in many of the  
9 major producing fields in the Permian Basin,  
10 including the Wasson, Levelland, Slaughter, Means,  
11 Seminole, the North and South Cowden, Goldsmith,  
12 Dune, Waddell, Big Lake, Garza, and many others over  
13 the -- over my career.

14 And specifically, Wasson, Means, Seminole,  
15 and Slaughter, I've been involved with CO2 studies  
16 and evaluations, meaning CO2 tertiary oil recovery  
17 for those fields, among some others.

18 Q. And those fields where you have had CO2  
19 pressure recovery, do any -- did any of those  
20 assignments deal with ROZ residual zones?

21 A. Yes. And all of those fields that I  
22 mentioned are San Andres producing fields.

23 Q. Can you tell the Commission why you were  
24 retained in this case -- in these cases, I should  
25 say?

Direct Examination by Mr. Padilla

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1           A.       Yes, sir. I was retained to form and give  
2 an opinion on the effect of commercial water  
3 injection operations into the unitized Grayburg,  
4 San Andres interval at EMSU.

5                   MR. PADILLA: Mr. Chairman, we tender  
6 Mr. Marek as an expert in petroleum engineering.

7                   HEARING OFFICER HARWOOD: Any  
8 objection from Goodnight?

9                   COMMISSIONER LAMKIN: No objection.

10                  HEARING OFFICER HARWOOD: Any  
11 objection from OCD?

12                  MR. MOANDER: No objection.

13                  MR. PADILLA: Rice?

14                  MR. BECK: No objection.

15                  HEARING OFFICER HARWOOD: Pilot?

16                  MR. SUAZO: No objections.

17                  HEARING OFFICER HARWOOD: All right.

18 Mr. Marek will be so recognized.

19           Q       (By Mr. Padilla) Mr. Marek, did you prepare  
20 a self-affirmed statement labeled Exhibit A for  
21 introduction in these consolidated cases?

22           A.       Yes.

23           Q.       And did you have any changes on your  
24 original self-affirmed statement?

25           A.       Yes, sir.

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Direct Examination by Mr. Padilla

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1 Q. What were those changes?

2 A. The changes deal with page 2 of my  
3 self-affirmed statement. The first change would be  
4 up in the text in the second full paragraph where I  
5 refer to the -- a reprocessed NuTech log evaluation  
6 that has a deepest oil saturation of minus 1,851.5  
7 subsea depth.

8 And the other changes pertain to the  
9 depths shown toward the middle of the page. There's  
10 a table of four -- or three depth entries that I  
11 have revised slightly, based upon revised  
12 perforation data furnished by Empire.

13 The first change is the minus 748 subsea  
14 depth. That was revised from a previous value of  
15 minus 728. The second entry, minus 761, is  
16 unchanged from the original statement. The third  
17 entry, minus 1,928, subsea depth is the deepest  
18 injection perv in the Ryno saltwater disposal well.  
19 And that was revised from minus 2,013 in my previous  
20 statement, again based on data provided by Empire.  
21 And the last entry, the minus 1,851.5, as I  
22 mentioned earlier, that is the depth -- the deepest  
23 oil that was seen on the reprocessed NuTech log.

24 Q. Mr. Marek, did you also have a  
25 typographical error on -- I believe it was the

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1 second bullet?

2 A. Oh, the . . .

3 Q. You had well number 669, and that should  
4 have been well number 679, correct?

5 A. Yes, sir. I did as corrected on the  
6 revised statement, as you just pointed out. But in  
7 the previous one, there was a typo.

8 Q. Did any of the changes that you made have  
9 any effect on your conclusions?

10 A. No.

11 MR. PADILLA: Mr. Examiner, we tender  
12 Exhibit H, as corrected, for admission.

13 HEARING OFFICER HARWOOD: You said  
14 Exhibit A?

15 MR. PADILLA: H.

16 HEARING OFFICER HARWOOD: H. Any  
17 objection, Mr. Rankin?

18 COMMISSIONER LAMKIN: Mr. Hearing  
19 Officer, no objection to the admission of Empire's  
20 revised Exhibit H.

21 HEARING OFFICER HARWOOD: It will be  
22 admitted.

23 (Exhibit H admitted into evidence.)

24 Q (By Mr. Padilla) Mr. Marek, let's go to a  
25 PowerPoint presentation that you have to summarize

1 your testimony as expressed in the self-affirmed  
2 statement as corrected.

3 A. Yes, sir. Is this --

4 Q. Let me address, you have -- the first  
5 relevant slide is slide number 2. What you have --  
6 you have it labeled as Introduction. Tell us about  
7 that.

8 A. Yes, I was asked to express my opinion  
9 regarding saltwater disposal operations within the  
10 San Andres interval. That would be the commercial  
11 saltwater disposal operations at EMSU.

12 And the second bullet item, I'm just  
13 reiterating here the defined unitized interval at  
14 EMSU. It's defined as the lower limit of the  
15 San Andres up to the top of the Grayburg formation.  
16 So it covers the entire Grayburg, San Andres  
17 interval.

18 And then my last bullet item there is: In  
19 my 48 years of experience, I have never seen an  
20 instance where an outside party was allowed to  
21 inject water into a unitized interval.

22 Q. Let's go on to the next bullet point. Oh,  
23 slide, I'm sorry.

24 A. That's okay.

25 Q. What is this?

1           A.       Exhibit E-1 is -- this map shows a line of  
2 cross section toward the -- toward the bottom  
3 central part of the map going from A to A-prime.  
4 And it connects wells that are going to be shown in  
5 following cross sections.

6           Q.       Let's move on to the next slide.

7           A.       This is a cross section, a structural  
8 cross section that shows the wells from the previous  
9 map. And these are well logs displayed in a  
10 structural fashion.

11                   And you can see the Ryno saltwater  
12 disposal well is the well on the left. And the --  
13 in my view, it's a -- it's an orange line, connects  
14 the top of the Grayburg zone. And then there's a  
15 green line that connects the top of the San Andrews  
16 zone in each of these well logs.

17                   And there's also a line depicting the base  
18 of the San Andres, which we can see from the Ryno  
19 well log. And the other wells, or at least the 658  
20 and 660, those logs did not go deep enough to see  
21 the base of the San Andres.

22           Q.       Mr. Marek, you didn't pick the tops of the  
23 Grayburg or San Andres, right?

24           A.       That is correct.

25           Q.       Let's go on to the next slide, please.

1                   What are you showing --

2           A.       All right.  You have a --

3           Q.       -- here, Mr. Marek?

4           A.       This is a similar display to what we saw  
5 on the previous slide, except these well logs now  
6 are hung on the top of the Grayburg formation.  So  
7 there is no structure involved here, if this is what  
8 we call a stratigraphic cross section.

9                   And there is a note at the bottom of this  
10 slide, and that same note was in the previous slide  
11 that says, "The log sections are based on NuTech's  
12 original analysis."

13                   So the Ryno well log is the original  
14 NuTech log, not the reprocessed log.

15           Q.       Mr. Marek, what conclusions did you reach?  
16 If we can go on to the final slide, please.

17           A.       Okay.  Well, oil saturations calculated  
18 from logs and core data indicated there is an ROZ in  
19 the San Andres reservoir.

20                   Secondly --

21           Q.       Go --

22           A.       Yes, sir.

23           Q.       Let me ask you:  What is your definition  
24 of ROZ, residual oil zone?

25           A.       Residual oil zone, in my years of

1 experience, I would define that as a zone containing  
2 oil saturation that is below what would  
3 traditionally be the waterflood target in these big  
4 reservoirs. And for many, many years, those zones  
5 were ignored. In fact, that was not the -- what you  
6 would say easy oil to get.

7 And as time went on, these -- and CO2  
8 enhanced recovery came in to play, it was recognized  
9 that these ROZ zones had oil in them that could be  
10 recovered by CO2 injection and add to the value, of  
11 course, of the property.

12 Q. In the San Andres, according to your cross  
13 sections, do you see an ROZ in that interval?

14 A. Yes, sir. We see it in the core data, but  
15 most notably, maybe it is in the Ryno NuTech log  
16 itself. You see oil saturation well into the  
17 San Andres reservoir.

18 Q. What is the second bullet shown on this  
19 Conclusions?

20 A. Well, based on the perforations in the  
21 Ryno saltwater disposal well, that well is disposing  
22 of water into the ROZ that we see in Well 679 core  
23 and in the Ryno well log itself.

24 Q. What is contained -- what conclusion do  
25 you reach on the last bullet point on this slide?

1           A.       Well, the high water disposal rates that  
2 are occurring at EMSU can cause higher pressure in  
3 the ROZ and a higher potential for hydraulic  
4 fracturing and vertical communication. All of those  
5 would be detrimental to future ROZ operations. And  
6 these same factors could also have -- or will have a  
7 negative impact on the current field operations in  
8 the traditional Grayburg producing zone.

9           In addition, the higher pressures will  
10 also reduce the efficiency of any future CO2  
11 tertiary oil recovery project, because it would  
12 cause more CO2 required to produce the oil than it  
13 would at lower pressures.

14          Q.       Can you explain to the Commission why you  
15 could have a detrimental effect on the Grayburg  
16 producing zone through commercial and saltwater  
17 injection?

18          A.       Well, if commercial injection causes high  
19 enough pressures, that can cause vertical fractures  
20 and cause the disposed water to be diverted into the  
21 producing Grayburg zone, which would be very --  
22 could be very detrimental to the future production  
23 operations there and would certainly cause the wells  
24 to produce at higher water volumes, which is never a  
25 good thing.

Cross-Examination by Mr. Rankin

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1 MR. PADILLA: Mr. Examiner, that  
2 concludes our summary of the testimony of Mr. Marek.  
3 And we pass the witness for cross.

4 HEARING OFFICER HARWOOD: All right.  
5 Thank you, Mr. Padilla.

6 Goodnight?

7 COMMISSIONER LAMKIN: Thank you,  
8 Mr. Hearing Officer.

9 CROSS-EXAMINATION

10 BY MR. RANKIN:

11 Q. Good morning, Mr. Marek. How are you  
12 today?

13 A. Good, thank you.

14 Q. Good. I do have some questions for you,  
15 and I want to take some time to walk through them,  
16 get myself organized a moment here.

17 I'm going to pull up on my screen -- and  
18 let me know when you can see it -- your resume.

19 A. Yes, I can see it.

20 Q. I'm going to start at the top. This was  
21 actually from your original Exhibit H that was filed  
22 back in August, but I think it's the same  
23 information. And I've highlighted a few things here  
24 because I just want to remind myself to ask you  
25 about them, but I'm going to scroll back down to the

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1 bottom.

2 You include some of your technical  
3 presentations and some of the work you've done.  
4 Have you ever done any research or presented any  
5 papers on residual oil zones?

6 A. No.

7 Q. Other than your work for Empire in this  
8 case, have you ever been involved in evaluating a  
9 potential residual oil zone?

10 A. Yes.

11 Q. Which ones?

12 A. Well, when I was at Cornell Oil Company,  
13 we had a producing property called the Cornell Unit  
14 in the Wasson field, and we did internal studies of  
15 the potential for CO2 injection, which included what  
16 we at the time called a transition zone at the  
17 Cornell Unit.

18 Q. When you were with Cornell, that was --  
19 when was that? I don't remember seeing them on your  
20 resume. Oh, okay, between '82 and '85?

21 A. Yes, sir.

22 Q. So back -- that was very early in terms  
23 of -- I mean, people weren't referring to these  
24 zones as residual oil zones at that time, correct?

25 A. No. As I stated previously, we called it

1 a transition zone at the time.

2 Q. Okay. And don't people still distinguish  
3 between a transition zone and a residual oil zone?

4 A. I don't know.

5 Q. Okay. But other than that evaluation for  
6 Cornell, did you do any work evaluating a potential  
7 residual oil zone?

8 A. Over the years, we've had the opportunity  
9 to help clients look at acquiring properties. And  
10 then on several occasions, I don't remember the  
11 specifics, but those properties would have CO2  
12 enhanced recovery potential. And we attempted to  
13 help them evaluate those.

14 Q. But anything that was specifically  
15 referred to identified as a residual oil zone?

16 A. I don't remember.

17 Q. Are you familiar with the term a  
18 greenfield residual oil zone?

19 A. I've heard the term, but I'm not familiar  
20 with it.

21 Q. Okay.

22 A. Deeply familiar with it.

23 Q. Are you -- are you aware that Empire's  
24 experts consider the San Andres and the EMSU to be a  
25 greenfield residual oil zone?

1 A. I don't -- I don't know.

2 Q. What is your understanding of what a  
3 greenfield residual oil zone is?

4 A. I don't know.

5 Q. For the work that you've done helping  
6 clients identify potential CO2 opportunities, have  
7 any of those been on the Central Basin Platform on  
8 the Permian Basin?

9 A. Yes.

10 Q. Which ones?

11 A. I've -- we've looked at, I guess -- I  
12 think we mentioned them earlier with Mr. Padilla,  
13 but there's been many of the fields that we've  
14 evaluated over the years that have had CO2 enhanced  
15 recovery. That would be, you know, Seminole. I'm  
16 pulling back up the list.

17 There's Wasson, Levelland, Slaughter,  
18 Means, Seminole, North and South Cowden, Goldsmith,  
19 and others.

20 Q. And all those that you just mentioned are  
21 on -- they're not on the west side of the Central  
22 Basin Platform, right?

23 A. No.

24 Q. They're all on the eastern margin,  
25 correct?

1 A. I believe that's correct.

2 Q. Okay. To your recollection, have you ever  
3 evaluated a potential ROZ or a CO2 tertiary recovery  
4 project in the San Andres on the western side of the  
5 Central Basin Platform?

6 A. Not that I recall.

7 Q. Are you aware of any projects that are  
8 currently developing San Andres interval on the  
9 western side of the Central Basin Platform?

10 A. No.

11 Q. Going back to the beginning of your career  
12 in the -- in the '70s with Hughes and Hughes, you  
13 got a long history of preparing annual reserve  
14 reports, preparing reserve reports for companies and  
15 while you've been at Cobb, correct?

16 A. Yes. Some of my career certainly has been  
17 involved with annual reserve reports and certainly  
18 some of that at Cobb & Associates.

19 Q. In addition to doing reserve reports, you  
20 also have an extensive background in doing economic  
21 analyses and evaluations of projects in the oil and  
22 gas industry, correct?

23 A. Correct.

24 Q. Yeah. And I've highlighted some of those  
25 references here. So back with Cornell, you, in

1 fact, helped them develop an economic analysis of  
2 their anticipated CO2 project in a West Texas  
3 property that looked at CO2 supply, CO2 issues,  
4 right?

5 A. Yes.

6 Q. And you also, for them, developed annual  
7 internal reserve reports and also supervised the  
8 preparation of external third-party company reserve  
9 reports, correct?

10 A. Yes.

11 Q. And then into the present, from '85 to the  
12 present, your resume states that you specialize, in  
13 fact, in CO2 reserve evaluation and economic  
14 analysis, right?

15 A. Yes.

16 Q. And that you also specialize in CO2  
17 enhanced oil recovery feasibility and performance  
18 analysis, right?

19 A. Correct.

20 Q. And simulation studies, correct?

21 A. Yes.

22 Q. Okay. Have you done a specific, like a  
23 formal reserve evaluation for a project that was  
24 specified as a -- as a residual oil zone project?

25 A. Not that I recall.

1 Q. Have you ever done an economic analysis  
2 for a project that was specified as a residual oil  
3 project?

4 A. Not that I recall.

5 Q. Have you ever conducted a CO2 enhanced oil  
6 recovery feasibility or performance analysis for a  
7 project that was specified to be an ROZ project?

8 A. Not that I recall.

9 Q. In your testimony, you state -- and I'll  
10 go to your -- I'll switch over to what was filed on  
11 Friday -- on Friday, I believe, which is the  
12 amendments to your August 2024 testimony. And --  
13 actually, I think I'll stick with the original one  
14 that I was working off of here, Exhibit H.

15 You state that your first experience  
16 working on the EMSU was in August of 1987, right?

17 A. Correct.

18 Q. And that was working on a Cobb report for  
19 a client evaluating the waterflood potential in the  
20 EMSU, right?

21 A. Yes.

22 Q. So that report was focused on evaluating  
23 the -- what was the main pay zone in the Grayburg  
24 and partially in the Penrose, right?

25 A. Primarily the Grayburg.

Cross-Examination by Mr. Rankin

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1 Q. Okay. And I'm going to go ahead and pull  
2 that up.

3 This -- I'm going to -- I don't know if  
4 you can see it. It states here at the top, "Cobb &  
5 Associates 1987." Is this the report that you're  
6 referring to?

7 A. I believe it is.

8 Q. Okay. And I'll just note for the record  
9 that it was -- this version of this report was  
10 produced to Goodnight by Empire, and it's got the  
11 Bates labels at the bottom. It's a 47-page  
12 document.

13 COMMISSIONER LAMKIN: Mr. Hearing  
14 Officer, at this time I would move the admission of  
15 this Exhibit S, Goodnight Cross Exhibit Number -- I  
16 believe it's Number 10 in sequence, for purposes of  
17 the record.

18 HEARING OFFICER HARWOOD: Any  
19 objection, Mr. Padilla?

20 MR. PADILLA: No objection.

21 HEARING OFFICER HARWOOD: Mr.  
22 Moander?

23 MR. MOANDER: No objection from OCD,  
24 Mr. Hearing Officer.

25 HEARING OFFICER HARWOOD: Thank you.

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1 Mr. Beck?

2 MR. BECK: No objection.

3 HEARING OFFICER HARWOOD: Mr. Suazo?

4 MR. SUAZO: No objection from Pilot.

5 HEARING OFFICER HARWOOD: All right.

6 It will be admitted.

7 (Exhibit S admitted into evidence.)

8 Q (By Commissioner Lamkin) Mr. Marek, I just  
9 wanted to ask you a couple of questions about this  
10 report. Since you are familiar with it and you were  
11 part of the team that helped prepare it, correct?

12 A. Yes.

13 Q. Okay. I'm going to skip down to a page  
14 here that I've got some highlighting on. And this  
15 is one of the questions I want to ask you about.

16 Back when you were doing this evaluation,  
17 you looked at a number of things, one of which was  
18 what pressure information was available for the EMSU  
19 at the time. And I've highlighted here an entry  
20 where you identified -- or the Cobb report  
21 identifies that records that you were able to obtain  
22 from the New Mexico -- from New Mexico show that the  
23 initial pressure for the EMSU was at 1450-psi at  
24 minus 250 feet subsea, right?

25 A. I believe that's what it says. Could I

1 ask you to --

2 Q. Zoom in?

3 A. -- zoom in just a bit? My old eyes are  
4 having trouble with that.

5 Q. That's fair. I had to get myself a new  
6 prescription since the last time I was before the  
7 Commission so I can see better, but I -- I'm with  
8 you on that. So I'll make it bigger.

9 Can you see that a little better?

10 A. Much better. Thank you.

11 Q. Okay. Now, the question was, I guess,  
12 that -- the pressure that was identified in the EMSU  
13 was at 1450-psi at minus 250 subsea depth, correct?

14 A. Yes, sir.

15 Q. Is there any reason to believe that minus  
16 250 subsea depth is incorrect and that it was  
17 actually measured at plus 250 feet subsea?

18 A. I don't have an opinion on that.

19 Q. But based on Cobb's analysis and reporting  
20 and evaluation as reflected in this report, Cobb  
21 identified that pressure to be measured at a depth  
22 minus 250 subsea, agree?

23 A. Well, I agree that's what I read there. I  
24 certainly don't remember that from that many years  
25 ago.

1 Q. That's reasonable. It's been a long time,  
2 I understand.

3 Do you recall, Mr. Marek, being able to  
4 locate much in the way of pressure data on the EMSU,  
5 whether it was you who prepared this report?

6 A. I don't recall.

7 Q. I'm going to go to the next page here  
8 where some of -- some of that is actually discussed.

9 This next section of this report says an  
10 OOIP -- just so you and I are on the same page, is a  
11 short -- or acronym for original oil in place; is  
12 that correct?

13 A. Yes, sir.

14 Q. Okay. So at the next section here where  
15 it is titled "Original Oil in Place Based on Data  
16 Obtained Since 1983," I've highlighted a sentence  
17 that says, "Due to the lack of pressure data, no  
18 material balance projection could be prepared for  
19 EMSU." Did I read that correctly?

20 A. Yes.

21 Q. Now, does that refresh your recollection  
22 on whether Cobb was able to identify much in the way  
23 of pressure data on the EMSU?

24 A. Well, it just reminds me that there wasn't  
25 much, if any, data available.

1 Q. And Cobb would have done a pretty thorough  
2 job trying to locate pressure data in order to do  
3 its job, wouldn't it?

4 A. Well, at the time, our client did not own  
5 the property, so we -- and, again, this is from a  
6 memory, but the data that we acquired was primarily  
7 from public sources. The operator -- or the party  
8 we were working for did not own and operate the  
9 unit. So I -- that could have contributed to us  
10 having difficulty getting pressure data.

11 Q. Was your client a working interest owner  
12 in the unit?

13 A. You know, I don't remember if they were at  
14 the time or if they were looking to acquire a  
15 working interest.

16 Q. You would agree with me that having  
17 sufficient, accurate pressure data would be critical  
18 to preparing a model on production in the EMSU?

19 A. Yes.

20 Q. Skipping down a couple of pages here,  
21 there's an entry here where I believe the section is  
22 talking about the geology, a description of the  
23 reservoir and the geology. Okay? I've highlighted  
24 an entry that I wanted to just bring to your  
25 attention and ask you to comment on.

1           Here, the sentence I've highlighted says,  
2 "An accurate prediction of injection" -- this is on  
3 page 9 of this document. "An accurate prediction of  
4 injection and production performance for any  
5 waterflood operation requires an accurate  
6 description of the reservoir, including both rock,  
7 property, and fluid property data." Did I read that  
8 correctly?

9           A.     Yes, sir.

10          Q.     And you would agree that, to be reliable,  
11 a prediction of EMSU injection and production, the  
12 geologic parameters would need to be accurate?

13          A.     Well, the better the data, the better  
14 answer.

15          Q.     Right. Okay. If you're using -- if  
16 you're modeling the EMSU, you would want your model  
17 to, as closely as possible, reflect the actual data,  
18 the geologic data that's available; would you agree?

19          A.     Yes.

20          Q.     At page 17 here, I'm going to scroll down,  
21 where there's some more discussion about the geology  
22 here.

23                 This section here that says, "Reservoir  
24 Stratification," Cobb identified -- or characterized  
25 the Grayburg here as follows, quote, "The

1 examination" -- this is page 13 of the -- of this  
2 report, quote, "Examination of logs and core data  
3 indicate that the EMSU will behave as a heterogenous  
4 stratified system." Did I read that correctly?

5 A. Yes, sir.

6 Q. So because it's heterogenous and  
7 stratified, because it's important to have accurate  
8 geological inputs, Cobb created its model using 20  
9 different layers to evaluate the Grayburg waterflood  
10 requirements, correct?

11 A. Yes.

12 Q. And that's the next thing I've got  
13 highlighted here. At the bottom of page 13, I've  
14 excluded the first part of that sentence, but  
15 basically it says, quote, "Utilizing a V factor of  
16 0.75, a 20-layer 80-acre pattern, five-spot model  
17 has been developed to predict EMSU waterflood  
18 performance." Did I read that correctly?

19 A. Yes.

20 Q. And I'm not going to go into the details  
21 here, but in this report, Cobb identifies, based on  
22 the data available, 20 layers with different  
23 permeabilities and porosity values for each of those  
24 20 layers; is that correct?

25 A. Yes.

1 Q. Okay. And then based on that data and  
2 information, Cobb prepared an economic evaluation of  
3 the potential waterflood performance in the  
4 Grayburg, right?

5 A. That data . . .

6 Q. That -- I apologize, I didn't mean to cut  
7 you off. As part of this report -- as part of this  
8 1987 report, Cobb prepared an economic analysis,  
9 correct?

10 A. Yes.

11 Q. Okay. Now, I'll scroll down to that where  
12 some of that is discussed. And when you prepared  
13 this economic analysis, even back at the time in  
14 1987, Cobb evaluated different pricing scenarios,  
15 correct?

16 A. Based on what this report says, yes. I  
17 certainly don't remember that --

18 Q. Okay.

19 A. -- specifically.

20 Q. So at the bottom of page 18, here, we get  
21 into the economic evaluation of the waterflood and  
22 the Grayburg. And I've highlighted here that -- the  
23 part that I was interested in. And in sum, this  
24 report reflects that Cobb had done a couple of  
25 different pricing scenarios. Do you agree?

1 A. Yes.

2 Q. And one of those pricing scenarios was a  
3 flat price case where, as I've highlighted here, it  
4 says that, "The cash flow projections are presented  
5 for the EMSU waterflood utilizing both flat prices  
6 and escalated prices." Did I read that right?

7 A. Yes.

8 Q. And then for the -- it goes on to say,  
9 "For the flat price case, oil and gas prices and  
10 operating costs are held constant over the projected  
11 30-year life." Did I read that correct?

12 A. Yes.

13 Q. Is that -- is it -- is it relatively  
14 standard when evaluating -- when conducting economic  
15 evaluations to include a flat price scenario?

16 A. It's very common.

17 Q. Okay. And is that because when you're  
18 conducting economic evaluations, you want to have --  
19 understanding a potential pricing to evaluate the  
20 economics?

21 A. The flat price case stems many times from  
22 the -- SEC would require flat price projections for  
23 public companies. So that's one reason it was very  
24 common to do flat price projections.

25 Q. And is that because it's a fairly

1 conservative approach?

2 A. It could be conservative or the opposite,  
3 actually.

4 Q. Sure. Depending on the economic  
5 environment at the time of the evaluation, right?

6 A. Yes.

7 Q. In other words, you know, future might  
8 look very uncertain and actually not very positive  
9 for oil and gas production, in which case a flat  
10 price would be very conservative, right?

11 A. Well, if one expected prices to increase  
12 over time, the flat price case would be  
13 conservative. If there was risk in the market and  
14 one expected prices might fall, then the flat price  
15 case could be optimistic.

16 Q. Now, when you run -- you have extensive  
17 background running economic models and evaluations  
18 of oil and gas projects, right? When you run your  
19 economic evaluations, do you -- do you generally  
20 recommend to your clients that you run them at  
21 different pricing scenarios?

22 A. We would typically run what the clients  
23 preferred. They would specify what they wanted to  
24 see.

25 Q. Okay. Do you-all make a recommendation in

1 terms of running at least more than one pricing  
2 scenario?

3 A. Generally, no.

4 Q. Okay. Now, the -- you also did a  
5 follow-up study in 1988 for the same client on the  
6 EMSU, correct?

7 A. Yes.

8 Q. And that one was evaluating infield  
9 drilling downspacing to 40 acres right with a  
10 80-acre five-spot pattern for waterflood, right?

11 A. Correct.

12 Q. Since that 1988 report, have you done any  
13 additional -- have you had any further additional  
14 experience with the EMSU since 1988?

15 A. Not that I recall, until Empire contacted  
16 us.

17 Q. Okay. How about anything on the west side  
18 of the Central Basin Platform?

19 A. Oh, gosh, I'd have to -- I'd have to look  
20 through my projects list. I just don't know.

21 Q. As we're sitting here today, based off  
22 your -- what you can recall, can you think of any  
23 projects that you worked on on the west side of the  
24 Central Basin Platform?

25 A. Not specifically.

1 Q. Okay. I'm going to pull up another  
2 exhibit here that was produced to us in our  
3 discovery, Mr. Marek, with Empire. And it's got the  
4 Bates labels on the bottom as well, and I'm going to  
5 represent to you that this was produced to us as  
6 part of the discovery. It's a chain of emails  
7 between yourself and some members from Empire, going  
8 back into -- I'll scroll down. It's 17 pages. It's  
9 the complete document that we received, and it goes  
10 back to an email in -- I'll zoom in a little bit so  
11 you can see it better -- September of 2022. Do you  
12 see that highlighting I've got there?

13 A. I do.

14 Q. Do you recall being contacted by Empire on  
15 that date -- or actually sending an email to Empire  
16 folks on that date?

17 A. I don't remember it specifically, but  
18 maybe if we look deeper, we'll see if it jogs my  
19 memory.

20 Q. Okay.

21 A. I see what you have on the screen, though,  
22 no doubt.

23 Q. Okay. So here it's an email from you to  
24 different folks at Empire dated December 4, 2022.  
25 It says here that you attached PDF copies of prior

1 reports presumably that Cobb had done, as stated in  
2 the subject line, for the EMSU. And then you  
3 reflect to them that you did get permission from the  
4 prior client to provide this to them.

5 Do you -- do you recall providing those  
6 Cobb reports to Empire at that time?

7 A. Well, I do now, yes, that I see this.

8 Q. Do you recall what the -- how did that  
9 come about? Did they reach out to you to ask for  
10 them?

11 A. I'm trying to remember the time sequence  
12 of things. It seems I was contacted by Empire. You  
13 see Mr. Pritchard's name there, that they -- I don't  
14 remember if they had acquired it at the time or if  
15 they were looking to acquire the EMSU at the time.

16 Q. Okay. And the prior Cobb reports that you  
17 referred to that you attached, would those have been  
18 the 1987 and 1988 reports that we just referred to?

19 A. They would have to have been. There's no  
20 other reports.

21 Q. Okay. That was my next question, so thank  
22 you.

23 Okay. So you don't recall what generated  
24 this email other than likely, that they reached out  
25 to you and asked if they could have them, and you

1 provided it to them, correct?

2 A. Yes.

3 Q. Okay. But there was no other -- no other  
4 discussion or engagement beyond you providing them  
5 those reports, correct?

6 A. Not that I recall.

7 Q. So I'll scroll up here to the next page,  
8 and we fast forward almost a year.

9 And you see here, I've got another email  
10 from Mr. Mike Morrisett, again, from Empire dated  
11 Tuesday, August 8, 2023. It's sent to you and two  
12 other folks at Cobb as well. Do you see -- can you  
13 see that on your screen?

14 A. I do.

15 Q. Do you recall this email from  
16 Mr. Morrisett?

17 A. Can you zoom in a bit and let me read it?

18 Q. Sure.

19 A. I don't remember. I mean, I see what's  
20 written here. I'm thinking this has to maybe be  
21 when Empire was looking to acquire the EMSU, just by  
22 the nature of the text here. But I don't remember  
23 with great detail.

24 Q. That's understandable. Lots happened  
25 since this time.

1           So I've highlighted here in particular,  
2           again, the language I wanted to point out.

3           Mr. Morrisett emailed you and your colleagues --  
4           these were your colleagues, right? Mr. Don Bailey  
5           and Mr. Robert Williams, correct?

6           A.       Yes.

7           Q.       Okay. And Mr. Morrisett emailed you and  
8           he says that he's got a special project that he  
9           would like to discuss with you. "We're going to  
10          need reservoir, production, geology, expert  
11          testimony," et cetera, et cetera, on something,  
12          right? But you don't -- as you sit here today, you  
13          don't recall that email, off the top of your head?

14          A.       No.

15          Q.       Okay. So you don't recall, as you sit  
16          here, what they were inquiring about at that time?

17          A.       I do not.

18          Q.       Okay. I'll scroll further up here, just  
19          through here. There's some discussions back and  
20          forth about times to meet or discuss their requests.  
21          Okay? Mr. Bailey, your colleague, responds that  
22          Cobb does believe that they can help Empire both  
23          with the near-term -- this must have been based  
24          after the call, okay -- with both the near-term  
25          EMSU, SWD issues, and the follow-up EMSU waterflood

1 optimization study. Just -- your understanding of  
2 SWD would be saltwater disposal, right?

3 A. Yes.

4 Q. Okay. And then the next point here,  
5 asking whether they -- whether Empire was able to  
6 collect data to share with us on near-term EMSU  
7 saltwater disposal issues and do they have a list of  
8 deliverables for Cobb on the SWD issues. Do you see  
9 that?

10 A. I see it.

11 Q. Do you recall this email of Cobb asking  
12 for these details from Empire?

13 A. I do not recall it specifically.

14 Q. Okay. Do you recall around this time  
15 having discussions with Empire about potentially  
16 doing some work for them on the EMSU?

17 A. I don't recall specific conversations, no.

18 Q. Okay. Do you recall generally having  
19 discussions with your colleagues at Empire about  
20 potentially doing some work for them at this time?

21 A. No, I just -- I don't recall any.

22 Q. That's fair. But you have no reason --  
23 obviously these were emails that were from and to  
24 Cobb and your colleagues, including yourself and  
25 Empire, correct?

1 A. Oh, yes, correct.

2 Q. Now, in fact, you did respond on  
3 August 24, 2023, about your availability to discuss  
4 these issues with Empire and your colleagues, saying  
5 that you were available. But you don't recall the  
6 results of those discussions or your availability on  
7 that day, do you?

8 A. Well, if you scroll up slightly. Who did  
9 that email go to? Oh, it's there. This is  
10 internal -- no, Mike Morrisett, I see.

11 No, I mean, other than acknowledging I see  
12 what's there, I don't have a specific recollection  
13 of it.

14 Q. Okay. Now, a few days after this, okay,  
15 on August 31st, Ms. Lucy King with Empire emails the  
16 same group, okay, and directs -- directly to  
17 Mr. Bailey, your colleague. And she states -- and  
18 I've highlighted the language here -- that, "We are  
19 evaluating our strategy for opposing the saltwater  
20 disposal in and offset the Eunice Monument South  
21 Units and Arrowhead Grayburg unit."

22 She goes on to say that there is a hearing  
23 set for September 2023. They've asked for a  
24 continuance to December. And then she says, "While  
25 your input would be invaluable, we are uncertain of

1 what to request from you. We know that year-end  
2 reserve season is here. We will contact you when we  
3 have a better view of what Cobb & Associates can  
4 contribute."

5 So at this point, Mr. Marek, do you -- at  
6 this point, you still don't have a recollection of  
7 any specific or general discussions with Empire, but  
8 what they're seeking or asking from Cobb at this  
9 point?

10 A. No. I mean, obviously, this was brewing  
11 back then, I guess the saltwater disposal issue.  
12 But specifically, I don't, you know, recall more  
13 than that.

14 Q. So then following this Thursday,  
15 August 31st email, Mr. Darrell Davis with Empire  
16 sends an email to the group and to you specifically  
17 stating that, "We would like for Cobb & Associates  
18 to conduct a study to determine a range of oil in  
19 place volumes for the San Andres residual oil zone,  
20 which lies beneath Empire Petroleum operated Eunice  
21 Monument oilfield. We have core and log data which  
22 can be used in this evaluation along with geologic  
23 maps of the Grayburg formation." Did I read that  
24 correctly?

25 A. Yes.

1 Q. Do you recall having this email -- again,  
2 receiving this email from Mr. Davis?

3 A. I don't recall it specifically, but I have  
4 no doubt it occurred.

5 Q. Do you recall having discussions with  
6 Empire about their request for you or Cobb to  
7 prepare an oil -- an oil in place volume analysis  
8 for the EMSU in the San Andres?

9 A. I do not recall having that discussion,  
10 but if -- that study obviously has not occurred.

11 Q. Okay. But you don't recall in that  
12 discussion and you don't recall them asking that  
13 work to be done, do you?

14 A. The "work" being?

15 Q. An oil in place --

16 A. Ask me specifically, please.

17 Q. Yeah. As you sit here, you don't recall  
18 being asked to do an oil in place volume analysis  
19 for the San Andres residual oil zone in the EMSU?

20 A. We were not asked to do that, that's  
21 correct.

22 Q. Well, actually, I guess I'm saying it  
23 looks like -- I'm saying you were asked, because  
24 this email from Mr. Davis asks you to do it, right?  
25 He says, "We would like for Cobb & Associates to

1 conduct a study to determine a range of oil in place  
2 volumes for the San Andres residual oil zone."

3 A. Okay. Well, I see that, but it never  
4 occurred. And I don't remember why it did not, but  
5 that study never occurred.

6 Q. Okay. Okay. But you agree with me that  
7 Empire did ask for that study from Cobb &  
8 Associates.

9 A. That's what I see there.

10 Q. Okay. And then Mr. Davis goes on to say  
11 that this study and exhibits, including an affidavit  
12 for the hearing and writeup and figures and so  
13 forth, would need to be completed by late  
14 October 2023, so that it can be ready for this  
15 November hearing. Okay?

16 Again, but you don't recall those  
17 timeframes, as you sit here today?

18 A. No.

19 Q. Okay. Now, following, you did respond to  
20 Mr. Davis and you said -- and this is on Wednesday,  
21 September 13th. Okay? You said to Mr. Davis,  
22 asking for a meeting to discuss it. You were a bit  
23 confused because you had understood the EMSU -- you  
24 were asking whether the project that they're asking  
25 for you to do was to quantify the ROZ, right?

1           A.       Please -- now, I was reading the email,  
2 I'm sorry.  Would you please restate your question.

3           Q.       Sure.  Sure.  Let me give you a moment to  
4 read it, Mr. Marek.  So I don't want to force -- you  
5 know, force you to speed read.

6                    So this is an email from you to Mr. Davis  
7 and the same group, maybe some additional folks,  
8 looks like, on September 13, 2023.  And you write --  
9 you respond to Mr. Davis from that request to -- for  
10 Cobb to prepare an oil in place analysis.  And  
11 you're asking for a meeting to discuss the request.  
12 You say that you're a bit confused.  And you ask  
13 whether what they're asking for you to do is to  
14 quantify the ROZ.  Right?

15          A.       Right, yes.

16          Q.       And then you ask for them to clarify  
17 whether this would be a separate project from  
18 evaluating the EMSU injection well issues which came  
19 up the previous month, right?

20          A.       Yes.

21          Q.       And then you're asking about this November  
22 hearing and whether it's for both the ROZ issue --  
23 or whether it's either for the ROZ issue or for the  
24 saltwater disposal well issues, right?

25          A.       Yes.

1 Q. And then you're asking for a Teams call to  
2 clarify what they want, right?

3 A. Yes.

4 Q. So then in response, Mr. Davis sends an  
5 email to you and the same group on the same day.  
6 And he explains that the SWD wells are injecting  
7 into the San Andres, which is what Empire contends  
8 is the ROZ. So they need an estimate for the OOIP,  
9 which is the original oil in place, for the ROZ to  
10 show that we want to protect the EOR reserve  
11 potential. Did I read that correctly?

12 A. Yes.

13 Q. So then after explaining that and the  
14 connection between the two, you guys proposed a  
15 meeting by email. And the next series of emails is  
16 about trying to get that set up. Okay?

17 A. All right.

18 Q. The -- you can see that -- again, you're  
19 responding trying to get a meeting set up with them  
20 to discuss. Mr. Davis responds a 1:00 time works  
21 for that same day -- or for a future day. And then  
22 Mr. Davis responds on Saturday, September 23rd,  
23 which is about ten days after that last series of  
24 emails where you were discussing the clarifications  
25 of what Empire is wanting.

1           About ten days later, on September 23rd,  
2 Mr. Davis follows up to you and the -- and your  
3 colleagues at Cobb and says, "If there's anything  
4 else you need from us, let us know, as our  
5 geologist, Nick, will be out Tuesday through Friday  
6 of next week. As you know, the affidavit has to be  
7 notarized, and we need a copy of the presenter's  
8 resume attached to it. We appreciate your help."  
9 Did I read that correctly?

10           A.       Yes.

11           Q.       So at some point here, you guys decided  
12 what your testimony was going to be, right? What  
13 your agreement was, what your task was as of this  
14 date on September 23rd in 2023, correct?

15           A.       I don't know if that's correct. I'm not  
16 sure that we knew exactly at that point in time.

17           Q.       Okay. Very good. The rest of these  
18 emails here are just some discussions about the data  
19 that they provided. And for whatever reason, I --  
20 that list of core data -- this is another email from  
21 you on September 25th to the Empire team restating  
22 the list of core data that they provided to you, but  
23 for whatever reason, it didn't -- it didn't show up  
24 in the document we received. So I don't know what  
25 it was.

1 But basically, you say unless there's any  
2 more data, you have what you need. And then on the  
3 next response, Empire's geologist, Mr. Cestari  
4 indicates that he meant to send you the core for the  
5 RR Bell Number 4, so he provided that to you, okay,  
6 in this email. And that's dated September 25th.

7 And then so beyond that, Mr. Marek,  
8 there's just some discussions about the details or  
9 understanding any corrections or there's some issues  
10 around the depths in the core for RR Bell 4, but  
11 there's no more technical discussions in this email  
12 chain. Okay?

13 Do you recall any of those discussions  
14 with Mr. Cestari?

15 A. Not specifically.

16 Q. Okay. Do you remember generally having  
17 email discussions with him trying to understand or  
18 making sure you understood the data that was  
19 provided to you?

20 A. To the extent that you're showing me those  
21 emails, certainly I -- that -- I remember that  
22 occurred, but --

23 Q. Okay.

24 A. -- I don't have many of the specifics in  
25 mind.

1 Q. Okay.

2 COMMISSIONER LAMKIN: Mr. Hearing  
3 Officer, I would move the admission of this document  
4 that has Bates Numbers on it. It's a 17-page email  
5 chain that was produced to us in discovery by Empire  
6 as Goodnight Cross Exhibit Number 11.

7 MR. PADILLA: I'm going to object  
8 because I don't see the point that these exhibits  
9 have, other than they show that apparently oil in  
10 place studies were never conducted by Cobb. I don't  
11 know that it's relevant, essentially.

12 COMMISSIONER LAMKIN: I'm going to  
13 get to that in a little bit.

14 HEARING OFFICER HARWOOD: Well,  
15 you're proposing the exhibit now, so what's your  
16 position on its relevance?

17 COMMISSIONER LAMKIN: Well,  
18 Mr. Hearing Officer, Mr. Marek is an expert. Has  
19 been almost 50 years doing economic analyses and  
20 reserve reports on a wide range of projects,  
21 especially in the Central Basin Platform. He was  
22 asked to do an original oil in place analysis  
23 specific to the San Andres ROZ, and he didn't do it.  
24 Instead he prepared a two-page report and -- which  
25 he relies entirely, solely on NuTech's analysis for

1 oil saturations.

2 And I want to point out that there was  
3 discussions. There was requests for him to do  
4 something, and Mr. Marek didn't do it. I think it's  
5 important and relevant to the Commission's  
6 consideration of the -- of the weight of -- overall  
7 weight of Empire's testimony in this case.

8 HEARING OFFICER HARWOOD: Okay.  
9 Well, the objection is overruled. It does go to the  
10 weight, not the admissibility of the document.

11 So it will be admitted.

12 (Exhibit 11 admitted into evidence.)

13 HEARING OFFICER HARWOOD: I don't  
14 necessarily need to hear from anybody else unless  
15 there are others that have specific things that  
16 they're burning to express about this exhibit. All  
17 right.

18 Before we proceed with this, I see it's  
19 almost 10:30.

20 COMMISSIONER LAMKIN: Yeah.

21 CHAIRMAN RAZATOS: Why don't we take  
22 a midmorning break. This seems like a reasonable  
23 place.

24 COMMISSIONER LAMKIN: Great time.

25 HEARING OFFICER HARWOOD: All right.

1 So let's take ten minutes.

2 (Recess was taken from 10:28 a.m. until 10:42 a.m.)

3 HEARING OFFICER HARWOOD: Okay.

4 Mr. Rankin, go ahead.

5 COMMISSIONER LAMKIN: Thank you.

6 Q (By Commissioner Lamkin) Mr. Marek, we just  
7 left off discussing this email chain that we marked  
8 as Goodnight Cross Exhibit Number 11, and it was an  
9 email chain that -- the last email on it was  
10 December 1, 2023. But the last email involving you  
11 and Empire was September 25, 2023. Okay?

12 And subsequent to this email chain, you  
13 prepared --

14 Thank you, yeah.

15 Subsequent to this email chain in  
16 September of 2023 that we were just reviewing, you  
17 prepared testimony for Empire in these cases  
18 initially. And I'm sharing on my screen your  
19 original testimony in these cases. I'll scroll  
20 through it. But you prepared some testimony in this  
21 case that's marked as Exhibit D. That was initially  
22 signed and dated October 16, 2023. And it was in  
23 the -- these cases before they were referred to the  
24 Commission.

25 Do you recall preparing that testimony

1 back in October of 2023?

2 Maybe you're on mute, Mr. Marek.

3 A. My apologies. Can you scroll down a bit  
4 so I can see?

5 Q. Sure. So this -- you'll see that the  
6 caption here identifies the applications of  
7 Goodnight Midstream for approval of saltwater  
8 disposal wells. And then it lists only four cases,  
9 and that's because this testimony was provided and  
10 prepared prior to the additional cases that were  
11 added when this matter was referred to the  
12 Commission.

13 You'll see it identifies your  
14 self-affirmed statement. I've highlighted a couple  
15 things I wanted to discuss with you. I'll get to  
16 that in a moment. But you'll see your signature  
17 here with your engineer stamp and then a date of  
18 October 16, 2023. And it's marked as Exhibit D-1.

19 Do you recall preparing this version of  
20 your testimony back in October of 2023?

21 A. Generally, yes.

22 Q. Okay. Now, in this version of your  
23 testimony, you -- in paragraph 3 highlighted here,  
24 you state that you were asked to evaluate the impact  
25 of saltwater disposal operations within the

1 San Andres interval at the EMSU in Lea County, New  
2 Mexico, correct?

3 A. Yes.

4 Q. Okay. Now, in this original testimony,  
5 you say that you were asked to evaluate the impact  
6 of saltwater disposal, but it's barely -- it's  
7 barely two pages of written text, correct?

8 A. Correct.

9 Q. And as part of that analysis, the first  
10 thing you identified is -- is you identified the  
11 definition of the unitized interval in the EMSU, and  
12 you pull the language from the unit agreement or the  
13 unit order, which identifies that the unitized  
14 interval is from the Grayburg essentially down into  
15 and includes the San Andres, correct?

16 A. Yes.

17 Q. Okay. Then you looked at these well logs  
18 that were interpreted by NuTech, including the  
19 Goodnight Ryno SWD Number 1, and then you looked at  
20 the EMSU 679 and 660 and then the RR Bell Number 4,  
21 correct?

22 A. Yes.

23 Q. And then based on those wells and the logs  
24 that you were given by Empire, you prepared two  
25 cross sections that you reviewed, essentially, in

1 your -- in your summary slides today, correct?

2 A. Yes. I did not prepare those cross  
3 sections, but they are certainly part of my  
4 testimony.

5 Q. Okay. Who did prepare the cross sections?

6 A. I don't recall which individual at Empire  
7 prepared them, but that came from someone at Empire.

8 Q. But you reviewed the logs and the cross  
9 sections and adopted them as presented to you,  
10 correct?

11 A. Yes.

12 Q. So after looking at that cross section --  
13 those two cross sections that were prepared, one was  
14 a structural cross section and the second one was a  
15 stratigraphic where it's hung on the Grayburg,  
16 right?

17 A. Yes.

18 Q. And after identifying those logs, you say  
19 that the logs show oil saturation throughout the  
20 entire San Andres interval, correct?

21 A. Yes.

22 Q. Now, this is your original testimony, so  
23 this is referring to the original -- I'm going to  
24 call it the original NuTech petrophysical analysis  
25 of these wells, correct?

1 A. Yes.

2 Q. And your new testimony that we just  
3 reviewed today uses -- you refer to NuTech's revised  
4 or updated petrophysical analysis, correct?

5 A. Yes, reprocessed data.

6 Q. Now, based on your review in particular of  
7 the Ryno SWD Number 1, you state that that well  
8 shows oil saturation throughout the entire  
9 San Andres interval, top to base, correct?

10 A. In the original NuTech log, yes.

11 Q. Okay. So I'll just scroll down here, and  
12 you attached Exhibits D-2 and D-4. And in the  
13 original, which is one I attached here, I'm just  
14 going to -- it's hard to see. Okay? It's not a  
15 great quality image.

16 A. Sure.

17 Q. And I may take a moment to pull up a  
18 better quality one. But can you see the log headers  
19 here?

20 A. Yes.

21 Q. And when you're talking about oil  
22 saturations, which -- are you talking -- which track  
23 are we looking at?

24 A. Oh, up on these, I actually would refer  
25 you to -- it's an Excel file that's got the actual

1 raw data from the NuTech log. That's what I  
2 referred to so that I could see a specific depth and  
3 a specific oil saturation. I did not rely on these  
4 difficult-to-read PDFs.

5 Q. Okay. Yeah, they're hard to read. Let me  
6 see if I can pull up a better image.

7 Mr. Marek, this is the original testimony  
8 of Mr. Joseph McShane, who's Empire's geologist.  
9 And it's marked as Exhibit G in this case. Okay?  
10 It's the same case that your testimony has been  
11 submitted in. And it was submitted -- this is the  
12 version of Mr. McShane's testimony that was filed  
13 back in August of 2024. Okay?

14 I'll just slowly scroll through so you  
15 can -- I'm not sure if you previously reviewed this  
16 at all, but I'll scroll through it so you can see  
17 the date at the end where Mr. McShane signs it.  
18 Okay? It's dated 8/21/2024. So this is his  
19 statement in that time.

20 Mr. McShane, as part of his testimony,  
21 also refers to NuTech's -- the original analysis of  
22 NuTech and the Ryno SWD Number 1 well. And this is  
23 the best image I could find among Empire's materials  
24 that's part of their testimony that has a better --  
25 a better quality image.

1           Okay. But I guess here is the -- NuTech's  
2 analysis of the San Andres EMSU. It's Mr. McShane's  
3 original Exhibit G-3(i). You'll see it's the  
4 Goodnight Ryno well. And then they've -- he's  
5 identified callouts of well saturations at depths  
6 that you can't read.

7           But generally, is -- this is the log  
8 interpretation that you were originally relying on  
9 for your statement that there's oil saturations in  
10 the Ryno in the San Andres from top to base,  
11 correct?

12          A. Well, I don't recall reviewing this  
13 specific exhibit, but it was the original Ryno  
14 NuTech log that I relied upon to make that  
15 statement.

16          Q. Okay. So looking at this, the oil  
17 saturation track here, this oil saturation is the  
18 basis for your statement that there was oil  
19 saturation in the San Andres based on NuTech's log  
20 analysis from top to base, correct?

21          A. Not from this specific exhibit you're  
22 showing. My opinion was based on the original  
23 NuTech analysis. I did not receive it in this form  
24 that we're looking at.

25          Q. Okay. So --

1 A. That I recall.

2 Q. Okay. But you got it in digits, in  
3 digitized format? So actually like numbers for oil  
4 saturations?

5 A. On the original NuTech interpretation, I  
6 do not recall getting them in digital form. On the  
7 reprocessed NuTech, I did get that in digital form.

8 Q. Okay. I'm just a little confused  
9 because -- so in your original testimony, you refer  
10 to this cross section in your testimony as the basis  
11 for your statement that there's oil saturations from  
12 the top of the San Andres to the base, correct?

13 A. Yes.

14 Q. Okay. So I -- to make this easier, I  
15 pulled -- sorry for scrolling through this. I  
16 pulled a better visual of this same NuTech original  
17 log analysis or log image that was part of the same  
18 set of testimony submitted by Empire, and that's  
19 Mr. McShane's Exhibit G-3i. Okay?

20 A. Okay.

21 Q. Do you have any reason to believe that  
22 this Exhibit G-3i is different than what is  
23 reflected in your cross section in Exhibit -- I  
24 believe it's Exhibit H?

25 MR. PADILLA: Mr. Examiner, I'm going

1 to object to this line of questioning. Mr. Marek  
2 has already said that he didn't rely on this cross  
3 section.

4 HEARING OFFICER HARWOOD: Well, it's  
5 been represented that he did in his original report.  
6 I think that's what Mr. Rankin is trying to get to  
7 the bottom of.

8 So it will be overruled.

9 Q. So in this -- in this testimony,  
10 Mr. Marek, back in October of 2023, you were given  
11 this cross section prepared by Empire, and there's a  
12 track here that, as I understand, shows water  
13 saturation and oil saturation. And my  
14 understanding, when I read this testimony, was that  
15 your -- you were referring to this log image of  
16 NuTech's analysis for the statement that there's oil  
17 saturation in the San Andres from the top of the  
18 San Andres to the base; is that -- is that not  
19 correct?

20 A. I believe it is correct.

21 Q. Okay. Okay. So looking at this, then,  
22 this track where I got my cursor, this is the track  
23 that would represent to you that there's oil  
24 saturations from the top to the base of the  
25 San Andres in the EMSU, correct?

1 A. Well, I'm not seeing your cursor, I  
2 apologize.

3 Q. Sorry, it's a little hard to see. I'm  
4 trying to make -- I'm making a blue box now around  
5 where that is. This is the interval from the top of  
6 the San Andres where the green bar is down to the  
7 base at the top of the Glorieta; is that right?

8 A. That is correct.

9 Q. Okay. And it's this track that  
10 represents, in your understanding, the oil  
11 saturations through that interval, correct?

12 A. I believe that's correct.

13 Q. Okay. Very good. Now, this opinion that  
14 you prepared back in October 2023 -- okay -- that  
15 the Ryno SWD well shows oil saturations throughout  
16 the entire San Andres interval from top to base,  
17 that's solely based on NuTech's interpretation of  
18 that log, correct?

19 A. The original interpretation, yes.

20 Q. Yes. Okay. And at that time, as you  
21 prepared this testimony in October '23, did you not  
22 conduct an independent assessment of NuTech's log  
23 interpretation for the Ryno SWD as part of your  
24 analysis at that time, did you?

25 A. I did not.

1 Q. In fact, you did not conduct an  
2 independent assessment of any of NuTech's  
3 interpretations as part of your analysis, did you?

4 A. That's correct.

5 Q. Did you talk with NuTech's technician who  
6 performed the analysis before you prepared your  
7 October '23 testimony?

8 A. I did not.

9 Q. Did you talk with NuTech's technician  
10 before you prepared your recently revised testimony?

11 A. I did not.

12 Q. Did you review NuTech's testimony before  
13 preparing your October 2023 statement?

14 A. Nu -- I'm sorry, no, I guess not. I have  
15 not seen NuTech's testimony.

16 Q. Did you review NuTech's revised testimony  
17 that has been submitted to the Commission as part of  
18 your -- in preparation for your revised testimony  
19 that you recently submitted?

20 A. I did not.

21 Q. Did you conduct a separate or independent  
22 evaluation to arrive at your own independent opinion  
23 about whether the oil saturation -- whether there  
24 might be oil saturations across the entire San  
25 Andres interval and the EMSU?

1           A.       I'm not sure that I totally understood  
2 your question.  Would you please repeat it.

3           Q.       Sure.  You did not conduct an evaluation  
4 to arrive at your own independent opinion about what  
5 the oil saturations might be across the entire  
6 San Andres interval within the EMSU, agree?

7           A.       My opinion was based on the revised NuTech  
8 analysis that was provided to me.  I did no  
9 independent analysis on that issue.

10          Q.       Okay.  So I'll skip over to your amended  
11 testimony, which is the attachment which was  
12 Exhibit A to Empire's motion that they filed on  
13 Friday asking to revise your testimony.  Okay?  It  
14 provides a redline of your changes explaining -- or  
15 showing what the changes were.  And then following  
16 that redline document is a -- is the clean version  
17 of that document that actually has your signature on  
18 it, scrolling through that here with some  
19 highlighting that I want to kind of walk through  
20 with you as well.

21                    When I get to the bottom here, it's got  
22 your signature, and it's dated 4/2/2025, correct?

23          A.       Correct.

24          Q.       Okay.  So as I understand you to say, for  
25 your -- this revised testimony that has just been

1 submitted to the Commission, you didn't do your own  
2 independent evaluation of what the oil saturations  
3 might be across the San Andres and the EMSU.  
4 Instead you relied on NuTech's analysis that made  
5 that determination, correct?

6 A. Yes.

7 Q. Okay. And based on NuTech's analysis,  
8 then, you looked at that cross section in your  
9 exhibits, and it's Exhibit H-2, right? And you're  
10 looking at the Ryno, and you see in the third track  
11 from the left, I think it's the depth track, there's  
12 a little fuchsia box on that depth track. Do you  
13 see that?

14 A. Yes.

15 Q. It's hard to see. Is it your  
16 understanding that that fuchsia box represents the  
17 perforation interval of the Ryno well?

18 A. I believe that's correct.

19 Q. Okay. And that perforation interval, you  
20 know, is the same interval that you identified as  
21 the interval that has these oil saturations,  
22 correct?

23 A. I'm sorry, repeat that again.

24 Q. Sure. The interval where the Ryno has  
25 these perforations, right, for disposal is the same

1 interval that you identified as having those oil  
2 saturations within the San Andres, correct?

3 A. Yes.

4 Q. Okay. And that's -- and that's the basis  
5 for your opinion that Goodnight is injecting into a  
6 zone that is a documented ROZ, correct?

7 A. Yes.

8 Q. Okay. And it's also the basis for your  
9 opinion that water is being injected into the  
10 unitized portion of the San Andres interval,  
11 correct?

12 A. Yes.

13 Q. Okay. Now, in Mr. McShane's original --  
14 now, did you review any of Empire's testimony that  
15 was submitted as part of this case?

16 A. Not Mr. McShane's, that I recall.

17 Q. Okay. I'm showing here again  
18 Mr. McShane's Exhibit G-3i. Okay? And you'll see  
19 that Mr. McShane has -- reflects here a  
20 calculation -- this is Mr. McShane's original  
21 testimony, his original Exhibit G-3i, and he's  
22 conducted a calculation where he's identified an oil  
23 in place value, okay, on a section basis. Do you  
24 see that, where I've highlighted?

25 He says, "The Ryno SWD has a 91.5 million

1 barrel per section of oil in place calculation." Is  
2 that your -- do you see that there?

3 A. I do.

4 Q. Okay. Now, Mr. McShane -- you told me and  
5 testified that your revised testimony that was just  
6 admitted to the record is based on NuTech's revised  
7 petrophysical or reprocessed calculation for the  
8 Ryno, correct?

9 A. Yes.

10 Q. I'm just going to pull up Mr. McShane's  
11 revised testimony where he's done that calculation  
12 again.

13 Let me know when you can see my screen  
14 again, Mr. Marek.

15 A. I see it.

16 Q. Okay. Do you see -- again, it says  
17 Exhibit G-3i is a similar representation on this  
18 exhibit -- this is Mr. McShane's revised  
19 Exhibit G-3, and I can just scroll up to the top of  
20 this document so you can see that this is the  
21 revised self-affirmed statement of Mr. McShane for  
22 Empire. It's a revised Exhibit G. It was filed  
23 December 5, 2024. Okay?

24 I'll go back to that page. You'll see  
25 here that he's done -- based on NuTech's updated or

1 reprocessed analysis for the Ryno, he's recalculated  
2 the oil in place value for this well, and it's now  
3 15.62 million barrels per section. Do you see that?

4 A. Yes.

5 Q. So he, Mr. McShane, and based on NuTech's  
6 analysis, went from 91.5 million barrels per section  
7 down to 15.62 million barrels per section, agree?

8 A. Yes.

9 Q. Just doing a quick calculation, that's a  
10 reduction of 82 -- more than 82 percent in the oil  
11 in place based on that revised petrophysical  
12 analysis. Would you disagree with that?

13 A. I haven't done the math, but if your math  
14 is correct, I agree with your statement.

15 Q. Now, in your statement that you submitted  
16 today, you use the same language here. This is,  
17 again, your -- I'm sharing your revised, amended  
18 statement. You say that, "The NuTech process log  
19 for the Ryno SWD 1 well shows oil saturation" -- of  
20 Mr. McShane's -- your exhibit here that you referred  
21 to is the same old exhibit, right? It has not been  
22 updated to show NuTech's reprocessed log image for  
23 this cross section, correct?

24 A. That's correct. And it's noted at the  
25 bottom of that exhibit.

1 Q. Right.

2 A. Yeah.

3 Q. So I'm going to pull up Mr. McShane's  
4 revised testimony, Exhibit G-3i, which shows the  
5 well log image for the revised or updated  
6 reprocessed NuTech analysis. It doesn't show the  
7 tops of the San Andres here, but is it still your  
8 opinion that NuTech's revised, reprocessed  
9 petrophysical analysis for the Ryno SWD Number 1  
10 still shows oil saturations throughout the entire  
11 interval of the San Andres?

12 A. No, that's not correct.

13 Q. Okay. What is your -- how would you  
14 revise your statement, then?

15 A. The revised NuTech log shows oil down to  
16 minus 1,851.5. The base of the San Andres is minus  
17 1,952. So there is an interval, roughly 100 feet in  
18 the lowest part of the San Andres that has no oil  
19 saturation. It's 100 percent water saturation.

20 Q. Okay. So you were just correct to say  
21 that in your opinion, there's oil saturations in the  
22 San Andres down to -- down to basically 100 feet  
23 short of the base of the San Andres?

24 A. Yes, approximately.

25 Q. Are you using an oil saturation cutoff for

1 your determination that there are oil saturations  
2 down to that depth?

3 A. No.

4 Q. Okay. So you're not making any cutoffs,  
5 right? That -- 1 percent oil saturation would  
6 qualify under your interpretation that there's oil  
7 saturation throughout that interval, correct?

8 A. Yes.

9 Q. Now, Mr. McShane's statement down here  
10 that I'm showing on Exhibit G-3 has a table at the  
11 bottom left. Do you see this table down here?

12 A. Yes.

13 Q. And it's got -- it's got the San Andres  
14 indicated here. It says, "Zone," and then it's got  
15 different column headings. It says, "Gross  
16 Interval."

17 So as I understand Mr. McShane to say that  
18 the gross interval for the San Andres is about  
19 1,215 feet. He says that the net interval is  
20 738-and-a-half feet. And then says that the net oil  
21 interval is at 220 feet. Do you see that?

22 A. I do.

23 Q. Do you understand what saturation cutoff  
24 Empire is using to make that net oil determination?

25 A. I do not know.

1 Q. Now, are you aware when -- that when I --  
2 when asked which of its two log interpretations is  
3 more likely the correct answer, its original or  
4 revised interpretations, that NuTech's witness  
5 testified in his deposition that NuTech stands by  
6 its original log interpretations? Are you aware of  
7 that?

8 A. No.

9 Q. Based on the fact that NuTech's own  
10 witness testified that NuTech stands by its original  
11 log interpretations and not its revised log  
12 interpretations, do you stand by the revised  
13 testimony, which relies on NuTech's revised log  
14 interpretations?

15 A. I tend to like the revised -- and "like"  
16 is not the right term. The revised interpretation  
17 that was furnished to me looks reasonable and does  
18 display an ROZ. So between which of the two are  
19 actually correct, I'm not a petrophysicist, I can't  
20 say.

21 Q. So do you know what NuTech did to modify  
22 its analysis between its original and revised log  
23 interpretations?

24 A. My understanding is that they modified  
25 their petrophysical parameters, the AM&M factors

1 used to calculate the fluid saturations.

2 Q. Do you know how -- in what way they  
3 modified those parameters?

4 A. No.

5 Q. Do you know the basis for which they  
6 modified those parameters?

7 A. No.

8 Q. So you have -- as you sit here today, you  
9 have no way of evaluating between the two what --  
10 basis for deciding yourself which is more correct,  
11 agree?

12 A. Yes.

13 Q. Your original testimony -- and, again, I'm  
14 referring to your October 2023 testimony that you  
15 filed originally, you have a statement in here that  
16 says -- and I've tried to put a box on it. I'll  
17 zoom in a little bit more. Okay?

18 This is paragraph 4 of your original  
19 statement that was marked as Exhibit D. You state  
20 that, quote, "The high water disposal rates will  
21 cause higher pressures in the ROZ and higher  
22 potential for hydraulic fractures in vertical  
23 communication, all of which will impair Empire's  
24 ability to produce hydrocarbons from the ROZ." Did  
25 I read that correctly?

1 A. Yes.

2 Q. Now, in your revised testimony that was  
3 just admitted to the Commission today, you got a  
4 similar statement, but it's different. And in that  
5 statement on page 2 of your revised testimony, you  
6 stay, in quote, "The high water disposal rates will  
7 likely cause higher pressures in the ROZ and higher  
8 potential for hydraulic fracturing in vertical  
9 communication, all which will be detrimental to  
10 future ROZ operations." Did I read that correctly?

11 A. Yes.

12 Q. And the difference, Mr. Marek, is that in  
13 your revised testimony, you inserted the word  
14 "likely," correct? Or that's one difference anyway,  
15 right? You inserted the word "likely"?

16 A. Okay. I'd have to look at them side by  
17 side, but . . .

18 Q. So here's the -- here's the revised  
19 version --

20 A. Okay.

21 Q. -- which is, "The high water disposal  
22 rates will likely cause higher pressures." In your  
23 original, you say, "The high water disposal rates  
24 will cause higher pressures." Do you see that?

25 A. I do.

1 Q. Okay. Do you recall why you amended your  
2 testimony to use the word "likely"?

3 A. No, I don't recall.

4 Q. In your analysis, Mr. Marek, did you  
5 evaluate potential impacts to the San Andres  
6 formation pressure as a result of Goodnight's  
7 injection?

8 A. Ask me one more time, please.

9 Q. Did you -- did you review any data or  
10 evidence that relates to potential impacts to the  
11 San Andres formation pressure as a result of  
12 Goodnight's injection?

13 A. No, other than the obvious correlation  
14 between high injection rates will cause increased  
15 pressure with time.

16 Q. Okay. But you, yourself, you didn't look  
17 at any data to evaluate how pressure has changed  
18 over time as a result of Goodnight's injection, did  
19 you?

20 A. That's correct.

21 Q. Okay. And so you didn't look at any  
22 data -- or injection data or injection profiles or  
23 pressure profiles or pressure data that would  
24 support that opinion?

25 A. That's correct.

1 Q. As part of your opening and summary, you  
2 talked about concerns about high pressure injection  
3 pressures causing potentially fracturing in a  
4 formation that would negatively impact development  
5 in the EMSU, correct?

6 A. I believe that's correct.

7 Q. And the same concern would apply for  
8 waterflood injection operations in the Grayburg,  
9 correct?

10 A. Yes.

11 Q. In other words, like if the waterflood  
12 injections that Goodnight is operating are  
13 exceeding -- or approaching formation parting  
14 pressure, that would be a concern as well, correct?

15 A. It could be.

16 Q. Okay. But you didn't -- you didn't  
17 evaluate what the formation parting pressures are  
18 for the Grayburg or the San Andres, did you?

19 A. I did not.

20 Q. And you don't know whether the current  
21 formation pressures are approaching those levels in  
22 either the San Andres or the Grayburg, are you?

23 A. Please restate the question.

24 Q. You haven't evaluated the current  
25 reservoir pressures in either the Grayburg or the

1 San Andres, so you can't say whether there's a  
2 concern about potential for fracturing in either of  
3 those zones, correct?

4 A. Correct.

5 Q. The next sentence here says that, "These  
6 same factors may also have a negative impact on  
7 current field operations in the traditional Grayburg  
8 San Andres producing zones." Did I read that  
9 correct?

10 A. Yes.

11 Q. But your statement here does not include  
12 an analysis of what those potential impacts would  
13 be, correct?

14 A. That's correct.

15 Q. And you did not review any data that would  
16 support such an opinion?

17 A. No. That was based on my experience.

18 Q. Okay. So you haven't looked at any  
19 production data for the EMSU, any oil or water  
20 production data, correct?

21 A. Correct.

22 Q. And you haven't looked at any well  
23 production histories for the EMSU, correct?

24 A. Not in recent history, that's correct.

25 Q. Okay. So you have no basis to say whether

1 there are any negative impacts currently being  
2 exhibited in the EMSU, correct?

3 A. That's why I put the word "may" in here,  
4 "may have."

5 Q. Right. Okay. In your original testimony,  
6 I've highlighted here in green in paragraph 5, you  
7 included the statement that, quote, "Based on my  
8 many years of experience and the above analysis, it  
9 is my opinion that Goodnight's proposed injection of  
10 produced water into the unitized interval will  
11 detrimentally impact Empire's ability to recover  
12 hydrocarbons from the ROZ and, therefore, result in  
13 waste of oil and gas. As a result, such water  
14 disposal should not be allowed at the EMSU." Did I  
15 read that correctly?

16 A. Yes.

17 Q. Now, in your amended or revised testimony,  
18 you did not include that statement, correct?

19 A. Correct.

20 Q. And in particular, you did not include the  
21 statement, quote, "And, therefore, result in waste  
22 oil and gas," agree?

23 A. Yes.

24 Q. Okay. Now, Mr. Marek, as part of your  
25 analysis and part of your opinion here today, you

1 were not asked to evaluate whether oil in the  
2 purported ROZ in the San Andres is recoverable?

3 A. That was not part of my work product,  
4 that's correct.

5 Q. And you were not asked to evaluate what  
6 the recovery factor in the ROZ might be under a CO2  
7 flood, agree?

8 A. Correct.

9 Q. You were not asked to evaluate whether the  
10 purported ROZ in the San Andres is economically  
11 recoverable, agree?

12 A. Correct.

13 Q. And you've not identified any facts or  
14 data that would support a conclusion that  
15 Goodnight's injection will result in waste of oil  
16 and gas, agree?

17 A. Please state that again. I want -- I want  
18 that one to soak in.

19 Q. You have not identified any facts or data  
20 that would support a conclusion that Goodnight's  
21 injection will result in waste of oil and gas,  
22 agree?

23 A. I'm not sure that I can agree with that.

24 Q. Okay. What facts or data have you  
25 identified that establish that there will be waste

1 of oil and gas?

2 A. I think the proper characterization is  
3 that it may or could result in a waste of oil and  
4 gas.

5 Q. But you would agree with me that you have  
6 not identified any facts or data that would support  
7 a conclusion that Goodnight's injection will result  
8 in waste of oil and gas, agree?

9 A. To the extent that I would change the  
10 "will" to "may."

11 Q. Okay. But you're saying -- I'm just  
12 trying to get you to agree with me, right? You  
13 can't say, as you sit here today, that there will be  
14 waste of oil and gas, agree?

15 A. I don't know that I can agree, because I  
16 can't say that there won't be either.

17 Q. Okay. Well, I'll let you -- I'll let you  
18 state it the way you want, which is that, in your  
19 opinion, that there may be. Okay? But you've got  
20 nothing, sitting here today, that you can point to  
21 that says there has been, correct?

22 A. That would be correct.

23 Q. Okay. And you're not offering -- I think  
24 you already said this in passing, but you're not  
25 offering any opinions or conclusions about

1 petrophysics, correct?

2 A. That's correct.

3 Q. Or how to properly analyze -- how to  
4 properly conduct a petrophysical analysis, correct?

5 A. Correct.

6 Q. And you're not -- you haven't done a  
7 review to confirm whether NuTech's analysis was done  
8 correctly, agree?

9 A. I agree.

10 Q. Okay. And now, as part of your  
11 preparation for this testimony today, you did not  
12 review the EMSU unit documents or the Oil  
13 Conservation Commission case file prior to today's  
14 testimony, did you?

15 A. I did not.

16 Q. And you did not review the EMSU unit  
17 hearing transcript or the exhibits from when it was  
18 presented to the Commission and approved as a  
19 statutory waterflood unit in 1984, correct?

20 A. I believe that's correct.

21 Q. And you did not review any of the EMSU  
22 well files or production data, correct?

23 A. Not in recent history, no.

24 Q. Not since 1988?

25 A. Exactly.

1 Q. At the time you prepared your direct  
2 testimony in this case, were you aware that the EMSU  
3 had six water supply wells inside the unit that were  
4 completed in the San Andres that supplied all the  
5 makeup water for EMSU waterflood operations?

6 A. I wasn't familiar specifically with six  
7 wells. I was aware generally that there were water  
8 supply wells.

9 Q. Were you aware that they were completed in  
10 the San Andres within the EMSU?

11 A. Not that I recall.

12 Q. Okay. Wouldn't that be important for your  
13 analysis or assessment of what's happening in the  
14 San Andres within the EMSU?

15 A. If there are San Andres water supply wells  
16 and they're not producing any oil, then they're not  
17 part of an ROZ. So I'm not sure that they would  
18 have a detrimental effect.

19 Q. Okay. So at the time you prepared your  
20 written testimony, you were not aware that Empire  
21 calculates those six water supply wells had produced  
22 approximately 380 million barrels of water from the  
23 San Andres in the EMSU with no reported oil?

24 A. No, I was not aware of that.

25 Q. Are you aware that those six water supply

1 wells completed in the San Andres are in the same  
2 interval that Goodnight is targeting and has been  
3 currently disposing of injected water -- of produced  
4 water?

5 A. No.

6 Q. Were you aware that there are  
7 approximately 20 additional water supply wells that  
8 have withdrawn water from the San Andres in the  
9 offsetting acreage to the EMSU?

10 A. No.

11 Q. At the time you prepared your direct  
12 testimony, were you aware that produced water  
13 disposal injection into the San Andres within the  
14 EMSU has been authorized in the same zone that  
15 Goodnight is targeting since the 1960s,  
16 approximately 24 years before the EMSU was even  
17 created in 1984?

18 A. To clarify that, produced water within the  
19 unit area has been disposed of in the unitized  
20 interval? Is that . . .

21 Q. Yeah, let me -- maybe I'll help a little  
22 bit. I'm going to pull up what's been marked  
23 as Exhibit -- this is Exhibit B-47. This is  
24 Goodnight Exhibit B-47. Okay? And I presume,  
25 Mr. Marek, that you have not seen this exhibit,

1 correct?

2 A. I'm not seeing it now.

3 Q. Oh, I'm sorry. I fell victim to my own,  
4 you know, excitement. I didn't share it. Sorry,  
5 one moment.

6 Do you see on your screen a map,  
7 Mr. Marek?

8 A. I do.

9 Q. Okay. This has been marked as  
10 Exhibit B-47 from Goodnight's exhibits. I presume  
11 you've not previously seen this exhibit, correct?

12 A. Not that I recall.

13 Q. Okay. Mr. Marek, this was prepared by  
14 Goodnight Midstream's witness, Mr. Preston McGuire.  
15 It's based off of the Oil Conservation Division's  
16 data. And it shows the data first injection, along  
17 with the cumulative volumes of produced water  
18 injected. And I'm zooming in to show you the EMSU  
19 unit, which is outlined in this green line. Do you  
20 see that?

21 A. Yes.

22 Q. And within this green outline of the EMSU  
23 are all of the wells that have been approved for  
24 disposal within the San Andres formation, including  
25 the unitized interval of the EMSU. Okay?

1 First, that's -- within the unit  
2 boundaries was commenced injection in 19-- 1966.  
3 It's in this Section 21 within the unit boundary.  
4 It's injected a cumulative volume of over  
5 43 million barrels. Were you aware that prior to  
6 the creation of the EMSU, there was already non-unit  
7 disposal occurring within the San Andres?

8 A. I was aware that there were disposal  
9 wells, but you just said non-unit water was being --  
10 in other words, off-lease water was being disposed  
11 of?

12 Q. Correct. Correct.

13 A. Okay. No, I wasn't aware of that.

14 Q. I'm sorry, I apologize. I went silent for  
15 a moment because I was reviewing my notes to  
16 determine if I need more questions. I apologize,  
17 Mr. Marek.

18 I have a couple of questions, I think,  
19 maybe or one two. Mr. Padilla asked you a question  
20 about your understanding or definition of a residual  
21 oil zone. Do you recall that question?

22 A. Yes.

23 Q. And as I recall your response, it was that  
24 it's something less than what a waterflood would  
25 target, right? Some oil saturations below what a

1 waterflood would target. Was that your  
2 understanding? Is that what you testified?

3 A. Yes.

4 Q. What are the oil saturations that a  
5 waterflood would target?

6 A. In a waterflood, especially in these  
7 carbonate reservoirs, there is what we call a  
8 residual oil saturation to water. SORW would be the  
9 acronym. And that's the saturation -- oil  
10 saturation below which the water will not displace  
11 oil in a waterflood.

12 And in the San Andres and other  
13 carbonates, that's typically a number in the 35 to  
14 40 or even 45 percent of pore space. Of course, it  
15 varies project by project.

16 Q. Okay. So in your -- your understanding or  
17 your interpretation would be the residual oil zone  
18 would be something below that -- those  
19 concentrations, correct?

20 A. Correct.

21 Q. Okay.

22 COMMISSIONER LAMKIN: I think -- I  
23 think -- Mr. Hearing Officer, I don't think I have  
24 any further questions for Mr. Marek. I would like  
25 to move -- I'm trying to decide. I think this is

1 part of the record already, his original testimony.  
2 But out of abundance of caution, I would move the  
3 admission of Mr. Marek's original testimony from the  
4 October 2023 filing as Goodnight Cross Exhibit  
5 Number 12.

6 HEARING OFFICER HARWOOD: Is it  
7 already in evidence, Mr. Padilla?

8 MR. PADILLA: Yes, it is. It's  
9 already in evidence.

10 HEARING OFFICER HARWOOD: That's what  
11 I thought. What is -- I'm assuming Empire has an  
12 exhibit number for it.

13 COMMISSIONER LAMKIN: That's good.  
14 Mr. Hearing Officer, I reviewed, and I don't think  
15 we have any other exhibits at this time.

16 MR. PADILLA: It would be Exhibit H.

17 COMMISSIONER LAMKIN: Mr. Marek's  
18 revised testimony, I believe, is revised Exhibit H,  
19 yeah.

20 MR. PADILLA: Right.

21 COMMISSIONER LAMKIN: But this -- I'm  
22 saying Mr. Marek's original testimony, which was  
23 filed with the Division in October 2023. I don't  
24 know if it's part of the record or not, and that's  
25 why I, out of an abundance of caution, was going to

Cross-Examination by Mr. Moander

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1 move it as Goodnight Cross Exhibit Number 12.

2 HEARING OFFICER HARWOOD: Any  
3 objection, Mr. Padilla?

4 MR. PADILLA: Well, if it's a cross  
5 exhibit, I wouldn't have any objection. But the  
6 revised exhibit is the one that really matters, as  
7 far as Mr. Marek's testimony is concerned.

8 HEARING OFFICER HARWOOD: Okay. It  
9 will be admitted as your cross-examination exhibit.

10 (Exhibit 12 admitted into evidence.)

11 COMMISSIONER LAMKIN: No further --  
12 no further questions, Mr. Hearing Officer. I make  
13 the witness available for cross.

14 HEARING OFFICER HARWOOD: Okay. We  
15 have 19 minutes to go before Chairman Razatos' firm  
16 stop.

17 So let me turn it over to you next  
18 Mr. Moander. Questions?

19 MR. MOANDER: Yes, sir. Thank you.  
20 Mr. Hearing Officer, I shouldn't be very long.

21 CROSS-EXAMINATION

22 BY MR. MOANDER:

23 Q. So, Mr. Marek, this is Chris Moander,  
24 counsel for OCD. Good morning.

25 A. Good morning.

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1 Q. I've just got a few, I suspect, quick  
2 questions for you here, but I've got to go through  
3 them.

4 A. Sure.

5 Q. My understanding is you didn't review any  
6 OCD filings in preparation to render your opinion in  
7 this matter; is that right?

8 A. That's correct.

9 Q. And so, therefore, you wouldn't have done  
10 any analysis of any of the exhibits or filed  
11 testimony?

12 A. I believe that's correct.

13 Q. And then would it be fair to say you have  
14 no opinion, as you sit here today, on OCD's case; is  
15 that right?

16 A. That would be correct.

17 MR. MOANDER: No further questions  
18 from OCD, Mr. Hearing Officer.

19 MR. BECK: No questions. Thank you,  
20 Mr. Hearing Examiner.

21 HEARING OFFICER HARWOOD: Mr. Suazo,  
22 questions for Pilot for Mr. Marek?

23 MR. SUAZO: No questions from Pilot.

24 HEARING OFFICER HARWOOD: All right.  
25 Well, then, we'll turn it over to the Commission.

1 Who wants to go first? Doctor?

2 EXAMINATION

3 BY COMMISSIONER AMPOMAH:

4 Q. Thank you, sir, for your testimony to as  
5 today. So I do have a couple of questions for you.

6 My first one will be: Do you have any  
7 experience with any ROZ field that has undergone  
8 accessible injections similar to San Andres in  
9 question in this case?

10 A. I do have experience with some of the  
11 major fields that I mentioned earlier that had ROZs  
12 that had been pursued with time for CO2 injection in  
13 the areas of Wasson, Seminole, and some of those  
14 major fields in the Permian Basin.

15 Q. So my question was very specific. So with  
16 these examples that you've mentioned, is there any  
17 of them that you can point out where there has been  
18 significant amount of water injected into any of the  
19 producing zones that were water?

20 A. Water injected into a ROZ? Was that the  
21 nature of your question?

22 Q. Yes, sir.

23 A. Oh, I apologize. No, in my experience,  
24 water is not injected into the ROZ. That -- that's  
25 been the realm of CO2 enhanced recovery.

1 Q. Maybe let me understand it this way. An  
2 outside operator has been allowed to inject into a  
3 unitized unit. Now my question to you is that --  
4 you know, when all these applications were filed  
5 except the 1966 one, which was prior to the  
6 unitization around 1984, why did these operators not  
7 contest these sort of injection wells?

8 A. I guess I don't know the answer to that.

9 Q. Now, I have a question to you, is: Do you  
10 have any concern -- you know, you talked about the  
11 injection into the San Andres will be detrimental --  
12 or likely be detrimental to the ROZ or the Grayburg.  
13 Now, my question to you is: Do you have any concern  
14 with Empire injecting into the San Andres?

15 A. Well, generally the concern I have is for  
16 the high volumes of water that the commercial  
17 disposal operations operate with. There are just  
18 huge volumes of water being injected.

19 Now, Empire, I believe, has disposed of  
20 some water into the San Andres. But you're talking  
21 a few hundred barrels a day, maybe at the most per  
22 well, versus the commercial operations, which would  
23 be maybe 15,000 barrels of water per day, and in  
24 some cases, it's been much higher. So small volumes  
25 are inconsequential. To me, the large volumes from

1 the commercial operations can be very detrimental.

2 Q. So is there a threshold of the water  
3 volume that you can speak to, you know, to the  
4 Commission?

5 A. Not specifically, no. I'm sorry.

6 Q. So you're talking about around  
7 15,000 barrels. So do you believe even  
8 15,000 barrels a day would not have any impact on  
9 the ROZ?

10 A. Oh, I think it could have an impact on the  
11 ROZ. That's been my testimony.

12 Q. So you made some claim in your  
13 conclusions, and I don't know if Mr. Padilla can  
14 bring that up so that can -- you can refresh your  
15 memory on that. So you made about three  
16 conclusions, and I'm really -- do you have more  
17 concern about the number 3?

18 COMMISSIONER AMPOMAH: So if anyone  
19 can bring it up.

20 A. I'm actually looking at it and can address  
21 your question, if you'd like.

22 Q. Okay. So can you confirm to the  
23 Commission if you performed any personal analysis to  
24 support your claim?

25 A. No, I have not. It's based largely on my

1 experience.

2 Q. Can you speak to the economical nature of  
3 the situation that we have in here where there has  
4 been several volumes of water injected into  
5 San Andres? How -- you know, how economical is that  
6 going to be if, let's say, we have -- the Commission  
7 is to shut in all injection wells in this area, how  
8 economical is this project going to be, based on  
9 your experience?

10 A. Well, the current operations are primarily  
11 in the Grayburg and where -- we're not talking here  
12 about changing anything with that. So -- but  
13 anything -- let me put it this way. Should high  
14 volumes of water be injected into the San Andres  
15 and, due to hydraulic fracturing, find their way  
16 into the Grayburg, then that would have a negative  
17 impact on the continued operations of the  
18 waterfloods in the Grayburg zone.

19 It would cause higher producing rates,  
20 meaning more expensive production. It could  
21 compromise the aerial or vertical sweep fishings,  
22 leap deficiencies, leading to a lower ultimate  
23 recovery. So that would be the concern -- or one of  
24 the concerns with the high water volume injection.

25 Q. Thank you for that. And, you know, there

1 has been water injection into that formation way  
2 back, we've seen from 1966. Why is there no strong  
3 evidence, based on reservoir engineer and  
4 application principles, show clarity to the  
5 Commission of what you just stated?

6 A. Well, we have not been tasked with doing  
7 an extensive reservoir engineering study which could  
8 be -- take a lot of time and be very expensive to  
9 do. But mainly, it's the time constraint.

10 So the impact of the water injection into  
11 the ROZ is -- has the risk factors that I think that  
12 we -- that I denote there in my -- the third bullet  
13 item of my conclusions, that that can cause  
14 fracturing and have an impact on the current  
15 operations in the field, in addition to being  
16 detrimental to the ROZ itself.

17 Q. I'm checking my watch here to make sure I  
18 do not go over the time.

19 So another question for you is: As you  
20 reviewed that cross section and also the physical  
21 properties, as you show in your exhibit, can you  
22 confirm to the Commission the average permeabilities  
23 on the San Andres?

24 A. The average perm in the San Andres,  
25 actually, I can go back to -- I thought I might have

1 referenced that in our early Cobb reports, but --  
2 no, and I'll speak from memory here, that it's in  
3 the single to tens of millidarcy range. Of course,  
4 it varies. As you're probably well aware, in  
5 carbonate reservoirs, you have a high degree of  
6 variability in the permeability. We refer to that  
7 as the V factor, or Dykstra-Parsons V factor.

8 So there is variability in the perm from  
9 low to high. But on average, my estimate would be  
10 that it would be in the single digit to tens of  
11 millidarcies on average.

12 Q. You don't think you --

13 A. I was going to say, I can certainly get  
14 you a better number than that, than my poor memory  
15 can scrape up, because we do have that quantified.  
16 I'm just going on memory here.

17 Q. Yeah. So, you know, there has been  
18 testimony by Dr. Buchwalter, hopefully -- yeah. So  
19 he did actual reservoir simulation analysis.

20 Now, I want to ask you: So in his  
21 analysis, he used an availability range of 500 to  
22 550 millidarcy in his simulation model to prove that  
23 there is a communication between the San Andres and  
24 the Grayburg.

25 You know, with your experience, have you

1 seen that higher permeability to prove that a  
2 connectivity between two formation when, as you  
3 said, the permeability is about like -- let's say  
4 within a digit, number?

5 A. No, that high of value surprises me. And  
6 I know Dr. Buchwalter, and I use his software and  
7 have for decades. So I'm a bit puzzled. When you  
8 tell me he used 500 millidarcies, that surprises me.

9 Q. Thank you for that. It surprises me too.

10 So you talk about the residual oil  
11 saturation is in carbonates, and you cited that you  
12 have seen a high to about 45 percent. Can you  
13 confirm that?

14 A. There -- in my experience, that range is  
15 from generally 35 to 45 percent. You know, if I'm  
16 starting a project in a carbonate reservoir and have  
17 no other data, I'll usually start at 40 percent as  
18 an estimate.

19 There is -- I'm taking the paper off of  
20 it. There is a wonderful old 1982 -- pardon me --  
21 '83 publication by the Bureau of Economic Geology,  
22 and it's an atlas of major oil reservoirs in Texas.  
23 And that is one of the few places that in these  
24 fields, will report a residual oil saturation, which  
25 we would have to assume is residual to water back at

1 the time that was published.

2 So that -- that's a wonderful resource for  
3 residual oil saturations. And, in fact, I've got --  
4 I even have a digital -- we digitized this data and  
5 put it in an Excel spreadsheet. So I refer to that  
6 often to retrieve these types of number, average  
7 permeabilities, residual oil saturation. It's got  
8 some very good data in it, porosity numbers. And  
9 I'll just tell you that it exists. I don't know if  
10 I'm at liberty to share it. There's nothing --  
11 what's the term I'm looking for? -- proprietary  
12 about it. It's just out of an industry publication.

13 Q. Thank you for that. So my last question  
14 to you will be -- so you've seen documented probably  
15 around 45 percent. Now, based on some of the  
16 testimony that we've listened to, there was  
17 saturations to about 60 percent shown, based on  
18 adjustments of them and parameters, you know, and  
19 then -- which was not really justified by a Court,  
20 but there is an example of, let's say, another type  
21 of assessment that you can get that high saturation  
22 that was pointed to the Commission.

23 I want to ask you: Assuming a saturation  
24 is about 50 to 60 percent and there has been  
25 numerous water withdrawal wells within the EMSU,

1 based on your experience, don't you believe that  
2 some of these oil, if exists, would that --  
3 extremely high saturations, would that be produced?

4 A. Now, are you referring to the ROZ or to  
5 the Grayburg or to both in that question?

6 Q. This one is specifically to the ROZ.

7 A. To the ROZ. Okay. I guess, actually, my  
8 thought on that would be that if it actually did  
9 produce some oil, then it wasn't really in the ROZ.  
10 It was in more of a traditional oil leg.

11 Q. You know, so then let me rephrase my  
12 question. And I have three minutes, so let me  
13 rephrase my question.

14 So I'm saying that we've defined what an  
15 ROZ is, right? So if we have to figure out what the  
16 oil saturation is to about 60 percent shown to the  
17 Commission based on well log analysis, would you  
18 classify such a reservoir as a conventional  
19 reservoir or as an ROZ reservoir?

20 A. Okay. I think I understand now. If the  
21 oil saturation is stated to -- stated to be  
22 60 percent, that does not strike me as an ROZ.

23 Q. And, therefore, that oil, that porosity  
24 being produced, with the numerous number of water  
25 withdrawal wells into the San Andres. Would that be

1 a fair statement?

2 A. That oil would be produced with the water  
3 supply wells?

4 Q. With the water -- yeah, yes. Yes, that's  
5 the question.

6 A. Okay. If the oil saturation were indeed  
7 that high, I would expect those wells to have  
8 produced oil.

9 COMMISSIONER AMPOMAH: Thank you,  
10 sir. I do not have any further questions for you.

11 HEARING OFFICER HARWOOD: Okay. Near  
12 perfect timing, Dr. Ampomah.

13 So, Chairman Razatos, what's your pleasure  
14 in terms of reconvening after lunch?

15 CHAIRMAN RAZATOS: Come again? I  
16 apologize for this, but I need to probably -- we  
17 need to move it -- we need to do lunch until about  
18 1:15. So can we reconvene at 1:15?

19 HEARING OFFICER HARWOOD: It's your  
20 pleasure.

21 CHAIRMAN RAZATOS: Let's do 1:15.

22 HEARING OFFICER HARWOOD: All right.  
23 We'll be in recess, then, until 1:15. Everybody  
24 have a good lunch. Thank you.

25 CHAIRMAN RAZATOS: Thank you, all.

1 (Recess was taken from 11:50 a.m. until 1:16 p.m.)

2 CHAIRMAN RAZATOS: Good afternoon to  
3 everyone. Can you hear me in Pecos Hall?

4 UNIDENTIFIED SPEAKER: Yes, we hear  
5 you.

6 CHAIRMAN RAZATOS: Excellent. We're  
7 back on for our case, our continuation for the  
8 consolidated cases by Goodnight, Midstream, and  
9 Empire New Mexico. I'm not going to read the  
10 numbers again, we'll just keep them continued.

11 Mr. Hearing Officer, I turn the meeting  
12 back over to you.

13 HEARING OFFICER HARWOOD: Okay.  
14 Thank you, Chairman Razatos. So if I'm remembering  
15 correctly, we're in the middle of questioning by the  
16 Commission.

17 So, Mr. Lamkin, do you have questions for  
18 Mr. Marek?

19 MR. LAMKIN: I don't have any  
20 questions.

21 HEARING OFFICER HARWOOD: All right.  
22 Let me not get ahead of myself.

23 Ms. Tellez, are we back on the record?

24 Okay. I see a thumbs up.

25 All right. So, Chairman Razatos, do you

1 have questions for Mr. Marek?

2 CHAIRMAN RAZATOS: No, I do not have  
3 any questions either.

4 HEARING OFFICER HARWOOD: All right.  
5 Then we come full circle.

6 Mr. Padilla, redirect of your witness?

7 MR. PADILLA: Mr. Marek, are you  
8 there?

9 Mr. Marek?

10 CHAIRMAN RAZATOS: I do not see him  
11 on, Mr. Padilla. Can you give me his first name  
12 again?

13 MR. PADILLA: Frank.

14 CHAIRMAN RAZATOS: No, there is no  
15 such person on right at the moment.

16 MR. PADILLA: We're giving him a  
17 call, Mr. Chairman.

18 CHAIRMAN RAZATOS: Okay.

19 HEARING OFFICER HARWOOD: All right.  
20 Any luck reaching him, sir?

21 Well, I suppose you could ask Mr. Rankin  
22 all your questions. I'm sure he'll give you the  
23 answers.

24 MR. PADILLA: I don't have three  
25 hours of questions, Mr. . . .

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1 UNIDENTIFIED SPEAKER: There you go.  
2 I think we just got him in.

3 FRANK MAREK: My apologies. I was at  
4 the wrong link again trying get in.

5 HEARING OFFICER HARWOOD: All right.  
6 Mr. Marek, I'll just remind you, you're under oath,  
7 and it's back to Mr. Padilla on redirect  
8 examination.

9 REDIRECT EXAMINATION

10 BY MR. PADILLA:

11 Q. Mr. Marek, I just want to make sure that I  
12 understand your testimony as the ROZ that you have  
13 identified is within the vertical limits of the  
14 San Andres formation as shown by your cross  
15 sections; is that correct?

16 A. Yes, sir.

17 Q. Mr. Rankin asked you questions this  
18 morning that I took as an implication that only the  
19 eastern side of the Central Basin Platform had a  
20 ROZ. Do you have an opinion as to whether you could  
21 have a ROZ on the western side of the Central Basin  
22 Platform?

23 A. Well, I think that you can.

24 Q. You've already concluded that in the EMSU,  
25 which is -- it's on the western side of the Central

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1 Basin Platform -- is in the western side, correct?

2 A. Correct.

3 Q. You're not making an economic analysis?  
4 That wasn't your chore in this case, right?

5 A. That is correct.

6 Q. Once having made the determination that  
7 there's a ROZ underlying the EMSU, do you believe  
8 there's a potential for ROZ development in the  
9 San Andres formation underlying the EMSU?

10 A. Yes, I do.

11 Q. You're not saying one way or the other how  
12 prolific or anything of that sort, because that's  
13 not the kind of analysis that you were asked to  
14 perform, correct?

15 A. I didn't catch the first part of your  
16 question. I apologize.

17 Q. You did not make an economic analysis as  
18 to the potential for ROZ development and the --  
19 underlying the EMSU?

20 A. That is correct.

21 Q. You're simply saying that there's  
22 potential for ROZ development underlying the EMSU?

23 A. Yes.

24 Q. Now, you were asked questions about your  
25 flat price evaluation back in 1986 and 1988. At

1 that time, according to that paper that you were  
2 shown and introduced as a cross exhibit, the price  
3 of oil was \$18 a barrel, correct?

4 A. I believe that's correct.

5 Q. A lot has changed since that time; would  
6 you agree?

7 A. Yes, it's changed many times up and down,  
8 oil price.

9 Q. Including ROZ developments, right?

10 A. Yes.

11 Q. Mr. Rankin asked you some questions about  
12 oil in place calculations and that you don't have  
13 any oil in place calculations, correct, that you did  
14 yourself?

15 A. Not for the ROZ, that's correct.

16 Q. Now, he also took you through a series of  
17 emails suggesting that perhaps you had a bigger  
18 assignment from Empire that would include oil in  
19 place calculations. That was never part of your  
20 assignment, correct?

21 A. That is correct.

22 Q. He also took you into some of  
23 Mr. McShane's testimony and oil in place  
24 calculations. Do you have any information or  
25 knowledge about how Mr. McShane made those oil in

1 place calculations?

2 A. No, sir, I do not.

3 Q. Now, Mr. Rankin also asked you about the  
4 word that you used in your self-affirmed statement.  
5 You used the word "likely." Let me ask you about  
6 that word.

7 When you talk in terms of probability or  
8 foreseeability, how do you -- or drowning up of an  
9 oil reserve, is it more likely than not that --  
10 given the type of injections that Goodnight is going  
11 to put and is actually putting into the reservoir,  
12 what is your opinion as to the damage that could be  
13 done to the reservoir by that kind of injection?

14 A. Well, the potential damage, I believe, is  
15 spelled out in the bullet items in my conclusions  
16 and the word "likely," as I would use it, meaning  
17 it's more than a 50 percent chance of probability  
18 that that would occur.

19 Q. Right now Goodnight has injection  
20 permission of injecting 15 barrels -- 15,000 barrels  
21 per day, and they have four wells injecting into the  
22 San Andres. They have asked permission to increase  
23 the rate of injection into the wells, and they've  
24 also asked for an additional four wells -- or made  
25 applications for an additional -- an additional four

1 wells for saltwater disposal wells to inject at the  
2 same rates.

3 So let's just figure that. You multiply  
4 15,000 times eight -- and I'm not counting any of  
5 the requests for increase -- and you estimate that  
6 you're going to have about 100,000 barrels, at  
7 least, of injection into the San Andres formation.  
8 Does that give you a much better idea as to the type  
9 of damage that would occur to the reservoir?

10 A. Well, the higher the injection volume, the  
11 higher the pressure -- the more quickly the pressure  
12 will rise and the sooner it will get to what we  
13 might call risky levels. And 120,000 barrels of  
14 water per day is a pretty high injection rate.

15 Q. If you take a glass of water -- and I'll  
16 take that as a reservoir -- and you increase -- and  
17 there's been some drop down. I'm not saying that  
18 there isn't any drawdown from the water supply  
19 wells. But once you fill up that reservoir and you  
20 increase the pressures, where is that pressure in  
21 the volumes likely to go?

22 A. Well, water is largely incompressible. So  
23 when you inject those volumes of water, you will  
24 immediately start seeing an increase in pressure.  
25 And that basically increases the pressure in the

1 entire San Andres reservoir, specifically the ROZ if  
2 that's where the water's being injected.

3 Q. When you say that there could be  
4 fracturing from increased pressure and water  
5 volumes, can you elaborate a little bit more of  
6 how -- from reservoir characteristics, how that  
7 pressure is going to manifest itself as far as going  
8 upstairs?

9 A. Well, as the pressure increases due to  
10 water disposal, eventually you will hit what we call  
11 the formation parting pressure, which will cause the  
12 reservoir rock to fracture. And when that occurs,  
13 then you lose control of where the water's going.  
14 And there's a good chance that some of that water --  
15 at least some of it would go up into the Grayburg  
16 zone, and that would have a negative impact on the  
17 current waterflood operations in the Grayburg.

18 It could cause cycling of water to the  
19 producing wells and causing higher operating costs.  
20 It could reduce your sweep efficiencies because  
21 you're bypassing oil in the Grayburg waterflood  
22 zone.

23 Q. When you talk about higher operating  
24 costs, what do you mean by that?

25 A. Just literally the dollars per month it

1 takes to keep an oil well producing, and that is --  
2 can be dependent upon the volume of water that  
3 you're having to move or lift to the surface along  
4 with the oil. The higher the volume of water, the  
5 higher the monthly operating cost.

6 Q. Now, let's take that downstairs to the  
7 San Andres formation. What happens there if you do  
8 have a ROZ that has -- that should be developed? In  
9 terms of economics?

10 A. Okay. Are you asking me if fracturing  
11 occurs down there?

12 Q. No, I'm not asking you that necessarily.  
13 But if fracturing will occur down there, what's your  
14 opinion as to whether fracturing would occur in the  
15 San Andres?

16 COMMISSIONER LAMKIN: Objection.  
17 Mr. Marek testified that he did not review, has no  
18 idea what the parting fracture pressure is for the  
19 San Andres. He has not evaluated. He has no basis  
20 to opine on that issue.

21 MR. PADILLA: I'm asking him as a  
22 general proposition. I'm not asking him on any  
23 significant pressures and what the parting pressure  
24 is. I know he doesn't know what the parting  
25 pressure is. He has testified, according to his own

1 self-affirming statement, that fracturing will  
2 occur. I'm just trying to get him to elaborate a  
3 little bit more on that.

4 HEARING OFFICER HARWOOD: Overruled.

5 A. Okay. The formatting -- excuse me -- the  
6 formation parting pressure, the pressure at which  
7 the rock will fracture is -- well, I don't know the  
8 number exactly for this area. There are general  
9 numbers that do come into play.

10 And if you were to cause hydraulic  
11 fracturing in the ROZ, then that could affect a  
12 future tertiary oil recovery project the same way it  
13 would affect the waterflood. You could cause  
14 cycling of CO2 from an injector to a producer,  
15 bypassing the oil saturated intervals or some of the  
16 interval within the ROZ. That's one negative aspect  
17 of it.

18 And then also injecting at the high rates,  
19 as we discussed before, causes higher pressures,  
20 which will cause you to have to purchase more CO2 to  
21 conduct your tertiary project. It would be more  
22 costly.

23 Q. Now, let's talk about waste. That was the  
24 subject that was brought up this morning. Suppose  
25 you have the injection rates that we just now talked

1 about, eight, nine injection commercial wells that  
2 are, in my opinion, prolific injectors. How does  
3 that affect or create waste?

4 A. Well, the waste can come in the form of  
5 hydraulic fracturing causing some of the ROZ oil  
6 saturated interval to be bypassed because of the  
7 hydraulic fracturing. And then secondly, again,  
8 it's going to cause more CO2 to be required because  
9 of the higher pressure, which is costly and  
10 wasteful.

11 I mean, in all -- those two factors  
12 together would result in less ultimate oil recovery,  
13 which is, of course, a waste of resources.

14 Q. So you're going to leave oil in the hole,  
15 right?

16 A. Yes.

17 Q. Now, you were also asked about water  
18 supply wells. Does that make any difference here in  
19 terms of whether or not that water is being taken  
20 upstairs to the Grayburg and used as a waterflood?

21 A. Generally, no.

22 Q. I mean, you stated something that those  
23 wells were not producing oil. But in a ROZ, you  
24 typically wouldn't see oil necessarily in the well  
25 bore, correct?

1 A. Correct. In the ROZ, you would not expect  
2 to be producing oil. Even though oil exists there,  
3 it's not movable oil.

4 Q. You were also asked about -- and I think  
5 that was from Dr. Ampomah. He asked you and  
6 referred to you -- made reference to  
7 Mr. Buckwalter's testimony. And Mr. -- I'm not  
8 sure, but Mr. Buckwalter had a figure of  
9 500 millidarcies, and you said that was very high or  
10 you thought it was excessive.

11 A. I do believe that's very high for  
12 San Andres. But I have not reviewed  
13 Dr. Buchwalter's work, and he may have been trying  
14 to prove a point -- with a high permeability to make  
15 a point that the real permeability is even lower,  
16 and that supports his conclusion. I just say that  
17 without having read his report. But I know the man.

18 Q. You would have to read his report in order  
19 to really opine anything that he said, correct?

20 A. That's correct.

21 Q. I'm not trying to argue against  
22 Dr. Ampomah, but I'm just trying to clarify that  
23 aspect of his testimony, Mr. Buckwalter's testimony.

24 Do you find Mr. Buckwalter to be credible?

25 A. Generally, yes, very credible.

1 Q. He's so smart I don't understand him,  
2 actually, to tell you the truth.

3 But anyway, going back to darcy or  
4 millidarcies, that depends on rock type and  
5 reservoir characteristics, correct?

6 A. Yes.

7 Q. So you'd have to look at individual type  
8 of reservoir characteristics in order to really say  
9 what permeability or porosity factors are involved  
10 in evaluating an oil property?

11 A. Yes.

12 Q. Or in this case, a ROZ?

13 A. Yes.

14 Q. Ordinarily, however, when you have oil  
15 saturations in the 70 percent range, that would be  
16 an indication that you have movable oil, correct?

17 A. Generally I would agree with that, yes.

18 Q. And that you could produce that oil with  
19 primary production conventionally?

20 A. And with waterflood both.

21 Q. In a ROZ, however, you can't do a  
22 waterflood, right? Or do primary production?

23 A. Well, you can't really do a waterflood. I  
24 mean, you can do it, but it would not be successful.

25 Q. You need CO<sub>2</sub>?

1 A. Yes.

2 Q. Now generally, Mr. Rankin tried to ask you  
3 about your lack of study on the reservoir  
4 characteristics, and you testified that you weren't  
5 given that assignment. But let's take your 48 years  
6 of experience in reservoir engineering and  
7 evaluation of oil and gas properties. Does that  
8 count, your experience?

9 A. I would like to think so.

10 Q. I don't want to tell you that -- maybe I  
11 don't understand -- yourself, have you got very  
12 much -- have you had to do a study on oil in place?  
13 But if you did an oil in study -- you need a lot  
14 more time and a lot more information, given time  
15 limits and that sort of thing. Is that fair to say?

16 A. Yes, very fair.

17 Q. Now, when Mr. Rankin took you through that  
18 series of emails, you never really agreed to do  
19 anything more than opine on the effect of saltwater  
20 injection into the San Andres formation. Is that  
21 fair?

22 A. Yes.

23 Q. You never had a meeting of the minds as to  
24 what you were going to do in terms of doing further  
25 study other than what you wound up doing?

1 A. Correct.

2 MR. PADILLA: One moment,  
3 Mr. Harwood.

4 Not yet. I just said one moment, please.  
5 But I don't need any further time. I'm done. I  
6 don't have further questions.

7 HEARING OFFICER HARWOOD: You may be  
8 excused.

9 CHAIRMAN RAZATOS: Hearing Officer --  
10 Mr. Hearing Officer, please don't forget to turn on  
11 your microphone. We can't hear you.

12 HEARING OFFICER HARWOOD: I'm sorry.  
13 Thank you.

14 All right. Mr. Marek, thank you for your  
15 time, and you are free to go. You're excused.

16 FRANK MAREK: Thank you.

17 HEARING OFFICER HARWOOD: All right.  
18 On my list, I see Galen Dillewyn. Am I pronouncing  
19 that right? Is that your next witness, Empire  
20 folks?

21 MS. HARDY: Yes, it is our next  
22 witness, and Ms. Shaheen will present Mr. Dillewyn's  
23 testimony.

24 HEARING OFFICER HARWOOD: Okay.  
25 Great. Is he appearing remotely?

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1 MS. SHAHEEN: He is.

2 HEARING OFFICER HARWOOD: Great.

3 MS. SHAHEEN: And he should be on.

4 HEARING OFFICER HARWOOD: Great.

5 MS. SHAHEEN: For Ms. Shaheen.

6 HEARING OFFICER HARWOOD: Good

7 afternoon, Mr. Dillewyn. Can you hear and see us?

8 GALEN DILLEWYN: Yes, I can.

9 HEARING OFFICER HARWOOD: All right.

10 If you will please raise your right hand, sir.

11 GALEN DILLEWYN

12 having been first duly sworn, testified as follows:

13 HEARING OFFICER HARWOOD: All right.

14 Thank you.

15 Ms. Shaheen.

16 MS. SHAHEEN: Thank you.

17 DIRECT EXAMINATION

18 BY MS. SHAHEEN:

19 Q. Good afternoon, Mr. Dillewyn.

20 A. Good afternoon.

21 Q. Could you please state your name for the  
22 record.

23 A. My name is Galen Dillewyn.

24 Q. With whom are you employed and in what  
25 capacity?

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1 A. I'm the vice president of business  
2 development for NuTech Energy Alliance.

3 Q. And you are testifying today as an expert  
4 in log analysis; is that right?

5 A. That is correct.

6 Q. You've attached your credentials to your  
7 written testimony in this matter?

8 A. I have.

9 MS. SHAHEEN: We would move that  
10 Mr. Dillewyn's testimony today be accepted and his  
11 expertise as a log analysis be admitted into record.

12 HEARING OFFICER HARWOOD: Any  
13 objection from Goodnight?

14 COMMISSIONER LAMKIN: Not to the  
15 admission of the record. When I deposed  
16 Mr. Dillewyn, he told me that he was seeking to be  
17 qualified as an expert in petrophysics, so I'm  
18 curious what the difference is between log analysis  
19 and petrophysics. But I can ask him that on cross.

20 So I don't object to that general  
21 statement, but perhaps I'll ask him on cross the  
22 difference between log analysis and petrophysics.

23 HEARING OFFICER HARWOOD: Okay. My  
24 understanding is he's being tendered as an expert in  
25 the field of . . .

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1 MS. SHAHEEN: Log analysis.

2 HEARING OFFICER HARWOOD: Log  
3 analysis. And do you have any objection to that?  
4 You're going to reserve it for cross, Mr. Rankin?

5 COMMISSIONER LAMKIN: I think I'll  
6 reserve it for cross because when I deposed  
7 Mr. Dillewyn, he told me he was seeking to be  
8 qualified as an expert in petrophysics.

9 HEARING OFFICER HARWOOD: All right.  
10 He'll be accepted as an expert in the field of log  
11 analysis.

12 Q. Thank you. It's taking me a minute to be  
13 able to share here, so just bear with me. Then I  
14 have to -- it's not even showing me . . .

15 Mr. Dillewyn, what did Empire first engage  
16 NuTech to do with respect to this matter?

17 A. Empire engaged us to analyze a series of  
18 logs to determine the characteristics that we see  
19 from it.

20 Q. And were those waterline logs?

21 A. Yes, they were.

22 Q. Can you explain to the Commissioners what  
23 a waterline log is?

24 A. The waterline log is a series of data  
25 that's obtained at the time of drilling generally,

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1 where the -- a series of tools that take electronic  
2 measures are lowered downhole via means of a  
3 waterline or an electronic cable. And then a series  
4 of data points are obtained, placed against depth as  
5 the tool is removed from the hole.

6 Q. And did you use waterline logs for seven  
7 different wells?

8 A. Yes.

9 Q. And what process did you use to look at  
10 those logs?

11 A. NuTech has a petrophysical process that we  
12 refer to as the NULOOK.

13 Q. You submitted direct written testimony  
14 explaining the results of that initial analysis as  
15 Empire's Exhibit F on August 26, 2024; isn't that  
16 right?

17 A. Yes.

18 Q. And did you submit revised testimony on  
19 December 4, 2024, as Revised Exhibit F?

20 A. Yes.

21 Q. Why did you submit revised testimony?

22 A. After the initial submission, more data  
23 was made available to us on the EMSU 679 well,  
24 including core data that was on that well. And we  
25 analyzed that well and tied to the core and then

1 took that information and distributed it to the  
2 other wells in the area.

3 Q. And did you also receive a study entitled  
4 "Four-County Appraisal of the San Andres ROZ  
5 'Fairway' of the Permian Basin" with information  
6 that you were asked to incorporate?

7 A. Yes.

8 Q. And I'm going to try to share that  
9 document.

10 Is this the Four-County Appraisal study  
11 that you used in your second analysis?

12 A. It is.

13 Q. What changed in your revised testimony as  
14 a result of the refined analysis?

15 A. As we modified 'm' and 'n' values to match  
16 the core data in the analysis, it ultimately  
17 resulted in a lowering of oil in place in part of  
18 the logs.

19 Q. And is it fair to say that the two  
20 analyses, the initial one that was discussed in your  
21 August testimony and the second analysis that you  
22 submitted in December, is it fair to say that those  
23 two analyses rebuild a range of potential  
24 saturations?

25 A. Yes, it does.

1 Q. The first analysis, does it represent the  
2 high end of the range?

3 A. It does.

4 Q. And the second analysis, does it reflect  
5 the low end of the range?

6 A. Yes.

7 MS. SHAHEEN: Sorry, I'm trying to  
8 share again. Oops. Let's try that again.

9 Q. Other than the revisions that were made in  
10 your Revised Exhibit F, do you have additional  
11 changes to your initial Exhibit F?

12 A. No.

13 Q. Do you have any changes to your Revised  
14 Exhibit F?

15 A. No.

16 Q. Subject to the revisions that were made in  
17 your Revised Exhibit F, do you affirm that the  
18 statements made in your initial Exhibit F are  
19 correct and also -- and adopt that testimony today  
20 as your sworn testimony?

21 A. Yes.

22 Q. And do you affirm that the statements made  
23 in your Revised Exhibit F are correct and adopt that  
24 testimony as well as your sworn testimony here  
25 today?

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1 A. Yes.

2 Q. Let's briefly walk through the process for  
3 your analysis.

4 A. Okay.

5 Q. Can you describe the process that NuTech  
6 used that's reflected here in slide Exhibit F-1?

7 A. Yes. The NULOOK process is an eight-step  
8 process in which a well is analyzed. The first step  
9 is to look at the raw data and look at the validity  
10 of that data.

11 From there, once the data is valid and has  
12 been edited and/or normalized as necessary, then a  
13 series of steps is taken to evaluate the well to  
14 determine lithology, porosity, and permeability of  
15 the formation. In the end, it is all ranked with a  
16 flag system.

17 Q. And does this slide -- is this a generic  
18 example of the output you get from the NULOOK  
19 process?

20 A. Yes, it is.

21 Q. Does this slide reflect information that  
22 is contained in your filed testimony?

23 A. Yes, it does.

24 Q. Let's walk through the steps in your  
25 analysis. What variables did you consider in your

1 analysis?

2 A. In this analysis, after receiving the core  
3 data, we looked at the values of 'm' and 'n' on the  
4 saturation equation and varied those.

5 Q. And how were the 'm' and 'n' values used  
6 in your initial analysis, scenario 1?

7 A. In the initial scenario, we ran a standard  
8 value of 2 and 2, which is very common in carbonate  
9 reservoirs.

10 Q. And in scenario 2, what changed?

11 A. In scenario 2 -- and all these scenarios  
12 are located within that four-county study. The one  
13 that was on the northwest shelf in the Midland Basin  
14 showed a 'm' value of 2.3 and an 'n' value of 2.3.  
15 We found that it made a good match of core  
16 saturations from the top of the San Andres to --  
17 down to 4,302 feet.

18 Q. And when you say it was a good match, that  
19 means you matched it to the core saturations from  
20 the core data of the EMSU 679; is that right?

21 A. That is correct.

22 Q. And can you tell us what you used in  
23 scenario 3 for your analysis?

24 A. Scenario 3, the data assessed that  
25 followed on the San Simon Channel to the north. A

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1 'm' value of 2.3 and an 'n' value of 3.0 was run in  
2 those wells. When compared against the core water  
3 saturation, we found a core water saturation was  
4 15 percent higher than values calculating using  
5 those numbers.

6 Q. For scenario 4, did you also use  
7 additional data from the Four-County Appraisal?

8 A. Yes. These were two areas within Gaines  
9 County on the Central Basin Platform that yielded an  
10 'm' and 'n' value of 2.3 and 3.4, which showed a  
11 match to the core water saturation in the bottom of  
12 the San Andres.

13 Q. How did you apply this analysis to the  
14 other wells?

15 A. That is no one value fit the entire  
16 analysis. We broke up the interval into three  
17 separate zones, to which we applied modified values  
18 of 'm' and 'n' with -- using the study as the basis  
19 for those. And with that, we then took the values  
20 and applied them to the other wells in the area.

21 Q. Were you provided with the core for the  
22 EMSU 679 before your first analysis?

23 A. No, we were not.

24 Q. Can you describe to the commissioners what  
25 is reflected here in Exhibit F-6?

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1           A.       F-6 is a graphical representation of the  
2 NULOOK analysis, as shown. On the left-hand side,  
3 you have the raw waterline data as presented to us.  
4 From the middle to the right is our analysis. We  
5 have lithological analysis showing that it is  
6 primarily a dolomite. This is the Grayburg section  
7 on top of the San Andres.

8                   We also show porosity with a hydrocarbon  
9 saturation in it marked in black. And then we have  
10 movable in-bound water shown as part of that  
11 porosity. Correct, right there.

12                   As well as permeability to the right up  
13 there where it shows a permeable formation.

14           Q.       What is the important takeaway here?

15           A.       In this, it shows that the reservoir has a  
16 hydrocarbon saturation, has the ability to flow a  
17 fluid through the permeability, and that there is --  
18 there is water that will move with it also.

19           Q.       And this relates specifically to the log  
20 analysis for the EMSU 673 --

21           A.       That is correct.

22           Q.       -- in light of -- okay. And that's in  
23 light of the scenario 4 analysis that you did using  
24 the Four-County Appraisal; is that right?

25           A.       Scenario 5.

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1 Q. Scenario 5. And then that next slide, is  
2 this a similar result for the San Andres section?

3 A. Yes, of the same well.

4 Q. And what is the important takeaway here?

5 A. What this shows is the zone is also a  
6 dolomite predominately. It has porosity, which  
7 shows both hydrocarbon and water saturations, as  
8 well as permeability in the reservoir.

9 Q. Is your analysis explained in more detail  
10 in the attachment to your Revised Exhibit F  
11 entitled, "Water Saturation Parameter Scenarios in  
12 Lea County for Empire"?

13 A. Yes.

14 Q. And it's my understanding that Empire's  
15 next witness, Mr. McShane, will provide further  
16 testimony regarding the results of NuTech's  
17 analysis; is that right?

18 A. Yes.

19 Q. Thank you.

20 MS. SHAHEEN: I would like to move  
21 for admission into the record both Exhibit F and  
22 Revised Exhibit F.

23 HEARING OFFICER HARWOOD: Any  
24 objection, Mr. Rankin?

25 COMMISSIONER LAMKIN: No.

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1 HEARING OFFICER HARWOOD: OCD?

2 MR. MOANDER: No objection from OCD,  
3 Mr. Hearing Officer.

4 HEARING OFFICER HARWOOD: Rice?

5 MR. BECK: No objection.

6 HEARING OFFICER HARWOOD: Pilot?

7 MR. SUAZO: No objection.

8 HEARING OFFICER HARWOOD: It will be  
9 admitted.

10 (Exhibit F and Revised Exhibit F admitted into  
11 evidence.)

12 MS. SHAHEEN: I would like to move  
13 into the record the Four-County Appraisal paper as  
14 Exhibit F-8.

15 HEARING OFFICER HARWOOD: Mr. Rankin?

16 COMMISSIONER LAMKIN: No objection.

17 HEARING OFFICER HARWOOD: Mr.  
18 Moander?

19 MR. MOANDER: No objection.

20 HEARING OFFICER HARWOOD: Mr. Beck?

21 MR. BECK: No objection.

22 HEARING OFFICER HARWOOD: Mr. Suazo?

23 MR. SUAZO: No objection.

24 HEARING OFFICER HARWOOD: It will be  
25 admitted as well.

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Cross-Examination by Mr. Rankin

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1 (Exhibit F-8 admitted into evidence.)

2 MS. SHAHEEN: Thank you. I pass the  
3 witness.

4 HEARING OFFICER HARWOOD: Okay.  
5 Mr. Rankin.

6 COMMISSIONER LAMKIN: Thank you.

7 CROSS-EXAMINATION

8 BY MR. RANKIN:

9 Q. Good afternoon, Mr. Dillewyn. How are you  
10 today?

11 A. I'm doing well, Mr. Rankin. Yourself?

12 Q. I'm doing okay. I'm doing okay.

13 The first thing I want to address with you  
14 is what your -- is the status of your testimony.  
15 Ms. Sheehan asked you -- qualified you as an expert  
16 in log analysis, but when I deposed you and  
17 specifically asked you what you were seeking to be  
18 qualified as, you told me you were seeking to be  
19 qualified as an expert in petrophysics. What's --  
20 what's the difference, in your opinion, between  
21 petrophysics and log analysis?

22 A. The main difference is the inputs used,  
23 that a log analyst is a subset of petrophysics,  
24 where most of the time petrophysics is log  
25 interpretation; however, there can be other items

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1 that are introduced that would be in addition to  
2 what I have performed for Empire.

3 Q. Okay. So like what?

4 A. Fluid flow within a reservoir.

5 Q. So you did not evaluate fluid flow within  
6 a reservoir as part of your analysis for Empire?

7 A. No, I did not.

8 Q. Okay. And you're saying that's something  
9 that goes outside of what a log analysis would be?

10 A. Correct.

11 Q. Okay. What else differentiates an expert  
12 in log analysis from a petrophysics expert?

13 A. Mostly it's taking it to the reservoir  
14 engineering side of things. That is the predominant  
15 difference as I see it.

16 Q. Now, when I asked you during your  
17 deposition what subject matter or field you were  
18 seeking to be qualified as an expert in, you told me  
19 petrophysics. Why are you -- why is that changing  
20 today?

21 A. Just to be more specific as to what it is  
22 I do within the discipline of petrophysics.

23 Q. Whose decision was that to amend your  
24 qualifications from petrophysics to log analysis?

25 MS. SHAHEEN: I object to the

1 characterization there. And also to the extent that  
2 he's seeking attorney/client communications, I would  
3 object as well.

4 HEARING OFFICER HARWOOD: Rephrase  
5 the question. It's a bit argumentative.

6 COMMISSIONER LAMKIN: Okay.

7 Q. Did you decide to change your  
8 qualifications from petrophysics to log -- to an  
9 expert log analysis?

10 A. Yes.

11 Q. Okay. And how did that decision come  
12 about?

13 MS. SHAHEEN: Same objection. Don't  
14 believe it's relevant to this proceeding.

15 HEARING OFFICER HARWOOD: Overruled.

16 A. In conversation, quite often as we talk  
17 about the analysis that we do at NuTech, we refer to  
18 it as log analysis versus just petrophysics, to be  
19 that specific component of it. And that is why in  
20 that conversation, when asked if I had to choose  
21 one, which would it be, sometimes it's like talking  
22 about things like Kleenex versus tissue, right? At  
23 some point they're a little bit different, but  
24 overall, they can be quite the same to someone that  
25 doesn't -- that isn't within the purview of the

1 discipline.

2 Q. Okay. So based on reassessment of what  
3 you actually did in your analysis, you have revised  
4 your expertise from being an expert in petrophysics  
5 to being an expert in log analysis. Is that fair?

6 A. Yes.

7 MS. SHAHEEN: I'm going to object  
8 again, because I think that's a mischaracterization  
9 of what occurred.

10 HEARING OFFICER HARWOOD: What I've  
11 got written down is log analysis is a subset of  
12 petrophysics. So I think we got the point. So  
13 maybe move on. All right.

14 COMMISSIONER LAMKIN: Well, I guess I  
15 want to understand, Mr. Hearing Officer, because --  
16 actually, I feel like it's important to understand  
17 what Mr. Dillewyn is qualified to testify about.  
18 Because much of this case is about petrophysics.

19 And in their direct case, their case in  
20 chief, this is the only witness that they have to  
21 testify about log analysis or petrophysics. They  
22 have nobody else. And without an analysis on  
23 petrophysics, who's qualified, then they don't have  
24 any testimony that goes to establishing a basis for  
25 oil saturation.

Cross-Examination by Mr. Rankin

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1 And I'm just trying to understand exactly  
2 what Mr. Dillewyn is qualified to testify on.

3 HEARING OFFICER HARWOOD: Well, what  
4 he's qualified to testify about and how he decided  
5 to change his expertise -- the name of his expertise  
6 are two different topics.

7 COMMISSIONER LAMKIN: Yeah.

8 HEARING OFFICER HARWOOD: So you're  
9 welcome to explore the other one.

10 COMMISSIONER LAMKIN: That's what I'm  
11 moving towards.

12 HEARING OFFICER HARWOOD: All right.

13 COMMISSIONER LAMKIN: I wanted to  
14 understand the first, and now I'll ask the second.

15 Q. (By Mr. Rankin) So, Mr. Dillewyn, as to  
16 the question about what's entailed within the  
17 expertise of a log analysis, okay, one of the things  
18 you told me, as I understand, that's excluded from  
19 that would be understanding or testifying on how  
20 fluid would flow within a reservoir, agree?

21 A. Yes.

22 Q. Okay. And I'd like to understand a little  
23 bit more about what -- so that's what it doesn't  
24 include. And I'd like to understand a little bit  
25 more about what it does include. So in your

1 analysis in your testimony, you have modified the  
2 'm' and 'n' values for the logs that you  
3 interpreted, correct?

4 A. Yes.

5 Q. Okay. And I'd like to understand how a  
6 log -- expert in log analysis has the expertise to  
7 determine what are the proper 'm' and 'n' values to  
8 apply for a given log.

9 A. When running for a general carbonate  
10 system, the values used within the saturation  
11 exponent generally are 2 and 2 for 'm' and 'n'  
12 respectively. In situations those values can change  
13 depending on the light of -- in light of the  
14 information given.

15 Q. Okay. Now, as a log analysis -- a log  
16 analyst, okay, what do you need to understand to  
17 determine how -- what specific rock characteristics  
18 affect 'm' and 'n'?

19 A. The wettability of the rock, the  
20 cementation of the rock, as well as secondary  
21 porosity and some geological features, such as  
22 fracturing -- natural fracturing, that is, and a  
23 secondary porosity in and of that.

24 Q. Okay. So let's take the first one,  
25 cementation of the rock. As part of your analysis,

1 I understand that you took values from this  
2 Four-County assessment and you applied those to  
3 your -- to your well logs, correct?

4 A. Yes.

5 Q. I -- and I may be taking this out of order  
6 a little bit, but I guess I want to understand. My  
7 understanding based on, you know, when I deposed  
8 you, was that the process that NuTech took when  
9 it -- when it pulled those different values from the  
10 Four-County assessment, was that you applied -- you  
11 ran them, you put them -- you put -- you ran them  
12 against your log, right? And you put them down on  
13 the log, and you saw which ones fit best with the  
14 water saturation; is that -- is that correct?

15 A. We saw which values of the core saturation  
16 fit as to the entire -- yeah, as to the parameters  
17 run, yes.

18 Q. And I guess I'm just talking about the 679  
19 well, correct? Because --

20 A. Correct.

21 Q. -- the only well for which you had water  
22 saturations from the core was for the 679 well,  
23 correct?

24 A. Correct.

25 Q. Okay. So in order to determine which

1 'm' and 'n' values were properly applied to the 679  
2 well, it was a trial and error basically, right?  
3 You took 'm' and 'n' and just applied it to 679 to  
4 see which one resulted in the closest fit to the  
5 water saturation, correct?

6 A. We used the determinations from the  
7 Four-County study as a basis for wells within the  
8 same reservoir to see if those combinations fit, as  
9 there could be a very large number of combinations  
10 that could also fit those zones as you calculate  
11 them out.

12 Q. Okay. But I'm asking you: You limited  
13 yourself to those values from the Four-County study,  
14 but it was a trial and error to see which ones fit  
15 best across the three zones or intervals that you  
16 divided the 679 into, correct?

17 MS. SHAHEEN: Object to the --

18 A. No. We --

19 MS. SHAHEEN: -- form of the  
20 question.

21 HEARING OFFICER HARWOOD: It's  
22 overruled.

23 Q. You can answer, Mr. Dillewyn.

24 A. No. We used those values to calculate as  
25 an entirety of the analysis and saw where in those

1 that they fit. After we had a fit, we were asked  
2 what it would take to match core by varying  
3 'm' and 'n', which is when we came up with the  
4 scenario 5 values.

5 Q. Okay. But I guess my point about this is,  
6 I'm not hearing you tell me that you were evaluating  
7 the geologic components to determine what the  
8 cementation of rock is, what the secondary porosity  
9 is. One other feature, such as fractures, may  
10 influence and amend values. I hear you telling me  
11 that you basically were running an 'm' and 'n' to  
12 decide which ones fit best with the water  
13 saturation, correct?

14 A. I'm not a geologist. I am not able to  
15 make that study.

16 Q. So that's -- I mean, did anybody do that  
17 at NuTech as part of this analysis?

18 A. That was outside the scope of what we were  
19 asked to do.

20 Q. I'm going to come back to this, because I  
21 think by going through, you know, what you did in  
22 your analysis will help me better understand, and  
23 I'll be on the target more directly, the questions I  
24 have. Okay?

25 Now, do you -- have you, Mr. Dillewyn,

1 ever prepared a petrophysical analysis for a  
2 proposed residual oil zone development before?

3 A. I have not.

4 Q. To your knowledge, has NuTech ever done  
5 so?

6 A. Yes.

7 Q. Where?

8 A. In many fields across West Texas and  
9 Eastern New Mexico for the San Andres.

10 Q. Okay. Which fields?

11 A. Fields such as Wasson, Slaughter,  
12 Seminole, Vacuum. Those are the first ones that  
13 come to mind.

14 Q. Okay. The Vacuum is on the northwest  
15 shelf north of the San Simon Channel, correct?

16 A. Yes.

17 Q. Any that you can identify on the western  
18 margin or slope of the Central Basin Platform?

19 A. Not that I remember offhand.

20 Q. Okay. So nothing that you can identify,  
21 as you sit here today, correct?

22 A. Correct.

23 Q. And were those that you've identified in  
24 the San Andres?

25 A. I'm sorry, repeat.

1 Q. Were the ROZs that you referred to that  
2 NuTech had worked on in the San Andres?

3 A. Yes.

4 Q. Okay. And those were on the eastern side  
5 of the Central Basin Platform or north of this -- of  
6 the northwest shelf, correct?

7 A. Predominantly.

8 Q. Okay. But none that you can think of  
9 today west -- on the western side of the Central  
10 Basin Platform, correct?

11 A. Correct.

12 Q. Okay. All right. Exhibit F. Ms. Shaheen  
13 reviewed with you your original testimony, which was  
14 marked as Exhibit F and filed in August of 2024. So  
15 you prepared that testimony, correct?

16 A. Yes.

17 Q. Okay. And then in December of 2024, you  
18 submitted and filed a revised testimony, correct?

19 A. Yes.

20 Q. Now, in that revised testimony, I don't  
21 see anywhere in that testimony where you refer to  
22 your prior testimony as a low range. Did you  
23 refer -- did you intend to retain the prior  
24 testimony?

25 A. I'm sorry, you -- it broke up over your

1 wording.

2 Q. Did you intend -- when you filed your  
3 revised testimony in August -- in December of 2024,  
4 did you intend to retain the testimony you provided  
5 previously in August of 2024?

6 A. At that time we submitted the modified  
7 values, and as anything in petrophysics, the  
8 analysis, it can -- can and usually is a range.

9 Q. Now, when you filed your revised  
10 testimony, you didn't provide -- you didn't -- you  
11 didn't submit any ranges, did you?

12 A. No.

13 Q. It was filed as revised testimony, right?

14 A. To my knowledge, yes.

15 Q. And in your revised testimony, you said --  
16 you made no statements about the intent to retain  
17 the previous work you'd done and submitted in August  
18 of 2024, did you?

19 A. I do not remember.

20 Q. If you did, it would be in your revised  
21 testimony, correct?

22 A. That would make sense, yes.

23 Q. Okay. Now, I think you did this a little  
24 bit, but I just want to make -- go into a little  
25 more detail here. Why did you revise your testimony

1 in December of 2024?

2 A. Due to receiving the new information about  
3 the core on the 679, as well as the log data for  
4 that well.

5 Q. Now, when you submitted your original  
6 testimony, Exhibit F, okay -- and that new -- that  
7 new data that you received, what was it?

8 A. It was a spreadsheet with core values and  
9 readings with saturations, porosity, and  
10 permeability through most of the zone, as well as an  
11 LAS of the log data.

12 Q. For which core? Which log? Which well?

13 A. For the EMSU 679.

14 Q. On my screen -- let me know when you can  
15 see it -- I'm going to share your original testimony  
16 that was filed in August of 2024. Let me know when  
17 you can see that.

18 A. I can see it.

19 Q. Okay. Now, this is your self-affirmed  
20 statement. It's marked as Exhibit F. And I'll just  
21 scroll down.

22 It's signed and dated August 2024. Do you  
23 see that?

24 A. Yes.

25 Q. Okay. Now, when you submitted this

1 original testimony, you testified that -- looking at  
2 page 2 of your testimony, that NuTech utilized core  
3 data available in the area, including core results  
4 from the EMSU 679, right?

5 A. Yes, that's what it says.

6 Q. But -- so you knew that there were core  
7 data for the 679, but you actually -- you didn't  
8 actually have it, did you?

9 A. No.

10 Q. What were you given instead?

11 A. We were given verbal ranges for what  
12 porosity and permeability were before doing our  
13 analysis.

14 Q. Okay. And who gave you those ranges?

15 A. Nick Corsett, (sic) to my memory.

16 Q. Who is -- who is Nick? Is that with --  
17 somebody with Empire?

18 A. Geologist from Empire.

19 Q. Okay. So Empire gave you those ranges.  
20 Did you ask to see the core?

21 A. At the time, no.

22 Q. Did you ask to see the core subsequently?  
23 Or did -- or did Empire give you the core after  
24 seeing Goodnight's direct testimony?

25 A. After the first submission here, it was

1 decided by Empire that us analyzing that well and  
2 including it would show our analysis and see if  
3 there was any changes to it.

4 Q. Okay. So going back to the -- to the  
5 revisions here, you -- the purpose for the revised  
6 statement was to incorporate that additional log --  
7 rather core data that you were given from Empire  
8 that was previously available, but you didn't ask  
9 for it, correct?

10 A. We were not analyzing the 679 well. So  
11 no, I did not ask for it.

12 Q. Isn't the 679 well, the only well -- well,  
13 I guess there's two wells that potentially have  
14 San Andres -- that have core in the San Andres,  
15 agree?

16 A. To my knowledge, that is it.

17 Q. Okay. Within the EMSU, one is the RR Bell  
18 Number 4, according to Empire, correct?

19 A. Yes.

20 Q. And the other is the EMSU 679, correct?

21 A. Yes.

22 Q. So the two wells for which you were aware  
23 that there was core data, you did not ask for, as  
24 part of your analysis of the -- of the logs  
25 available to you, correct?

1 A. Correct.

2 Q. Okay. So now subsequent to Goodnight  
3 filing its -- its testimony, Empire then gave you  
4 the actual core data for only one of those wells,  
5 right? The EMSU 679, correct?

6 A. Yes.

7 Q. Okay. And in your revised testimony, you  
8 were asked by Empire to calibrate the 679 well log,  
9 your interpretation to the core water saturations,  
10 correct?

11 A. Yes.

12 Q. Okay. And Empire also asked you to, then,  
13 based on that analysis, to prepare this revised  
14 testimony in December, correct?

15 A. Yes.

16 Q. Okay. So based on the results from the  
17 analysis applied to the 679 well log analysis,  
18 Empire asked you to prepare a similar analysis for  
19 each of the other logs for which -- which were  
20 available for the EMSU, correct?

21 A. Yes.

22 Q. And those were what Mr. McShane relied on  
23 in his revised testimony, correct?

24 A. To my knowledge.

25 Q. Okay. Now, the difference -- I have up

1 here your revised testimony. I've highlighted it in  
2 green, what I understand to be the actual changes in  
3 the -- in the testimony, the new testimony that was  
4 not -- that was revised, okay, as far as testimony  
5 goes. Do you see it on my screen here?

6 A. Yes.

7 Q. So I've highlighted in green what I  
8 identified as the change in your testimony. And the  
9 first two sentences at the top here on page 5 are  
10 that, quote, "In the exhibit, the water saturation  
11 reaches as low as 35 percent indicating a  
12 hydrocarbon saturation of 65 percent. The oil  
13 saturation varies from 65 percent down to 1 percent  
14 wherever porosity develops in the reservoir." Did I  
15 say that correctly?

16 A. Yes.

17 Q. Was that a new sentence that was added in  
18 your revised testimony?

19 A. Yes.

20 Q. Originally you a stated that water  
21 saturation was as low as 20 percent with a  
22 hydrocarbon saturation of 80 percent, agree?

23 A. If that's what it says, then yes.

24 Q. Okay. But in this revised testimony, you  
25 didn't retain that earlier analysis as part of your

1 testimony, did you?

2 A. No, because as you see stated here is, in  
3 Exhibit F-7, I was referencing the Exhibit F-7  
4 attached here, which was different than the one in  
5 the initial.

6 Q. So which -- so is revised -- I'm just  
7 confused, because did revised F-7 not replace the  
8 original F-7?

9 A. Yes. That's why it is both referred to as  
10 Exhibit F-7.

11 Q. The next sentence I identify as being new  
12 here is, "The 'm' and 'n' values were adjusted for  
13 updated analysis for additional discussion in  
14 Attachment 1 at the end of this document." Did I  
15 read that correctly?

16 A. Yes.

17 Q. And is that -- are those the three  
18 sentences in your testimony that are different from  
19 your original testimony?

20 A. As I remember, yes.

21 Q. Okay. Nothing else was changed in your  
22 testimony other than those sentences that I've  
23 highlighted in green?

24 A. Correct.

25 Q. Okay. Then here in this last sentence I

1 highlighted in green, you refer to Attachment 1 at  
2 the end of this document. And by referring to that,  
3 you would agree that you're incorporating that  
4 analysis and its statements as part of your  
5 testimony, agree?

6 A. Yes.

7 Q. Okay. Now, going back to the statement in  
8 your original testimony that -- you referred to the  
9 679 in your original testimony that you had -- that  
10 the NuTech utilized core data available in the area,  
11 including the core results from the EMSU 67.

12 Just to be clear, Empire, at the time of  
13 your original testimony in August of 2024, did not  
14 ask NuTech to calibrate its log interpretations to  
15 the EMSU 679 as part of your original testimony,  
16 correct?

17 A. As the EMSU 679.

18 Q. Correct?

19 A. Correct.

20 Q. And it didn't ask you to calibrate your  
21 interpretations or analysis to the RR Bell Number 4,  
22 correct?

23 A. Correct.

24 Q. Okay. And Empire also did not provide you  
25 the core or log information on the RR Bell 4,

1 correct?

2 A. Correct.

3 Q. Nor do they provide you the actual core  
4 data from the EMSU 679, correct?

5 A. Correct.

6 Q. Mr. Dillewyn, how long have you been doing  
7 log analysis for NuTech?

8 A. 16 years.

9 Q. Isn't it advisable when doing log analysis  
10 to calibrate your log interpretations to core data  
11 whenever that information is available?

12 A. Yes, it is highly recommended.

13 Q. Why didn't you do that in your first  
14 analysis?

15 A. Given the analysis that NuTech had done in  
16 the area, Empire decided, based on costs, to not  
17 have us analyze those wells as there were other  
18 wells of immediate concern to what they were trying  
19 to accomplish.

20 Q. Okay. That's your understanding based on  
21 your discussions, your interactions with Empire,  
22 correct?

23 A. Correct.

24 Q. Okay. Now, even in your revised  
25 testimony, you did not calibrate your analysis to

1 the RR Bell Number 4 core data, correct?

2 A. It was part of the system that has -- it  
3 is in our system that has made up the overall  
4 San Andres model, but there was no direct input past  
5 that in this area. All of the data was tied to for  
6 saturation for the revised testimony in the 679  
7 well.

8 Q. Okay. Now, when I -- I saw from  
9 discovery, because I understood, based on your  
10 deposition, that the RR Bell Number 4 core data was  
11 part of the analysis -- was incorporated into  
12 NuTech's NULOOK analysis. Is that a fair statement?

13 A. Yes.

14 Q. Okay. And so it informed, to some extent,  
15 NuTech's assessment or analysis of its -- of the  
16 well logs in the EMSU, correct?

17 A. Correct.

18 Q. Okay. And when I saw -- from Empire to  
19 obtain the RR Bell Number 4, I was not -- they  
20 objected to my request for that document. And my  
21 understanding is you did not provide it to Empire;  
22 is that correct?

23 A. That is correct.

24 Q. Okay. And why was that?

25 A. That was due to -- the RR Bell Number 4

1 core was not provided to us by Empire, was provided  
2 to us by another operator. And, therefore, I do not  
3 have the rights to share that information.

4 Q. But it was used in your analysis, correct?

5 A. Yes.

6 Q. Okay. Now, you touched briefly on  
7 NuTech's NULOOK process with Ms. Shaheen and  
8 basically gave us a high level statement that it's  
9 an eight-step process. It's called the NULOOK  
10 process. We talked about this in your deposition.  
11 But I -- and you mentioned just now that the first  
12 step is to validate the data.

13 Explain to me how it is that you validate  
14 the data. And what data are you validating?

15 A. We are looking at the raw waterline data.  
16 We're looking at the inputs that will go into the  
17 model, the curves generated based off of the tools  
18 that were run on each well.

19 Q. How do you validate the raw waterline  
20 data?

21 A. One of the things we do is re-create  
22 histograms of data to ensure the similar data  
23 ranges. One will be to look at hole washout, or  
24 what we refer to as bad hole, to areas where the  
25 density data is not valid. Those are the primary

1 methods, either for normalization or through  
2 editing.

3 Q. When you say editing, you mean like  
4 excluding data that is anomalous?

5 A. Or changing the data to be based off of  
6 the other curves to literally hand edit the data.

7 Q. Okay. And was that done in this case for  
8 any of these wells that you analyzed within the  
9 EMSU?

10 A. I do not remember.

11 Q. Is that something you, yourself, did or  
12 somebody else at NuTech would have done?

13 A. That would have been done by one of our  
14 analysts.

15 Q. But you -- sitting here, you don't know  
16 whether -- to what extent any of the data from the  
17 raw waterline logs were edited or changed by  
18 NuTech's technicians?

19 A. It's indicated on the log display.

20 Q. Okay. So where -- how is it indicated on  
21 the log displays?

22 A. There is a red shading to show where that  
23 does occur that's located within the depth track.

24 Q. Okay. Are you aware of any, as you sit  
25 here today, that reflect that red shading that you

1 can point me to or no?

2 A. If you look at my Exhibit F-6 and F-7,  
3 that should be below this. In F6, you will see no red  
4 shading in the depth tracks or that there were no  
5 edits to that data --

6 Q. Okay.

7 A. -- within the zone. If you proceed to the  
8 F-7, there are also no edits within this zone.

9 Q. So I'd have to look at the complete well  
10 image -- the complete interpreted log image to  
11 determine whether or not there's any shading -- red  
12 shading indicative of log edits, correct?

13 A. Yes.

14 Q. But as you sit here today, you're not  
15 aware whether that's the case for any of the wells  
16 that NuTech has analyzed, correct?

17 A. Correct.

18 Q. And you don't know -- so, therefore, you  
19 don't know to what extent NuTech, in its validation  
20 efforts, had to -- or decided it needed to modify or  
21 edit any of the raw waterline data, correct?

22 A. From the top of my head, I cannot recall  
23 it. However, it would be able to be looked at and  
24 determined quickly.

25 Q. Okay. Now, does NULOOK -- the NULOOK

1 process use synthetic nuclear magnetic resonance in  
2 its analysis?

3 A. Define synthetic nuclear magnetic  
4 resonance.

5 Q. I'm asking you: Does NULOOK process --  
6 let me ask you this: Does it use a nuclear magnetic  
7 resonance in its process?

8 A. No, it does not.

9 Q. Okay. Does it use a neural net or some  
10 sort of machine learning?

11 Did you hear that question?

12 A. Yes, I heard you. I'm just considering  
13 all aspects of it.

14 Inasmuch that when we determine  
15 irreducible water, you'll see on the third step that  
16 we use a multiple modeling logic that ties back to  
17 our relationships from which we derive from nuclear  
18 magnetic resonance.

19 Q. I think I might need you to rephrase that,  
20 because I'm not sure I followed you. Can you  
21 explain again what you mean?

22 A. So using multiple modeling logic, meaning  
23 multiple inputs that are not necessarily tied  
24 together to determine irreducible water, which is  
25 derived from a relationship that we know from

1 magnetic resonance theory to tie and understand  
2 irreducible water.

3 Q. So to the extent there's any sort of  
4 neural net machine learning, it's -- that process is  
5 related solely to the determination of irreducible  
6 water; is that correct?

7 A. Correct.

8 Q. And that same process was used for the --  
9 NuTech's revised log analysis, correct?

10 A. Yes.

11 Q. Now, I'm going to skip down to the  
12 Attachment 1 where you get into the amendment here  
13 that you -- that you did. Okay?

14 This is on PDF page 16 of your revised  
15 testimony. This is your attachment that includes  
16 your revised analysis, correct?

17 A. Yes.

18 Q. So based on the -- my understanding,  
19 Mr. Dillewyn, NuTech received the EMSU 679 core data  
20 and logs from Empire in September of 2024, correct?

21 A. Yes.

22 Q. Okay. And what did -- what exactly did  
23 Empire ask you to do with that data?

24 A. We were asked to analyze the 679 well  
25 black core against it and then to determine what

1 values of 'm' and 'n' based on the Four-County  
2 Appraisal could apply within there and then  
3 ultimately make a tie directly to core saturation as  
4 provided.

5 Q. Okay. In this page I've got up on the  
6 screen here, which is not numbered, but under  
7 number 1 of the scope of the project, the last  
8 portion of this sentence here is -- says that you  
9 were asked to, you know, apply these 'm' and 'n'  
10 values to the 679 well and then provide commentary  
11 on implication of the values. Do you see that?

12 A. Yes.

13 Q. What does that mean to provide commentary  
14 on implication of the values?

15 A. What does it mean by the values changing  
16 in regards to the data.

17 Q. Okay. What does it mean in regards to the  
18 values of 'm' and 'n' changing with respect to the  
19 data? That's what you said?

20 A. Yes.

21 Q. And I guess I'm trying to understand what  
22 do you mean by that? Like does the data reflect --  
23 can you -- can you find a basis for changing  
24 'm' and 'n' values in the data? Is that what you're  
25 saying?

1 A. As well as why would those values not be a  
2 standard number. Why would they not be 2 and 2.

3 Q. Okay. Now, in the introduction here, I've  
4 highlighted a section of your statement here that  
5 says, "Determining water saturation was one of the  
6 multiple rock properties delivered by NuTech's  
7 NULOOK to Empire to provide the best petrophysical  
8 solution of the San Andres and Grayburg formations  
9 in the EMSU 679 well in Lea County."

10 Why evaluate -- why tie the log analysis  
11 to the water saturation in the core?

12 A. That's what was requested of us.

13 Q. Do you understand why that was asked of  
14 you?

15 A. Because to my knowledge, that was the only  
16 water saturation values in the area.

17 Q. Okay. And generally, just so I'm tracking  
18 with you, when there's a high water saturation in  
19 the core, that would indicate a low oil saturation,  
20 correct?

21 A. Yes. Those two work together hand in  
22 hand.

23 Q. Right. So the lower the water saturation,  
24 the higher the oil saturation, correct?

25 A. Yes.

1 Q. Okay. Now, in a core, though, right,  
2 there's not just water saturation? There would be  
3 oil saturation, true?

4 A. Not always.

5 Q. What was that, Mr. Dillewyn? I did not  
6 hear you.

7 A. Sorry. I said not always.

8 Q. Not always. In this particular core, was  
9 there oil saturation -- were there oil saturation  
10 values?

11 A. There were.

12 Q. But you were directed to match to the  
13 water saturations, correct?

14 A. Yes.

15 Q. Okay. Now, in this next sentence that  
16 I've highlighted here, you explain that the four  
17 sets of 'm' and 'n' values that you used in this  
18 study were chosen based off of this Four-County  
19 paper that we talked about, correct?

20 A. Yes.

21 Q. Okay. And this is a -- I think a map that  
22 it shows where -- or how that Four-County area was  
23 partitioned into different 'm' and 'n' values,  
24 correct?

25 A. Yes.

1 Q. So there was -- I think you said that  
2 partition 1 is up here in the northwest shell,  
3 partition 2 is down here through the San Simon  
4 Channel, partition 3 is on the Central Basin  
5 Platform, partition 5 is over the Midland Basin, and  
6 partition 4 is over the Central Basin Platform,  
7 correct?

8 A. Yes.

9 Q. Notwithstanding the fact that these  
10 Four-County values were from different discrete  
11 regions across the Permian Basin, you used each --  
12 you used all of those values against the 679 well,  
13 correct?

14 A. Yes.

15 Q. And in this Four-County study, these  
16 'm' and 'n' values didn't vary with depths, did  
17 they?

18 A. No.

19 Q. Okay. And just going back just to  
20 confirm, so the purpose of this sensitivity analysis  
21 or the study that we're reviewing right now was to  
22 calibrate NuTech's log analysis to the water  
23 saturation measured in the EMSU 679 core, correct?

24 A. Yes.

25 Q. And once you got that log analysis

1 calibrated to the core water saturations, then the  
2 idea would be that you would have some confidence in  
3 NuTech's interpretation or log derived  
4 interpretation of oil saturations, correct?

5 A. Yes.

6 Q. Because as you said, there's a  
7 relationship between water saturation and oil  
8 saturation, right?

9 A. Yes.

10 Q. Okay. And that calibration using water  
11 saturation was done at Empire's request?

12 A. Yes.

13 Q. Not to calibrate it on the oil  
14 saturations, correct?

15 A. Correct.

16 Q. Okay. Now, I think I understand how you  
17 got to the 'm' and 'n' values in the 679 core,  
18 right? I think -- my understanding is that you  
19 applied all -- one, two, three, four -- five of  
20 those 'm' and 'n' values to the entire core  
21 interval, and you looked to see which best fit the  
22 water saturation, correct?

23 A. Yes.

24 Q. Okay. And then -- and you divided the 679  
25 into three depth intervals, correct?

1 A. That is what it showed to do, that no one  
2 parameter would solve the entire interval.

3 Q. Okay. But you chose only three intervals.  
4 Why only three? Why not 10 or 15 or more?

5 A. Because three intervals got the job done.

6 Q. Okay. Now, we're talking about the 679  
7 well, right?

8 A. Yes.

9 Q. Now, once you got 'm' and 'n' values that  
10 matched the water saturations in the 679 core, then  
11 you had to take those 'm' and 'n' values and figure  
12 out how to apply them to each of the other wells in  
13 the EMSU that you analyzed for which you didn't have  
14 core, correct?

15 A. Yes.

16 Q. Okay. Now, how did you do that?

17 A. We looked at each of the other wells and  
18 looked at where the changes were made in the 679  
19 well and correlated them across and made the changes  
20 accordingly.

21 Q. Okay. So those -- okay. So you did it  
22 based on a -- and so was it based on a log  
23 correlation? A depth correlation? What were you  
24 finding -- what were you correlating in the well  
25 logs to -- to mark the change in the 'm' and 'n'

1 value?

2 A. A log correlation.

3 Q. A log correlation. Okay. So were you  
4 able to see some log characteristic that, to you,  
5 indicated that change in the 'm' and 'n' value?

6 A. Under my direction, this work was  
7 performed by Harry Hernandez. And he was the one  
8 that made the tie to each of the wells.

9 Q. So when I discussed this with you during  
10 your deposition, you told me the same thing. And  
11 you told me at the time, if you recall,  
12 Mr. Dillewyn, that you were not able to identify any  
13 log characteristics that indicated a change in  
14 'm' and 'n' value, agree?

15 A. Correct.

16 Q. And since that time, have you had a chance  
17 to talk with Mr. Hernandez, understand his basis for  
18 identifying a change in the logs that correlated to  
19 an 'm' and 'n' value?

20 A. No, I have not.

21 Q. Okay. But you didn't do that yourself,  
22 right?

23 A. Correct.

24 Q. And you -- as you sit here today, you  
25 remain unable to identify any log characteristics

1 that reflect, in your mind, justification for  
2 changing 'm' and 'n' values in any of these logs  
3 that you analyzed in your revised testimony,  
4 correct?

5 A. Yes.

6 Q. So when I asked you during your deposition  
7 whether, as you stood -- when you stood before the  
8 Commission and you were asked which of the two  
9 analyses you would stand behind, which you thought  
10 was more correct, the initial analysis that you'd  
11 done or the revised analysis that you'd done, you  
12 told me that NuTech stood behind the original  
13 analysis. Do you recall that?

14 A. Yes.

15 Q. And as you sit here today, is there any  
16 basis -- have you changed your opinion on that?

17 A. Both of the analyses, as run with the  
18 numbers, are correct. The -- there are many issues  
19 when you tie into a core like we did in which we  
20 have values given to us.

21 Based off of that and based off of the  
22 other inputs that can be changed within the  
23 saturation component, there are other components  
24 that could affect saturation to as equal of a value  
25 as what we see here. Given the fact that this is

1 the only core in the area, by validating it back,  
2 this gives us an opportunity to look at this well  
3 and try to calculate those values down.

4 Q. I'm not sure -- I'm not sure I quite  
5 followed it. But let me back up to, I think, the  
6 first part of your answer to my question. And you  
7 told me just now that -- in your opinion, that both  
8 analyses or interpretations are correct. And I'm  
9 trying to square that where -- let me pull up my --  
10 my screen. One second.

11 -- where we have, you know, upwards of  
12 80 percent or more difference in oil in place  
13 calculations resulting from your oil saturation  
14 interpretations. That's a big difference.

15 And you're telling us that they're both  
16 correct, correct?

17 A. They are a range, yes, sir.

18 Q. A range. So in -- one moment. Let me get  
19 to this.

20 You may or may not have been listening to  
21 my discussion with Mr. Marek, but I did review with  
22 him the analysis that Empire conducted on the Ryno  
23 SWD that NuTech analyzed. And based on NuTech's  
24 analysis of the Ryno, in the original NuTech  
25 analysis Empire calculated an oil in place value of

1 91.5 million barrels per section. In the revised  
2 analysis, NuTech calculated an oil in place value of  
3 15.6 million barrels per section. And based on my  
4 calculation, that's a -- more than 82 percent  
5 decrease in oil in place. And that is a big range.

6 And you're telling me that both  
7 interpretations are correct, based on the input  
8 values provided; is that correct?

9 A. Yes, they are both valid calculations.

10 Q. But the Commission is sitting here trying  
11 to decide today or tomorrow or at the end of this  
12 hearing whether there's actually any oil down here.

13 And when I asked you in your deposition  
14 which, in your opinion, Mr. Dillewyn, was the more  
15 correct interpretation of reality based on your  
16 experience, you told me that your original -- that  
17 NuTech stood by the original analysis?

18 A. Yes, sir.

19 Q. Between the two -- between the two  
20 interpretations that you have done, Mr. Dillewyn,  
21 which, in your opinion, is more correct and more  
22 reflective of actual conditions in the reservoir?

23 A. They are both a range, like I've said. In  
24 doing the analysis initially with the value of 2 and  
25 2, which is the standard in a multi-mineral approach

1 in getting this, this is the optimistic case.

2 The other run is the pessimistic case of  
3 what we are looking at here. In that case, more  
4 data is needed to determine the actual in place  
5 volumes of this well.

6 Q. Okay. So now in your revised  
7 self-affirmed testimony, you didn't testify that  
8 your original analysis was the low end and your new  
9 analysis was the high end, did you?

10 A. The other way around.

11 Q. Let me -- let me rephrase. In your  
12 revised testimony, you didn't say that your original  
13 testimony was the high end and the revised testimony  
14 was the low end, did you?

15 A. No.

16 Q. Okay. Now, when I asked you that question  
17 during your deposition, you gave me an answer. You  
18 told me that you believe your original analysis was  
19 more correct. What has changed between when I asked  
20 you that question in your deposition and today?

21 A. As with anything, all data sets are --  
22 what's the word I'm looking for? It is incomplete.  
23 In the case here, where -- we did not obtain the  
24 data as it was being done, therefore, assumptions  
25 are to be made. When you look at those as options

1 and you calculate them out, there are several of  
2 these that offset each other.

3 Using the Four-County paper, using the  
4 core on the 679 well shows that the variability of  
5 'm' and 'n' across an area can be quite great.  
6 Therefore, if you look at our analysis of it and you  
7 look at the way we tied to that core, that if  
8 'm' and 'n' are changed, as we put forth in scenario  
9 5, then the revised scenario, being the pessimistic  
10 case, accurately represents the 679 well as the core  
11 was obtained.

12 Q. I didn't see, where in your revised  
13 testimony is scenario 5?

14 A. It was in my exhibit.

15 Q. What exhibit?

16 A. Right. Sorry, in the bottom here of --  
17 on -- sorry, I don't know what page. It's the  
18 second one up -- one page up from this one. Where  
19 it says scenario 5, what it takes to match CORSW.

20 Q. Okay. So here in this scenario 5, you  
21 say, "To make core water saturation and derive water  
22 saturation in agreement, a variable 'm' and 'n' must  
23 be used," and then you go on to say, quote, "which  
24 is an unlikely scenario because there is no change  
25 in logs character through Grayburg and San Andres

1 formations." Did I read that correctly?

2 A. Yes.

3 Q. Okay. So as you sit here today, are you  
4 changing your testimony that it's an unlikely  
5 scenario because there's no change in logs character  
6 through the Grayburg and San Andres formations?

7 A. No.

8 Q. Okay. Is it common for NuTech, in its  
9 work, to -- in log analysis, to calibrate its log  
10 interpretations to water saturation in core?

11 A. At times we do.

12 Q. When have you done that?

13 A. One is when we look at the analysis and  
14 the -- if we get the values -- when we're working  
15 from core, like I said, the data sets are not always  
16 perfect; therefore, we do not always get saturation  
17 values. So we can't tie to it if we do not have it.

18 If we do have it, understanding how the  
19 core was analyzed becomes important to being able to  
20 tie to saturation values, as well as when was the  
21 core analyzed in time to obtaining the core or  
22 when -- we call the core was cut.

23 Q. All right. But that wasn't my question, I  
24 guess. Okay? I'm going to get to that because I  
25 don't disagree that it's important to understand

1 those things.

2 But my question to you is -- you answered  
3 me when I asked you, have you -- is it common for  
4 NuTech to calibrate its log interpretations to water  
5 saturations, and you said, "sometimes."

6 I'm asking you: When? When have you done  
7 that? In what circumstances have you used  
8 calibrated to water?

9 A. We have done it in many, many different  
10 formations in many different areas, generally in  
11 conventional reservoirs.

12 Q. Have you ever done it in a residual oil  
13 zone?

14 A. I do not remember.

15 Q. In this revised analysis where you're  
16 calibrating to the water saturation measurements and  
17 the EMSU 679 core, did you make any corrections for  
18 water loss during the coring process?

19 A. No.

20 Q. You just told me that it's important to  
21 understand how the core was analyzed, right?

22 A. Yes.

23 Q. Why is it important to understand how the  
24 core was analyzed?

25 A. Just depending on how the core was handled

1 can change your saturation values.

2 Q. Right. Because you'd expect, when you  
3 bring core from depth, that there's going to be some  
4 gas expansion, correct?

5 A. Depending how it was handled.

6 Q. Right. Depending on what kind of core it  
7 was, correct?

8 A. Yes.

9 Q. And as gas expands, what happens to water  
10 in the core?

11 A. As gas expands, both water and hydrocarbon  
12 can leave the sample.

13 Q. Okay. What did you do to assess what --  
14 and how this core was handled before you analyzed?

15 A. We just received a table with those values  
16 in them. We did nothing. We plotted saturation of  
17 the water against the log derived.

18 Q. Okay. But you just told me it's important  
19 to understand how the core was handled, correct?

20 A. Correct.

21 Q. But did you do that here?

22 A. We were not given how the core was  
23 handled.

24 Q. Did you ask for it? I mean, you told me  
25 it's important to understand how the core was

1 handled in order to do an analysis of a log  
2 interpretation. And you explained to me how, when a  
3 core is removed from depth, gas will expand and it  
4 can express the water from the core, altering the  
5 water saturations, right?

6 A. It can, yes.

7 Q. And you don't know whether it did or  
8 didn't here, right?

9 A. Correct.

10 Q. And this was a conventional core, correct?

11 A. Yes.

12 Q. So is there any -- anything that would  
13 have been -- any aspect of that process that would  
14 have preserved water saturations during the --  
15 during the coring process?

16 A. I'm not a coring expert.

17 Q. So you don't know?

18 A. No, sir.

19 Q. Okay. All right. So you didn't do that  
20 to determine what may have happened or how the core  
21 was handled, and you didn't make any corrections to  
22 the water saturations prior to your analysis,  
23 correct?

24 A. Correct.

25 Q. Okay. Why not?

1 A. Because I don't know how to -- I  
2 personally do not know how to make those  
3 corrections.

4 Q. And is that because you're a log -- you're  
5 a log expert in log analysis and not an expert in  
6 petrophysics?

7 A. Because I'm not an expert in core  
8 handling.

9 Q. Okay. But that involves understanding the  
10 fluid flow in the reservoir, right? Being able to  
11 understand what happens to the core?

12 A. That makes logical sense, yes.

13 Q. Okay. And that's outside of the scope of  
14 your expertise, correct?

15 A. Yes.

16 Q. Okay. So when -- just stepping through  
17 this, if there were a loss of water saturation from  
18 the core, right, it's a conventional core, and if  
19 there were loss of water due to expansion of gas as  
20 the core's removed from depth, you and I discussed  
21 previously that as water saturations decrease,  
22 you're going to -- the interpretation is that  
23 there's a higher oil saturation, correct?

24 A. Yes.

25 Q. So if you don't make any corrections for

1 loss of water during the coring process, isn't that  
2 going to artificially lower the measured water  
3 saturations in the core?

4 A. As you state, with gas expansion and  
5 moving water with the gas expanding, wouldn't that  
6 also cause hydrocarbon saturation to go down?

7 Q. Well, I guess I get to ask the questions.  
8 But, Mr. Dillewyn, are you aware Empire's position  
9 is that the ROZ -- the oil in the ROZ is immobile?

10 A. No.

11 Q. Okay. Now, if the water saturations  
12 decrease in the core, the analysis would result in  
13 higher oil saturations, correct?

14 A. Yes, as those two are hand in hand.

15 Q. Okay. And so if you fail to make  
16 corrections for water saturations, your analysis  
17 would generate higher oil saturations, wouldn't  
18 they?

19 A. To a point. If you look at the core data,  
20 it does go to 100 percent water saturation.

21 Q. In certain places? Is that what you're  
22 saying?

23 A. Yes.

24 Q. And in those areas where you measured  
25 100 percent water, you're saying that there wouldn't

1 be any oil, correct?

2 A. Correct.

3 Q. But in every other -- every other interval  
4 where there is less than 100 percent water, then  
5 there would be oil, correct?

6 A. But if the oil can't flow and you have  
7 100 percent water saturation, then there is  
8 0 percent oil saturation. For that to be true, if  
9 the oil is not flowing in and of itself, then the  
10 other values relative to it would have to be  
11 similarly correct.

12 Q. I'm not quite sure I follow the logic  
13 there. But you're getting into discussing whether  
14 something would flow or not, correct?

15 A. I'm talking about --

16 Q. I'm sorry, what?

17 A. You mentioned that the water would come  
18 out with gas expansion, which I agreed to. And if  
19 water saturation is at 100 percent yet the oil in  
20 the system is also immobile, then you can't make the  
21 conclusion that 100 percent water saturation  
22 shows -- that there should be hydrocarbon saturation  
23 in lieu of 100 percent water saturation.

24 Q. I'm not sure I'm tracking, but that's what  
25 you're -- that's -- your response to my question is

1 that, what you just restated?

2 A. Yes.

3 Q. Okay. Now, in addition to not taking into  
4 account any corrections for water -- loss of water  
5 during coring, did NuTech take into account  
6 production tests data that was publicly available in  
7 its interpretation of the EMSU well logs in either  
8 your original or revised testimony?

9 A. No.

10 Q. Did Empire -- Empire did not provide  
11 NuTech any of the well test data, swab tests, water  
12 production tests, or any other data with respect to  
13 any of the wells that NuTech analyzed; is that  
14 correct?

15 A. Perfect.

16 Q. Correct? Is that what you said?

17 A. Correct, yes.

18 Q. Yeah. And NuTech did not, itself, review  
19 any of the public well files for well test data on  
20 the wells you analyzed, correct?

21 A. Correct.

22 Q. Okay. And -- and Empire didn't give you  
23 any information on the perforations in the wells  
24 that you analyzed, what depths they were perforated,  
25 correct?

1 A. Correct, to my knowledge.

2 Q. Okay. And NuTech did not ask for any  
3 other information from Empire to -- to conduct its  
4 analysis, correct, other than what Empire gave you?

5 A. Correct.

6 Q. And the only information that Empire gave  
7 you, other than the core and log data for the EMSU  
8 679 well, were there raster images for the wells you  
9 interpreted, correct?

10 A. Yes, correct.

11 Q. And at the time you prepared your -- both  
12 your original and revised testimony, you were aware  
13 that the EMSU has been operated as a waterflood  
14 since 1986, correct?

15 A. Yes.

16 Q. And you are aware at the -- were you aware  
17 at the time of your original or revised testimony  
18 that the EMSU had six water supply wells that were  
19 drilled inside the EMSU?

20 A. I was not aware of the number, just that  
21 there were water supply wells.

22 Q. But you didn't know where they were  
23 located or what formation they were completed in?

24 A. No.

25 Q. So you weren't aware that they were

1 producing and completed in the San Andres formation  
2 in the EMSU?

3 A. I was not aware, no.

4 Q. And you're not aware that Empire  
5 calculates those water supply wells that produced  
6 about 380 million barrels of water with no reported  
7 oil?

8 A. As stated before, we received no  
9 production information like that, so no.

10 Q. Okay. Did NuTech take into account any of  
11 the water production history of these six water  
12 supply wells in either its original or revised  
13 testimony?

14 A. No.

15 Q. And NuTech also did not take into account  
16 any of the well production history, oil, gas, or  
17 water, as part of its interpretation in either the  
18 original or revised testimony?

19 A. No.

20 Q. And NuTech didn't review any mud logs or  
21 drilling reports for any of the wells that were  
22 analyzed in its analysis?

23 A. No.

24 Q. So one of the questions I have about the  
25 way NuTech applied -- did its

1 'm' and 'n' sensitivity analysis, in the revised  
2 testimony, you applied a changing 'm' and 'n' value  
3 only to the San Andres; is that correct?

4 A. Correct, as the core showed the Grayburg  
5 to be in adherence to the model.

6 Q. Okay. So you made no changes to the  
7 'm' and 'n' in the Grayburg because you were able to  
8 match -- or rather NuTech's original analysis  
9 matched the core to start with in the Grayburg?

10 A. Correct.

11 Q. Okay. But did -- as to the San Andres, my  
12 recollection is, Mr. Dillewyn, that the issues with  
13 the -- matching the core in the 679 were only in the  
14 bottom portion of that interval; isn't that correct?

15 A. If you know -- as it says here, that from  
16 4,158, which is the -- what I remember to be the top  
17 of the San Andres -- sorry. Sorry, from -- yeah,  
18 from 4,158 to 4,303, a value of 2.15 and 3 made the  
19 best fit. And then below that to TD, an 'm' of 2.4  
20 and an 'n' of 3.4 was applied.

21 Q. But you vary -- you vary the 'm' and 'n'  
22 values in the San Andres -- the entire San Andres,  
23 correct?

24 A. Yes.

25 Q. Okay. But wasn't it true that the

1 NuTech's analysis -- well -- okay, so you -- but you  
2 applied -- you applied the variable 'm' and 'n' to  
3 the entire interval of the San Andres in the 679,  
4 correct?

5 A. Yes, as stated in here.

6 Q. Now, did NuTech prepare or conduct any  
7 sort of uncertainty analysis on its initial log  
8 interpretations?

9 A. No.

10 Q. How about for its revised analysis?

11 A. The revised analysis, in and of itself, is  
12 a sensitivity.

13 Q. Okay. Did you try running your model --  
14 your revised model against any other San Andres core  
15 or log to confirm whether it was able to match?

16 A. No.

17 HEARING OFFICER HARWOOD: You tend to  
18 lose track of time. I've been on your seat before.  
19 But we've been going for a couple of hours, so why  
20 don't we take -- if this is a good time for you, why  
21 don't we take a midafternoon break.

22 COMMISSIONER LAMKIN: Works for me.

23 HEARING OFFICER HARWOOD: All right.  
24 Let's see. So it's 3:15. Let's come back at 3:30?  
25 Okay. Thanks.

1 (Recess was taken from 3:16 p.m. until 3:32 p.m.)

2 HEARING OFFICER HARWOOD: Are we back  
3 on the record, Ms. Apodaca? Okay.

4 MS. APODACA: Yes, we are.

5 HEARING OFFICER HARWOOD: All right.  
6 Mr. Rankin.

7 COMMISSIONER LAMKIN: Thank you.

8 Q. Mr. Dillewyn, I just have another short  
9 category of questions to talk -- to ask you about.  
10 Are you aware that Empire retained a group called  
11 OPS Geologic to prepare a revised petrophysics  
12 remodel?

13 A. Yes.

14 Q. Have you reviewed OPS's testimony?

15 A. No.

16 Q. Have you reviewed their analysis of  
17 their -- of their logs that they interpreted?

18 A. No.

19 Q. Did anyone at OPS reach out to talk to  
20 you?

21 A. No.

22 Q. Did Empire ask you to review their  
23 testimony?

24 A. No.

25 Q. Did Empire ask you to review their log

1 interpretations?

2 A. No.

3 COMMISSIONER LAMKIN: One moment,  
4 Mr. Dillewyn. Just before I let you go, I want to  
5 confirm I have no further questions.

6 Mr. Dillewyn, thank you.

7 Mr. Hearing Officer, I have no further  
8 questions of the witness.

9 HEARING OFFICER HARWOOD: Thank you,  
10 Mr. Rankin.

11 Mr. Moander, questions for Mr. Dillewyn?

12 MR. MOANDER: Yes, Mr. Hearing  
13 Officer, just a couple.

14 CROSS-EXAMINATION

15 BY MR. MOANDER:

16 Q. Good afternoon, Mr. Dillewyn. How are you  
17 doing today, besides from being cross-examined, that  
18 is?

19 A. Highlight of my day.

20 Q. These should be fairly straightforward.  
21 So recall you were deposed on December 17, 2024, in  
22 these matters?

23 A. Yes.

24 Q. And at that time you testified that you  
25 hadn't reviewed any of OCD's filings in any of the

1 cases; is that right?

2 A. Correct.

3 Q. Have you reviewed them since?

4 A. No.

5 Q. And would it be fair, then, since you just  
6 testified you haven't reviewed OCD's records in  
7 these -- in any of these cases, that you don't have  
8 an opinion on OCD's case?

9 A. Correct.

10 MR. MOANDER: Thank you.

11 I'll pass the witness.

12 HEARING OFFICER HARWOOD: Okay.

13 Thank you, Mr. Moander.

14 Mr. Beck, questions on behalf of Rice?

15 MR. BECK: Mr. Dillewyn, I just have  
16 a couple of questions for you.

17 CROSS-EXAMINATION

18 BY MR. BECK:

19 Q. I want to make sure I understood what  
20 Mr. Rankin was asking you about. In your deposition  
21 with him in December of 2024, your testimony was  
22 that you stood by your original analysis and that  
23 you did not stand by the revised analysis. Was that  
24 right?

25 A. Yes.

1 Q. And today, I think you said something  
2 different, which is, today you're saying that the  
3 revised analysis is a -- I think you said it's a --  
4 it's a low range or a low end range and the original  
5 analysis is a high end range; is that right?

6 A. Correct.

7 Q. So today you're standing by both your  
8 original and your revised statements?

9 A. They are both possibilities, yes.

10 Q. And then today you were accepted as an  
11 expert in log analysis; is that right?

12 A. Yes.

13 Q. And on December 17, 2024, you said that  
14 you were -- you expected to be accepted as a  
15 petrophysicist expert; is that right?

16 A. Yes.

17 Q. And since December 17, 2024, you said you  
18 have not looked at any of the rebuttal statements  
19 from OPS Geologic, right?

20 A. Correct.

21 Q. Have you spoken with the attorneys for  
22 Empire since December 17, 2024?

23 A. Yes.

24 Q. How many times?

25 A. Don't remember an exact. A handful of

1 times.

2 Q. Did you talk about the change in your  
3 testimony about the low end and high end ranges as  
4 opposed to not standing by your revised testimony?

5 MS. SHAHEEN: Mr. Examiner, I'm going  
6 to object. I feel like he's broaching on  
7 attorney/client privilege here and work product.

8 MR. BECK: And I'm happy to answer  
9 this. I think we've resolved this issue, the  
10 Commission resolved it, finding that experts engaged  
11 are not subject to the attorney/client privilege.  
12 And I think they gave -- based on that ruling, they  
13 gave the OCD the ability to depose again a witness  
14 where we had this objection before.

15 So I think we've tread this ground.

16 MS. SHAHEEN: I don't recall that  
17 ground having been tread or a ruling having been  
18 made. Maybe you can be more specific, Mr. Beck.

19 MR. BECK: Sure. Let me find that --  
20 let me find it really quickly.

21 January.

22 So February 6, 2025, the Commission  
23 granted the Oil -- excuse me -- the Oil Conservation  
24 Division's Motion to Compel Expert Witness Testimony  
25 of Dr. Robert Lindsay. And let me find exactly

1 where it is here.

2 Paragraph 4: Empire's objection to the  
3 discovery communications between its counsel and  
4 Dr. Lindsay on the grounds of attorney/client  
5 privilege, i.e., that Dr. Lindsay has personally  
6 retained the Padilla Law Firm as his lawyers in this  
7 case, were not argued or otherwise supported in  
8 Empire's briefing and are thus deemed not  
9 meritorious.

10 And so if we tread back on that, what  
11 happened was Mr. Padilla objected to the OCD's  
12 questioning of communications Mr. Padilla had with  
13 Dr. Lindsay on the grounds of attorney/client  
14 privilege or work product doctrine. Commission  
15 looked at the issue and correctly decided that there  
16 is no attorney/client privilege or work product  
17 protections for expert witnesses who would testify  
18 at this Commission hearing.

19 HEARING OFFICER HARWOOD: Unless the  
20 witness themselves are a client of the -- of the  
21 party.

22 MR. BECK: Then it would be more  
23 complex.

24 HEARING OFFICER HARWOOD: Right.  
25 Okay.

1 MR. BECK: It would depend on the  
2 nature of those communications.

3 HEARING OFFICER HARWOOD: And Empire  
4 is not claiming to -- Mr. Dillewyn is a client.

5 MS. SHAHEEN: That is correct. Not  
6 to beat a dead horse, I believe that the definition  
7 of work product is any product conducted by someone  
8 at the direction of an attorney in anticipation of  
9 litigation, which is exactly what we're talking  
10 about here.

11 I don't know that that analysis was done  
12 with respect to work product in that previous  
13 ruling, but I can agree that if Mr. Dillewyn is not  
14 a client, this is not an attorney/client  
15 communication. Although the client was present at  
16 the time, so there was privilege between the client  
17 and the attorney at that time.

18 But work product done at the direction of  
19 an attorney in anticipation of litigation by any  
20 person on behalf of the client is protected unless  
21 there's a need for that. And I forget what the  
22 standard is, but it's -- you know, there needs to be  
23 good cause effectively to get that information.

24 HEARING OFFICER HARWOOD: Okay.  
25 Well, I'm not convinced that communications are work

1 product. So I'm going to allow the question.

2 Objection is noted, but overruled.

3 You want to repeat it. It's been a while.

4 I don't remember it. Mr. Dillewyn probably needs to  
5 hear it again.

6 MR. BECK: Sure. I don't remember  
7 exactly what I asked.

8 Ms. Tellez, can you read back my question,  
9 please.

10 (The record was read back as requested.)

11 A. Yes.

12 MR. BECK: That's all I have. Thank  
13 you.

14 HEARING OFFICER HARWOOD: Pilot,  
15 questions for Mr. Dillewyn?

16 MR. SUAZO: Pilot has no questions  
17 for this witness.

18 HEARING OFFICER HARWOOD: All right.  
19 Then to the Commission, who wants to go first?

20 Pardon?

21 UNIDENTIFIED SPEAKER: Chair? The  
22 Chair?

23 HEARING OFFICER HARWOOD: Mr.  
24 Razatos, would you -- do you have questions?

25 CHAIRMAN RAZATOS: I do not have

1 questions. Thank you.

2 HEARING OFFICER HARWOOD: Okay. Then  
3 Mr. Lamkin?

4 MR. LAMKIN: Yeah.

5 EXAMINATION

6 BY COMMISSIONER LAMKIN:

7 Q. Good afternoon, Mr. Dillewyn. Thanks for  
8 your testimony. I have one question.

9 In your experience analyzing logs and  
10 doing petrophysical analysis for clients in the  
11 past, have you ever come across situations where  
12 core data kind of confounds the log analysis and/or  
13 empirical data from the field?

14 A. Yes.

15 Q. Can you expand on what kind of interplay  
16 would cause conflicting outcomes?

17 A. There's numerous situations in the work  
18 I've approached, being that I've worked in almost  
19 every basin in the world. That situation being the  
20 case that when geology is changing, the fact that a  
21 core measurement is from a specific point versus  
22 waterline logs being an average over a depth of  
23 investigation, you can quite often see differences  
24 there, as well as sometimes core, in the manner in  
25 which it was handled and timing between when it was

1 taken, depending how it was stored, how it was  
2 handled, things like that can cause differences in  
3 saturation values.

4 And depending on the core, information  
5 measured from those samples can also change how we  
6 look at things. But quite often, it's a resolution  
7 issue.

8 MR. LAMKIN: Thank you. That's my  
9 only question.

10 HEARING OFFICER HARWOOD: Dr.  
11 Ampomah?

12 EXAMINATION

13 BY COMMISSIONER AMPOMAH:

14 Q. Good afternoon, sir. Thank you for your  
15 testimony. I do have a couple of questions for you.

16 So you've been accepted as an expert into  
17 petrophysics. So my first question to you is: You  
18 know, based on your expertise and all the  
19 information that you've provided to the Commission,  
20 how do you quantify the low and high end of your  
21 saturation calculations?

22 A. In looking at the analysis, the value of 2  
23 and 2 on the high end is a standard petrophysical --  
24 is a standard log analysis approach for a multi  
25 mineral model using the values looking -- that were

1 placed in there.

2 When running the low case tied to the core  
3 here in this situation, we were using only those two  
4 values to tie. When you look at the results, you  
5 can see that core porosity was very accurate to the  
6 analyzed measurement, which holds one of the  
7 variables within saturation as known. And,  
8 therefore, we are limited in the variables that we  
9 can change.

10 However, 'm' and 'n' are not the only  
11 variables I can change in a saturation equation.

12 Q. Okay. Thank you. So it sounds to me that  
13 your testimony more or less aligned with Mr. Scott,  
14 but also more or less assigned a low end and a high  
15 end based on the standard and also the core  
16 calibrated data.

17 Are you familiar with his testimony?

18 A. No, I am not.

19 Q. So you are not able to speak to how your  
20 'm' and 'n' values differ from Mr. Scott Birkhead's  
21 testimony?

22 A. No, I am not.

23 Q. Now, you estimated your saturation values  
24 to be between 1 percent to 65 percent; is that  
25 correct?

1 A. Yes, I believe that's what it said, yes.

2 Q. So when there is a value of about  
3 65 percent saturation, more or less about let's say  
4 50 percent to the high end of 65 percent saturation,  
5 would this reservoir still be classified as an ROZ?

6 A. It is outside my purview to determine an  
7 ROZ, as that is not what we do in log analysis.

8 Q. So you are not testifying that there is a  
9 presence of oil in this zone that we are talking  
10 about?

11 A. I am testifying that we do see hydrocarbon  
12 saturation in this reservoir; however, we do not  
13 determine an ROZ, as those characteristics are  
14 outside of our purview.

15 Q. So there's no way in your testimony that  
16 you made mention of ROZ?

17 A. Only in general terms.

18 Q. Okay. So I'm asking you in general terms,  
19 do you believe that the reservoir of a saturation of  
20 about 65 percent can be classified as an ROZ or a  
21 conventional reservoir?

22 A. Depending on porosity.

23 Q. Explain that to me, sir.

24 A. As porosity is one of the largest inputs  
25 into the saturation equation, depending on your

1 porosity, therefore changes what your saturations  
2 are at that particular point.

3 Q. Now, in your log analysis, I've seen that  
4 you are showing movable oil, movable water. And so  
5 it sounds to me that based on your analysis, you are  
6 familiar with irreducible water saturation. Would  
7 that be a fair statement?

8 A. Yes.

9 Q. Then what is the irreducible oil  
10 saturation that you estimated?

11 A. We did not estimate an irreducible oil  
12 saturation.

13 Q. As part of your analysis, did you also  
14 evaluate how the changes in mineralogy can also  
15 impact, let's say, the porosity and then the  
16 saturation estimation?

17 A. By mineralogy, meaning lithology, yes,  
18 sir.

19 Q. When I say mineralogy, I'm not necessarily  
20 saying limestone or, let's say, dolomite. I'm  
21 talking about the actual mineral composition of the  
22 rock metrics.

23 A. No. As we did not have that information  
24 going in, I could not make a mineralogical model;  
25 therefore, a lithological one was determined.

1 Q. Then my question to you is that: Can you  
2 explain to the Commission the geological basis of  
3 your potential changes in 'm' and 'n', you know, to  
4 convince the Commission? Right as I speak to you  
5 now, I'm just trying to figure out which of your  
6 estimates should we take.

7 And then if we talk about Mr. Ryan  
8 Bailey's estimation that was provided to the  
9 Commission -- which I'll come to that. Scott also  
10 did some work. Now, as a commissioner, I'm just  
11 trying to figure out which ones should I work with.

12 A. Yes, sir. I'm well aware that if you want  
13 to have an argument about geological model, put  
14 three different geologists in the same room and  
15 you'll get four different results.

16 So in this situation here, as we ran it,  
17 because there is no way from the logs directly to  
18 measure the mineralogical model, therefore, it was  
19 not determined to be done. We looked at it  
20 lithologically to validate the density porosity.  
21 And as you can see, the density -- or the porosity  
22 that is obtained within the core of the 679 well is  
23 accurate.

24 Therefore, in applying it across, not  
25 being able to determine those differences in the

1 geological models is why we are sticking with our  
2 initial assessment of 2 and 2. If we had direct  
3 measurements of the mineralogical model changing,  
4 then we could make some of those assessments and  
5 make those changes across to the model.

6 Using -- sorry.

7 Q. Go ahead, sir.

8 A. Using the core values of the saturation,  
9 as provided to us in the 679 well, and tying that to  
10 the calculation to determine 'm' and 'n' and to look  
11 at in proximity to the data that we were provided,  
12 and using that as the basis and seeing from the  
13 Four-County study the wide variance in 'm' and 'n'  
14 values from the different fields in the area, if you  
15 will, then there is a lot of values that can be used  
16 to obtain many different results in there.

17 Q. So is it your testimony that there is no  
18 actual geological basis with regards to, let's say,  
19 how the optimal 'm' and 'n' were more or less  
20 derived, but just trying to fit that to the data?  
21 Is that a fair statement?

22 A. We were only fitting it to the data  
23 provided, not -- we were not asked to create a  
24 geological model from it.

25 Q. From your experience, are you able to

1 analyze the impact of, let's say, saltwater  
2 injection on petrophysical analysis?

3 A. Not on the given data at the time of  
4 original logging.

5 Q. So explain that to me. So explain to the  
6 Commission, how can we -- or let's say how can you  
7 estimate the impact of the water injection unless  
8 there's a petrophysical analysis?

9 A. Petrophysics or log analysis as we  
10 performed on these wells is a snapshot in time of  
11 when the data is obtained. Those conditions are  
12 only at that particular date on which it is run. If  
13 something causes the reservoir to change after that  
14 fact and no more data is obtained from that, then  
15 through petrophysics no further insight can be  
16 viewed.

17 Other data could be obtained and other  
18 disciplines can create models based off of that  
19 framework to show whether fluids have moved or have  
20 not moved or what is there; however, on the  
21 petrophysics/log analysis side, it is just a  
22 snapshot in that time unless more data is obtained.

23 Q. So is it your testimony to the Commission  
24 that even if there is a heavy oil saturation in your  
25 log analysis in terms of present-day?

1 A. Can you repeat, please.

2 Q. Can you talk about -- based on what you  
3 just explained to the Commission, can you comment on  
4 the fact that there is a huge -- or let's say there  
5 is a high certainty associated with any of the  
6 petrophysical analyses that has been presented to  
7 the Commission, specifically your petrophysical  
8 analysis presented to the Commission considering the  
9 present-day?

10 A. I cannot remember when the last log was  
11 obtained out of the logs we analyzed. Of those  
12 values once obtained more recent or after the  
13 injection had -- has commenced and depending on  
14 proximity to that injection site, could show effects  
15 of water injection.

16 Q. So as of now, you cannot comment on the  
17 potential impact injection over 100-something  
18 million barrels into the San Andres unless the  
19 current petrophysical analysis more or less  
20 pertained to the oil currently in place?

21 A. Correct.

22 Q. Thank you. Did you presume -- did you  
23 estimate permeability as part of your analysis?

24 A. I did.

25 Q. And what was the typical range that you

1 estimated?

2 A. The zones were anywhere within the  
3 San Andres -- I'm just going to refer to the  
4 San Andres -- was between .1 -- .01 millidarcy and  
5 10 millidarcies.

6 Q. Thank you for that. Now, in your  
7 testimony, you made mention to the fact that -- and  
8 I will read, but let me see if I can get -- on  
9 page 23 of 29 -- so I'm reading from the -- this  
10 will be the water saturation parameter scenario in  
11 Lea County for Empire. On page 23 of that document,  
12 I read from -- I have the original analysis, and I  
13 read down a little bit.

14 You're saying that, "On the other hand,  
15 core permeability to estimated permeability looked  
16 scattered due to the possible fractured reservoir."  
17 Do you recall that statement?

18 A. Yes, sir.

19 Q. Is there an approach to estimate the  
20 permeability for fractured reservoirs?

21 A. Yes, there's many approaches to  
22 calculating fractured permeability.

23 Q. So why -- if you believe strongly that the  
24 reservoir is fractured and, thereby, there's a --  
25 let's say there is -- you are getting closer to the

1 actual permeability that was predicted based on the  
2 correlation that you used and you are making a  
3 statement right here attributing that this reservoir  
4 could be a possible fractured reservoir, why did you  
5 not try that?

6 A. The problem is when determining natural  
7 fractures and their contribution to a reservoir, is  
8 that predicting natural fractures is extremely  
9 difficult as, in and of themselves, natural  
10 fractures occur due to many different stresses and,  
11 therefore, cannot be quantified. Overall as a  
12 reservoir, it can be measured in a wellbore  
13 situation if the data's obtained at the time that it  
14 is exposed.

15 Q. Were you here when -- were you on the  
16 platform when Mr. Marek was providing his testimony?

17 A. I was.

18 Q. Then I presume you also listened to the  
19 redirect from Mr. Padilla when he talked about the  
20 permeability estimations are based on the rock type,  
21 are based on the actual geology of the formation.  
22 So you did the estimation of the permeability. You  
23 know, you run the models. You use assisted  
24 correlations to match that.

25 Now, if I were to tell you that -- let's

1 say you have the input for, more or less, probably  
2 used for the reservoir simulation and estimated  
3 permeabilities in the range of, let's say, .001 to  
4 like, let's say, 10 millidarcy, but a permeability  
5 of about 500 to 515 millidarcy was utilized as  
6 heavy, tell the Commission that there is a  
7 communication between two zones. Can you comment on  
8 that?

9 A. No, sir, as I cannot determine from a  
10 value given to me, whether from core or from a log  
11 calculation, whether the permeability I'm given is  
12 KV or KH.

13 Q. Okay. So you are estimating  
14 91.5 million barrels of oil per session. That is on  
15 the higher side. And then on the lower side is  
16 15 million barrels of oil per session. What type of  
17 oil are you estimating here?

18 A. We are looking purely at hydrocarbon  
19 saturation within the zone. And we used an  
20 expansion coefficient of 1.3 in that calculation.

21 Q. So it's not your testimony that this oil  
22 that you estimated is an ROZ?

23 A. No, sir. I was not asked to make the  
24 determination of an ROZ or not.

25 Q. So Mr. Ryan Bailey also presented his

1 testimony to the Commission. And he also estimated  
2 oil in place of 629.62 million barrels of oil on the  
3 lower side and then on the higher side,  
4 1,049.75 million barrels of oil on the higher side.  
5 How does this number compare to your estimation?

6 A. The -- in which? Was that just -- having  
7 not reviewed his testimony or his data, was that  
8 across a number of wells? Was that a range from it?  
9 Could you be a little more specific on the data that  
10 that covers, sir?

11 Q. Give me a second.

12 So in his testimony, it is across multiple  
13 wells that he builds structure models and then also  
14 aspect maps and also saturation maps presumably  
15 probably from your input as well. So, yeah, from  
16 multiple wells.

17 A. And the oil in place, that is a total oil  
18 in place over the entire acreage, sir? Or is that  
19 in a per section basis? Or what are the values  
20 there?

21 Q. So as far as I remember, this is more or  
22 less based on the boundary of the EMSU.

23 A. Sir, it's difficult for me to make that  
24 comparison to what we did, as we did our in place  
25 volumetrics on a per section basis. And I would

1 need to -- although I have seen the map of the size  
2 of EMSU, I have not done that calculation out to  
3 make that comparison for you.

4 Q. So when you say "per section," can you  
5 tell the Commission the area that are you looking  
6 at?

7 A. On a per section, we refer -- a section is  
8 a 640-acre unit.

9 Q. So your analysis would just strictly be  
10 within, let's say, one well drainage area basis?

11 A. It was outside of our purview to do the  
12 work to determine the drainage radius of a single  
13 well, sir.

14 Q. You know, based on your testimony and the  
15 cross, it sounds to me -- you know, I want to ask  
16 you: Are you in any way doubting the core analysis  
17 saturation estimation?

18 A. Given the information given to us on the  
19 values, I do not know enough to doubt the values;  
20 however, in my expertise, saturation values from  
21 core can be suspect.

22 Q. So if your client is using that values,  
23 that information, I mean, to tell the Commission  
24 to -- you know, to terminate permits -- I mean, is  
25 that your testimony, that there's a huge offsetting

1 the surrounding, given the actual hard data?

2 A. Sir, even using the conservative low case  
3 estimate, there is still hydrocarbon in place in the  
4 San Andres as calculated out.

5 Q. Yeah, I believe the Commission also, we do  
6 have the -- we also need to know: If it is there,  
7 how much is there? Is it recoverable or not?  
8 Right?

9 So just being there, I need to know more.  
10 You know, because you are setting a very high bar  
11 here that -- yeah, I feel like we need to know more.

12 I'm going to ask you the same questions  
13 that I asked Mr. Birkhead during his testimony. Is  
14 it possible that potential changes in wettability of  
15 the system can impede the available oil saturation  
16 in present-day?

17 A. The changes in wettability can cause  
18 recoverable hydrocarbons to be vastly different.

19 Q. And do you know, based on your analysis,  
20 what type of wettability are we dealing with?

21 A. Based on this, I am not sure of the  
22 San Andres, in and of itself. Being a mixed  
23 wettable system is fairly common.

24 Q. Okay. So probably could have been more or  
25 less, let's say, heavy oil wet and now generally in

1 the San Andres, is less wet? Is that your  
2 testimony?

3 A. Yes, sir.

4 Q. Now, due to the high volume of the water  
5 injected into the San Andres, there is a possible  
6 reservoir pressure increase. Do you believe this  
7 can reduce the capillary forces holding the residual  
8 oil in place?

9 A. In this case, sir, that is outside my  
10 purview as a log analyst.

11 Q. As a log analyst, but I thought log  
12 analysts have expertise in wettability, in  
13 estimation -- let's say as a log analyst, you have  
14 the expertise to calculate how much oil is in place,  
15 I'm not sure if you can say that wettability or,  
16 let's say, capillary forces and all of that is not  
17 in your purview, but I will take that.

18 Another question: Can you comment on the  
19 fact that the higher injection volume might have  
20 already increased the viscous forces overcounting  
21 the capillary trapping and subsequently reducing the  
22 residual oil in place?

23 A. I'm sorry, I cannot comment on that.

24 Q. So based on all the discussions that we've  
25 had today and even previously, at least the ones

1 that you listened to, don't you believe that, based  
2 on your experience, that there is quite a number of  
3 uncertainty associated with these estimates that you  
4 are presenting to the Commission?

5 A. Yes, sir.

6 Q. And I'll give you my last question here,  
7 that if you had more time and resources, is there  
8 anything that you could have done differently,  
9 especially in your approach, you know, quantifying  
10 the 'm' and 'n'?

11 A. Sir, given unlimited resources and data,  
12 then absolutely there are ways to do that. There is  
13 additional data that can be obtained. Ideally in  
14 every well, I would have a core, and all of these  
15 values would be measured, and, therefore,  
16 uncertainty would be reduced drastically.

17 Quite often, though, at least the data  
18 sets are less than ideal, and, therefore, inferences  
19 have to be made and calculated from there.

20 COMMISSIONER AMPOMAH: I appreciate  
21 your time, and thank you, sir.

22 HEARING OFFICER HARWOOD: Okay.  
23 Thank you, Dr. Ampomah.

24 So back to you, Ms. Shaheen, for redirect.

25 MS. SHAHEEN: Thank you,

1 Mr. Examiner.

2 REDIRECT EXAMINATION

3 BY MS. SHAHEEN:

4 Q. Do you recall your testimony earlier when  
5 Mr. Rankin asked you about whether you had reviewed  
6 a variety of other types of information and data in  
7 performing your analysis?

8 A. Yes.

9 Q. Is there a need -- in your opinion, in  
10 conducting the analysis that NuTech performed, is  
11 there a need to review the EMSU unit documents or  
12 case file?

13 A. No.

14 Q. Is there a need to review the hearing  
15 transcripts from the unit proceeding?

16 A. No.

17 Q. Is there a need to review exhibits from  
18 that proceeding, well -- excuse me. Is there a need  
19 to review exhibits from that proceeding?

20 A. No.

21 Q. Is there a need to review well files?

22 A. No.

23 Q. Production data?

24 A. No.

25 Q. Fluid flow?

1 A. No.

2 Q. And you regularly perform work for other  
3 clients using the NULOOK process, correct?

4 A. Yes.

5 Q. Did you do anything different for Empire  
6 than you would do for any of your other clients?

7 A. No.

8 Q. Dr. Ampomah asked you which opinion, if  
9 you will, the Commission should accept, the low end  
10 or the high end. Do you recall his questions on  
11 that front?

12 A. I do.

13 Q. Would it be accurate to say that  
14 regardless which one may be more correct, it's  
15 somewhere in the middle? As you said, there is oil  
16 down there?

17 A. That is correct.

18 Q. And the uncertainties that exist are  
19 within that range, correct?

20 A. Yes.

21 MS. SHAHEEN: No further questions.  
22 Thank you.

23 HEARING OFFICER HARWOOD: Okay.  
24 Thank you, Ms. Shaheen. May this witness be  
25 excused?

Redirect Examination by Ms. Shaheen

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1 MS. SHAHEEN: I believe so.

2 HEARING OFFICER HARWOOD: All right.

3 Mr. Dillewyn, thank you for your time here today,  
4 and you are free to leave.

5 Let's see, it's 4:12 in the afternoon.  
6 Let me ask Chairman Razatos.

7 What are your thoughts at this point,  
8 Chairman? We could obviously --

9 I suppose, Ms. Sheehan, assuming he's  
10 available, we could take the next witness, Joe  
11 McShane.

12 MS. SHAHEEN: That is correct.

13 HEARING OFFICER HARWOOD: Okay. Or  
14 we could start with him in the morning.

15 CHAIRMAN RAZATOS: Ms. Shaheen, quick  
16 question for you. How long do you think the -- your  
17 opening testimony with the next witness is going to  
18 take?

19 MS. SHAHEEN: No more than 30  
20 minutes.

21 CHAIRMAN RAZATOS: So, Mr. Hearing  
22 Officer and all parties involved, do you want to at  
23 least spend the next 30 minutes to hear the opening  
24 statements of the next witness, and then we can  
25 start the questioning tomorrow?

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1 Mr. Rankin?

2 COMMISSIONER LAMKIN: Yes, please.

3 CHAIRMAN RAZATOS: Okay.

4 Mr. Moander?

5 MR. MOANDER: Yes, we could proceed.

6 CHAIRMAN RAZATOS: Okay. Mr. Beck?

7 MR. BECK: Yes.

8 CHAIRMAN RAZATOS: Mr. Suazo?

9 MR. SUAZO: That's fine with Pilot.

10 CHAIRMAN RAZATOS: Awesome. I think,  
11 Mr. Hearing Officer, let's put the next witness on.  
12 Let's give it the half-hour, and then we can wrap it  
13 up and call it a day.

14 HEARING OFFICER HARWOOD: All right.  
15 All right, Mr. Chairman, that sounds like a plan.

16 CHAIRMAN RAZATOS: Thank you.

17 HEARING OFFICER HARWOOD: Will  
18 Mr. McShane appear remotely?

19 MS. SHAHEEN: Mr. McShane is here in  
20 person.

21 HEARING OFFICER HARWOOD: Oh, there  
22 he is.

23 MS. SHAHEEN: But I'm hoping you can  
24 give me a few minutes to get my ducks in a row.

25 HEARING OFFICER HARWOOD: Okay. The

Direct Examination by Ms. Shaheen

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1 clock is ticking, though.

2 MS. SHAHEEN: Can we have five  
3 minutes?

4 HEARING OFFICER HARWOOD: Sure.

5 Mr. McShane, if you want to take the  
6 witness stand, I'll swear you in.

7 If you'll raise your right hand, please,  
8 sir.

9 JOSEPH McSHANE

10 having been first duly sworn, testified as follows:

11 CHAIRMAN RAZATOS: Just so you know,  
12 Ms. Shaheen, your microphone is on, so we can hear  
13 you.

14 DIRECT EXAMINATION

15 BY MS. SHAHEEN:

16 Q. Good afternoon, Mr. McShane. Can you  
17 please state your name for the record.

18 A. Joe McShane.

19 Q. And who are you employed with and in what  
20 capacity?

21 A. I'm employed as a senior geologist for  
22 Empire Petroleum Corp.

23 Q. And are you testifying today as an expert  
24 in petroleum geology?

25 A. Yes.

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1 Q. And you've attached your credentials to  
2 your written testimony in this matter?

3 A. I have.

4 MS. SHAHEEN: I move that Mr. McShane  
5 be qualified as an expert witness in petroleum  
6 geology in this matter.

7 HEARING OFFICER HARWOOD: Any  
8 objection, Mr. Rankin?

9 COMMISSIONER LAMKIN: None.

10 HEARING OFFICER HARWOOD: Mr.  
11 Moander?

12 MR. MOANDER: No.

13 HEARING OFFICER HARWOOD: Mr. Beck?

14 MR. BECK: No.

15 HEARING OFFICER HARWOOD: Mr. Suazo?

16 MR. SUAZO: No objection.

17 HEARING OFFICER HARWOOD: He'll be so  
18 recognized.

19 MS. SHAHEEN: Thank you.

20 Q (By Ms. Shaheen) Mr. McShane, you first  
21 submitted direct written testimony explaining the  
22 results of your opinions, your testimony as Empire's  
23 Exhibit G on August 26, 2024; is that correct?

24 A. Yes.

25 Q. And you also submitted revised testimony

1 on December 4, 2024, as Revised Exhibit G; is that  
2 right?

3 A. Yes.

4 Q. Why did you submit revised testimony?

5 A. Between the two dates, we had asked NuTech  
6 to run another pass at their model utilizing  
7 additional core data that we delivered to them. And  
8 when we got the range of their results, I erred on  
9 the side of using the low side estimates for oil in  
10 place and revised my testimony.

11 Q. Do you have any corrections to your  
12 Revised Exhibit G?

13 A. No.

14 Q. Other than the revisions in your Revised  
15 Exhibit G, do you have any corrections to your  
16 original Exhibit G?

17 A. No.

18 Q. Do you affirm that the statements made in  
19 your Revised Exhibit G are correct and adopt that as  
20 your sworn testimony here today?

21 A. I do.

22 Q. And subject to the revisions that you made  
23 in your Revised Exhibit G, do you also adopt  
24 Exhibit G as your sworn testimony today?

25 A. Yes.

Direct Examination by Ms. Shaheen

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1 MS. SHAHEEN: I would move for  
2 admission of Empire's Exhibit G and Empire's Revised  
3 Exhibit G and all the exhibits attached thereto.

4 HEARING OFFICER HARWOOD: Mr. Rankin?

5 COMMISSIONER LAMKIN: No objection.

6 HEARING OFFICER HARWOOD: Mr.

7 Moander?

8 MR. MOANDER: No objection.

9 HEARING OFFICER HARWOOD: Mr. Beck?

10 MR. BECK: No objection.

11 HEARING OFFICER HARWOOD: Mr. Suazo?

12 MR. SUAZO: No objection.

13 HEARING OFFICER HARWOOD: All right.

14 It will be admitted with attachments.

15 (Exhibit G and Revised Exhibit G admitted into  
16 evidence.)

17 Q (By Ms. Shaheen) Mr. McShane, what changed  
18 in your revised testimony as a result of the  
19 NuTech's refined analysis?

20 A. As I said, you know, as has been testified  
21 to previously, they integrated in their second pass  
22 the EMSU 679 core data, as well as integrated some  
23 data from a study that was found. And once we got  
24 the ranges between the two models, we decided -- or  
25 I decided, in conjunction with other engineers, that

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1 we would go with the low side estimate in their  
2 model in order to move forward with our analysis.

3 Q. Turning to your Exhibit G-1A, what is the  
4 importance of this slide?

5 A. So this is a regional slide of -- showing  
6 the EMSU, the EMSU-B, and the AGU. Overriding is  
7 the top of the San Andres structure map.

8 The first thing to point out is, again,  
9 that there's a -- the structure shows that there's a  
10 structural closure in the San Andres on the east --  
11 running northwest to southeast over EMSU itself on  
12 the right side of the unit.

13 And then on this map, we're also showing  
14 the permitted and the existing saltwater disposal  
15 well locations.

16 And then the third thing I want to point  
17 out is that there -- in purple, there is a cross  
18 section line that will refer to a cross section C on  
19 the next slide. And that these wells that we are --  
20 that will show the cross section are located,  
21 drilled through injecting into a -- a unitized  
22 interval.

23 Q. And do the proposed wells, the Goodnight's  
24 proposed wells lie in the crestal area?

25 A. Yes, they do.

1 Q. And --

2 A. But I'd also like to point out that in the  
3 structure map just as well -- the 679, we showed --  
4 showed oil down to minus 762 subsea. And that will  
5 be important when we're talking about injecting  
6 down-dip.

7 Q. Why is it significant that the Goodnight's  
8 proposed wells lie in the crestal area?

9 A. Well, in the dynamic of drilling geology,  
10 your highest point on the structural closure should  
11 be your best wells. And if you're injecting into  
12 that zone, you're going to have a better chance of  
13 damaging the reservoir, as well as the water you're  
14 pushing down-dip is going to move up-dip, as well,  
15 towards those crestable regions.

16 Q. And just to make sure there's no confusion  
17 here, this Exhibit G-1A was attached to your  
18 testimony, right?

19 A. That is correct.

20 Q. Was there any change made to this exhibit  
21 for your presentation today?

22 A. The only thing we changed for the  
23 presentation is, we dropped off all of the existing  
24 producing wells other than the disposal wells, just  
25 to make it clearer to see on the screen.

1 Q. Turning to the next slide, can you  
2 describe this cross section for the commissioners?

3 A. Correct. This cross section that you saw  
4 on the previous slide, the cross section line, this  
5 cross section includes Goodnight's current saltwater  
6 disposal wells. In addition to the next, we'll see  
7 proposed permits.

8 Then you also see some additional  
9 producers in the EMSU, and this is a structural  
10 cross section, so we're removing from the --  
11 basically the southwest to the northeast up  
12 structure.

13 Q. So the red line, the solid red line and  
14 the dotted red -- or dashed red line, what does that  
15 indicate?

16 A. The dashed and solid red line is the  
17 unitized intervals, as agreed upon, in the field  
18 rules.

19 And I've also put that in the callout box,  
20 the language down the bottom right where it says,  
21 "The unitizer will -- shall include formations from  
22 the lower limit defined by the base of the  
23 San Andres formation to the upper limit defined by  
24 the Grayburg formation and/or 100 feet subsea data,  
25 whichever is higher."

1           And so what we can see is that where  
2 that -- where these wells fall within that unitized  
3 intervals, as well as where Goodnight's injection  
4 intervals are, in conjunction to that unitized  
5 interval, showing that they're below the San Andres  
6 top, but that they cover -- they cover a large chunk  
7 of our unitized intervals.

8           Q.       And what do the green brackets indicate?

9           A.       The green brackets indicate where we are  
10 identifying a residual oil zone.

11                   And just real quick and to shed -- just  
12 because where the green brackets -- like for the  
13 EMSU 713 and the 673, et cetera, just because the  
14 bracket ends, it's just ending because of the log.  
15 It does not mean that we think that the ROZ actually  
16 ends there in the San Andres. We suspect that it  
17 continues below that.

18           Q.       Here going back to G-1A with a slightly  
19 different rendition. Can you explain to the  
20 commissioners why this is significant?

21           A.       This is, again, just a similar map to the  
22 first one. But, again, it's just showing a  
23 different cross section line that you'll see in the  
24 next slide with the -- the cross section moves  
25 basically along the apex of the structure, the

1 structural closer itself, and it's going to include  
2 permitted wells as well as existing producers.

3 Q. And this next cross section corresponds to  
4 the last slide; is that right?

5 A. Yes, absolutely. So you see logs for the  
6 wells that are producing and then just placeholder  
7 logs for the proposed permits by Goodnight. Again,  
8 associated with their -- based on their proposed  
9 depths where they would fall within the unitized  
10 interval.

11 Q. And, again, you have the green brackets  
12 showing the residual oil zone; is that right?

13 A. That's correct.

14 Q. Can you describe what this map shows?

15 A. So this map is illustrating the seven  
16 wells that NuTech did their log analysis for us when  
17 we initially gave them the scope of work. We  
18 actually gave them nine wells, but they settled on  
19 seven based on log quality, as well as the fact that  
20 they cover some portion of the San Andres reservoir.  
21 Four of these wells -- four of these analyses were  
22 performed -- were performed recently on 2005 vintage  
23 open hole logs in the San Andres to evaluate for  
24 hydrocarbons.

25 Q. And what are the key points here?

1           A.       So the key points that we want to point  
2 out is, in one of these wells that Goodnight did  
3 their -- or that NuTech did their analysis was  
4 Goodnight's Ryno SWD well. According to NuTech's  
5 analysis, the oil in place per section for the Ryno  
6 SWD well calculated was 15.6 million barrels per  
7 section.

8                   We also wanted to show that the wells are  
9 fairly distributed across the EMSU, and they are  
10 representing both, you know, down-dip and up-dip  
11 reservoirs, so we should get a good spread. There  
12 are some on the apex and some coming off of the  
13 flanks of the apex, of the structure itself.

14                   And on average, these wells cover greater  
15 than 350 foot of the San Andres reservoir. With  
16 two, the Ryno SWD and the EMSU 746, they covered  
17 over 1,000 foot of the San Andres.

18                   Our oil in place volume calculation, based  
19 on NuTech's analysis that we calculated on a per 640  
20 section basis, range from 15.6 million barrels per  
21 section to 62.2 million barrels per section. If we  
22 exclude the EMSU 713, which is a well that they --  
23 to get those -- that spread, we excluded the 713  
24 because it only has 125 foot of log to San Andres.  
25 And so it was all calculating out smaller volumes.

1           And then on the left side, I just want to  
2 point out -- because I noticed it in discussion  
3 that -- you know, when we're referring back to  
4 testimonies of OPS Geologic, in black next to the  
5 key point, we put -- we included in this  
6 presentation OPS Geologic ranges for the oil in  
7 place as well.

8           So for the Ryno SWD, OPS Geologic had  
9 19.86 million barrels per 640 to 33.02. And then  
10 for the range across the -- these seven wells, OPS  
11 Geologic calculated out 12.76 to  
12 69.47 million barrels of oil per 640.

13           Q.     And when you say "640 section basis," you  
14 mean a section which consists of 640 acres, correct?

15           A.     That's correct. And what I want to point  
16 out is that even though -- for the most part --  
17 we'll see this in this coming slides -- their  
18 numbers are on trend even though there are  
19 differences.

20           Q.     What does Exhibit G-1B show?

21           A.     So Exhibit G-1B is showing the NuTech  
22 wells analyzed from east to west in a cross section.  
23 And they're showing that -- in the red boxes, that  
24 there are hydrocarbons present throughout the  
25 San Andres interval from the down-dip most western

1 edge to the up-dip most eastern edge of the EMSU.

2 If you look, those red boxes fall below to well  
3 below the San Andres itself.

4 And then what I'd also like to point out  
5 is, like at the base of each well log, in green we  
6 have the calculated oil in place number based on  
7 NuTech's numbers, NuTech's revised numbers. And  
8 then below the oil thickness, in black we see OPS  
9 Geologic's low side to high side range for each well  
10 as -- to be able to compare to.

11 Q. What is the black indicator in the  
12 second-to-last track of each well?

13 A. The black indicator is hydrocarbon  
14 presence, oil saturation.

15 Q. And what is the green indicator in the  
16 last track of each well?

17 A. That is showing calculated oil in place.

18 Q. Turning to Exhibit G-3C. Does this cross  
19 section provide the same information for different  
20 wells?

21 A. Correct. This cross section provides --  
22 shows the NuTech analyzed wells from northeast to  
23 southwest. And so, again, they're showing where  
24 we're showing hydrocarbons present and in --  
25 calculated in the San Andres.

1 Q. And that's indicated in the red box here?

2 A. Correct.

3 Q. Then here down in -- below each well,  
4 you've got something in brown, oil thickness. What  
5 is that?

6 A. That's the calculated net feet of oil  
7 thickness.

8 Q. In Exhibit G-3D, does this slide  
9 illustrate the result of the NuTech analysis for the  
10 EMSU 658?

11 A. Correct, it does. It shows the  
12 petrophysical analysis. You see the hydrocarbons  
13 present in the San Andres. And then we also showed  
14 our calculation based on NuTech's work of  
15 30.29 million barrels per section calculated.

16 Q. And does this reflect the scenario 5  
17 revised analysis that Mr. Dillewyn testified about?

18 A. Yes.

19 Q. And what do the green and red colors  
20 indicate?

21 A. In the third track from the right, yes,  
22 those -- that is perm calculations based on NuTech's  
23 analysis. So you're seeing -- basically the cooler  
24 colors are the lower perm. The higher red colors  
25 are the higher perm, so it's within the lithology.

1 Q. And just to the left there, the blue and  
2 turquoise colors -- I'm losing my cursor here.

3 A. The track just to the left is -- that  
4 shows water saturation versus hydrocarbons in black.

5 Q. And where is this well located?

6 A. So 658 well is located on the eastern side  
7 of the EMSU on the top -- you know, basically on top  
8 of the structural apex itself, of the top of the  
9 closure.

10 Q. Why is this location significant?

11 A. Because we would expect that it would be  
12 some of our better reservoir rock. And when we look  
13 at the breakdowns of it, you see an average porosity  
14 of 10.9 percent, an average oil saturation -- and  
15 this is just in the San Andres -- of 39.0 percent  
16 and an average perm of 2.19 millidarcies.

17 Q. Does this slide show the NuTech result of  
18 its analysis of the EMSU 673?

19 A. Correct. And, again, it's showing the  
20 same things in the log deliverable that we have  
21 screenshot on there showing the -- you know, the  
22 important tracts to point out are the hydrocarbons  
23 in place versus water saturation and then the  
24 permeability to the right of that.

25 And, again, just off the structural

1 closer, we're still seeing average porosity of  
2 13 percent. We're seeing an increase perm of 6.12.  
3 And we're seeing a consistent oil saturation average  
4 of 40 percent right there.

5 Q. And so this shows the presence of  
6 hydrocarbons in the San Andres interval; is that  
7 right?

8 A. Correct. And just it's hard to see, but  
9 in these wells at the top of San Andres is on -- is  
10 shown in the exhibit. There is -- at the very top  
11 of each log, you'll see a green line that goes  
12 across, and that is the top of the San Andres.

13 Q. And I can't recall whether we talked about  
14 this with the last slide and the last well. But  
15 here in green, you've got an oil in place number?

16 A. Correct. We did mention in the last one.  
17 And this one, we're calculating out  
18 31.68 million barrels per section. Again, a very  
19 similar number still on top of the structure itself.

20 Q. And this well is located on top of the  
21 structure?

22 A. Structural trap, yes.

23 Q. Okay. And that's significant for the same  
24 reason as it was significant for the EMSU 658; is  
25 that right?

1 A. That's correct.

2 Q. And does this slide show the result of the  
3 NuTech analysis of the EMSU 660?

4 A. Yes, it does.

5 Q. And same information here; is that right?

6 A. Correct, same information here. We --  
7 again, hydrocarbons present in the top from the San  
8 Andres down. Again, the top of San Andres is on the  
9 log. It's a thin green line across the top, so it's  
10 hard to see. But the calculated oil in place is  
11 48.62 million barrels per section. Again, seeing an  
12 average oil saturation of -- coming down just  
13 slightly, but we're also coming down the back side  
14 of the structural closure. So you're seeing average  
15 oil saturation of 30-point -- 34.4 percent. The  
16 porosity is maintained around 11.5 percent and  
17 average perm is 2.5.

18 Q. And the numbers that you just discussed,  
19 those are in the lower left-hand corner right here  
20 in this box; is that right?

21 A. Correct.

22 Q. Okay. Can you describe what is reflected  
23 on Exhibit G-4? Oops, what happened there? Here we  
24 go.

25 A. Yes, so Exhibit G-4 is a -- we had -- one

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1 of the wells that NuTech did the analysis on, so,  
2 again, you'll see in the red box to the right, which  
3 is NuTech's well, it's the analysis of the EMSU 660.  
4 You'll see the hydrocarbons again present. You'll  
5 see the permeability.

6 But what we -- the key takeaway we wanted  
7 to take from this is that we compared it with the  
8 mud log. Again, the mud log is taken in fairly  
9 realtime, measuring the gas while drilling, in  
10 addition to calibrating the cuttings as they come up  
11 based on lag time and placing a description  
12 correlating with the gas curves.

13 But what we want -- what I want to point  
14 out is that the gas curves in the same depth are in  
15 the same depth as shown in the red box in NuTech's  
16 log, and those gas curves exhibit the same  
17 characteristic. You would see -- you would expect  
18 to see hydrocarbons present, as well as the cutting  
19 descriptions all talk about fluorescing every one of  
20 them through that zone. So, again, the gas curves  
21 and the cuttings indicated oil in place.

22 Q. Turning to Exhibit G-7B, what does this  
23 cross section illustrate?

24 A. So the G-7B, what we wanted to point out  
25 with this is the 679 well, which is in the middle

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1 and we have a little callout, you see the core  
2 description from the 679. In the column where --  
3 you know, it's an illustrated core description  
4 showing the fractures present between the zones of  
5 the -- you know, transition zone between the  
6 San Andres and the Grayburg.

7 But what we also want to point out is  
8 that -- you see there's a light blue callout box  
9 across the cross section just below the San Andres.  
10 You know, if you're trying to correlate that same  
11 interval across, we see so many changes that it's  
12 hard to say that the lateral faces - faces are  
13 consistent. So, therefore -- that, in addition to  
14 the fractures present identified in the core, you --  
15 we do not expect to see a lateral phases continuity  
16 across the field, but there are changes, therefore  
17 not a consistent barrier between the zones.

18 Q. What is important about Exhibit G-8?

19 A. So Exhibit G-8 is from the sales packet  
20 from when Empire purchased the EMSU. What we want  
21 to point out is that Exxon, themselves, identified  
22 within their sales packet the San Andres -- the same  
23 San Andres ROZ present, the main oil column in the  
24 Grayburg. They were using porosity cutoffs of  
25 6 percent or greater.

1           And what -- but the key thing is, also  
2 look at the fact that that calculated oil in place  
3 for the San Andres ROZ is very similar and on trend  
4 with what two independent analyses within our group  
5 did -- were done by OPS Geologic and done by NuTech,  
6 that we still get kind of the same range of that  
7 900 million barrels to, you know, to 1,000 over.

8           So, again, this is from their 2021 sales  
9 package. And in the sales package, while this is  
10 just one slide, they mentioned ROZ on five of seven  
11 pages. And this is why -- you know, again, I just  
12 want to point out that protecting this resource is  
13 critical to the EMSU, but also the EMSU-B and also  
14 the AGU and that -- you know, our current of the  
15 core well log in some production has confirmed that  
16 there is oil or CO -- or that there is CO2, and EOR  
17 can recover substantial reserves from this field.

18           Q.     Do you have any additional testimony to  
19 present today?

20           A.     No.

21                     MS. SHAHEEN: Thank you, Mr. McShane.  
22                     Pass the witness.

23                     HEARING OFFICER HARWOOD: Okay.  
24 Mr. Rankin, technically, you've got 19 minutes until  
25 5:00 p.m. Do you want to start or do you want to --

1 what's your preference?

2 COMMISSIONER LAMKIN: I'm kind of  
3 fried.

4 HEARING OFFICER HARWOOD: Okay.

5 COMMISSIONER LAMKIN: Wouldn't mind  
6 resuming in the morning.

7 HEARING OFFICER HARWOOD: That's  
8 okay. That's fine.

9 Mr. Razatos, is that fine -- is that okay  
10 with the Commission?

11 CHAIRMAN RAZATOS: Yes. Let's call  
12 it an evening. We'll resume again tomorrow at  
13 9:00 a.m.

14 Thank you, everybody, for your  
15 willingness, and we'll see you all tomorrow.

16 HEARING OFFICER HARWOOD: Thank you,  
17 everybody, as to you, Ms. Tellez, and you,  
18 Ms. Apodaca, as well as the witnesses.

19 We'll be off the record.

20 (The proceedings recessed at 4:43 p.m.)  
21  
22  
23  
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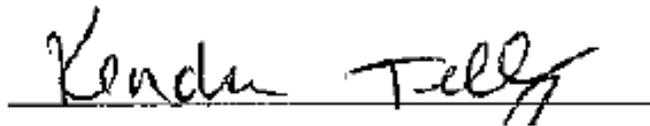
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AFFIRMATION OF COMPLETION OF TRANSCRIPT

I, Kendra D. Tellez, DO HEREBY CERTIFY that on the 7th day of April, 2025, a hearing of the New Mexico Oil Conservation Commission was taken before me via video conference.

I FURTHER AFFIRM that I did report in stenographic shorthand the proceedings as set forth herein, and the foregoing is a true and correct transcript of the proceedings to the best of my ability.

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



KENDRA D. TELLEZ

Veritext Legal Solutions

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[lose - marek]

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[marek - mexico]

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[movable - normalization]

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[normalized - objection]

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[oil - okay]

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[personal - porosity]

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