STATE OF NEW MEXICO

ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION FOR THE PURPOSE OF
CONSIDERING:
Case Nos. 23614, 23615, 23616,
23617, 23775, 24018, 24019,
24020, 24025, 24123

EVIDENTIARY HEARING

DATE: Tuesday, May 20, 2025
TIME: 9:03 a.m. MDT/10:03 a.m. CDT
BEFORE: Hearing Officer Rip Harwood
LOCATION: Remote Proceeding
1220 South Saint Francis Drive,
1st Floor
Santa Fe, NM 87505
REPORTED BY: John Shavers
JOB NO.: 7225938

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ALSO PRESENT:

Gerasimos Razatos, Commission Chair
William Ampomah, Commissioner
Baylen Lamkin, Commissioner
Sheila Apodaca, EMNRD Law Clerk
Madal Corral
Stephen Nicastro

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

ALSO PRESENT (Cont'd):

Leandro Vargas
Leroy King
Tom Tomastik
Toby Holland
Carl Chavez
Amanda Rabon
Bill Knights
Nathan Sandel
Ryan Bailey
Michael Buchanan
Jose Amaya
Rachel Chaput
Chris Moander
Scott Birkhead
James Monkin
Jim Davidson
Faith Malton
Anibal Araya
Ashley Maxwell

I N D E X

WITNESS(ES):	DX	CX	RDX	RCX
PRESTON MCGUIRE				
By Mr. Wehmeyer		12		
By Mr. Rankin			199	

E X H I B I T S

NO.	DESCRIPTION	ID/EVD

(None marked.)

P R O C E E D I N G S

MR. RAZATOS: Okay. So we started with Mr. Wehmeyer representing Empire. Can you just start again, Mr. Wehmeyer, please.

MR. WEHMEYER: Yes, sir. Corey Wehmeyer for Empire, and we are ready.

MR. RAZATOS: Excellent. Thank you. Goodnight?

MR. RANKIN: Good morning, Mr. Chair. Adam Rankin with Holland & Hart, with my colleague Nathan Jurgensen, appearing on behalf of Goodnight Midstream; and we're prepared to go forward today.

MR. RAZATOS: Excellent. Thank you. Rice?

MR. BECK: Morning. Matt Beck on behalf of Rice Operating Company and Permian Line Service, LLC.

MR. RAZATOS: Excellent. Thank you. And Pilot?

MR. SUAZO: Good morning. Miguel Suazo with the law firm Beatty & Wozniak, appearing on behalf of Pilot Water.

MR. RAZATOS: Thank you, Mr. Suazo. I will do also the roll call for us. As I stated, I'm Gerasimos Razatos. I am the acting Division Director

for the Oil Conservation Division. I'm also the acting Chair for the Oil Conservation Commission. At this time, I will start off with Mr. Lamkin, if you wouldn't mind, for roll call, please.

MR. LAMKIN: Yeah. My name is Baylen Lamkin. I'm the designee of the Commissioner of Public Lands.

MR. RAZATOS: Excellent.

And, Dr. Ampomah?

DR. AMPOMAH: I am Dr. William Ampomah, professor of petroleum engineering from New Mexico Tech and also the designee of the Energy Secretary. Thank you.

MR. RAZATOS: Excellent --

THE REPORTER: Excuse me for the interrupting you again, sir. Sorry about that. But it says that the chat is turned off of this meeting, so I am not able to put anything in the chat.

MR. RAZATOS: Okay.

THE HEARING OFFICER: Why don't we get it to him on the first mid-morning break?

MR. RAZATOS: Yeah. It's a deal. Thank you, Rip.

MS. APODACA: Okay.

MR. RAZATOS: I appreciate it.

So, Mr. Shavers, if you would just hang on when we go to break at around 10:00, 10:30 and just coordinate with Sheila. Get her -- she'll get from you your email address, and she can send you all this information; okay?

THE REPORTER: Okay, sir. Thank you.

MR. RAZATOS: Thank you. Appreciate it.

Okay. So we are here, as I stated, for our continuing consolidated cases by Goodnight Midstream and Empire New Mexico. The case numbers are Case Numbers 24123 and then 23614 through -17. Then we have Case Number 23775 and then Case Numbers 24018 through 24020 and 24025.

Mr. Hearing Officer, we transfer our hearing back over to you.

THE HEARING OFFICER: Thank you, Chairman Razatos. Did you have -- I think you mentioned that you had a lunch constraint today that needed to be met?

MR. RAZATOS: I do. Thank you for reminding me.

I do have a lunch constraint today, everybody. I apologize. I need to finish at 11:30, and I need two hours. We'll be back at 1:30. So

lunch will be from 11:30 to 1:30 today.

Thank you, Mr. Hearing Officer.

THE HEARING OFFICER: Sure. All right. So given that, let's plan on breaking at 10:15 for our morning break. We'll come back at 10:30 and go for another hour.

With that said, Mr. Wehmeyer, I'm not inviting any more of a prolonged remainder of your cross-examination than you no doubt came up with overnight. If at all possible, it would be nice if you could, you know, conclude your cross-examination this morning so we could start with commission questions this afternoon.

The thinking being that we will finish with Preston McGuire today, whenever that happens. The plan would be to adjourn for the day and give you all what remains, if anything, of the afternoon to, you know, put the finishing touches on your respective closing arguments, which we could start tomorrow morning.

Anyway, that's the aspirational game plan for the day. And, Mr. Wehmeyer, what do you think? Is that unrealistic from your perspective?

MR. WEHMEYER: It's certainly something to shoot at.

THE HEARING OFFICER: Well, I guess that's the best I can expect from you. All right. Fair enough. Do we have Mr. McGuire on deck?

MR. RANKIN: I believe we do.

THE HEARING OFFICER: I guess when he starts talking, he'll show up on my screen.

MR. MCGUIRE: Hello. I'm here.

THE HEARING OFFICER: There he is. All right. You're way back on page number 3.

Mr. Shavers, just for your edification, we are into the cross-examination of a witness named Preston, P-R-E-S-T-O-N, last name McGuire. He should show up on your screen.

THE REPORTER: Thank you, sir.

THE HEARING OFFICER: Okay. And the lawyer who's questioning him is Corey Wehmeyer, W-E-H-M-E-Y-E-R.

THE REPORTER: Thank you.

THE HEARING OFFICER: Mr. Wehmeyer, take it away.

MR. WEHMEYER: Thank you.

THE HEARING OFFICER: I'll just remind you, Mr. McGuire, you're still under oath.

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WHEREUPON,

PRESTON MCGUIRE,

called as a witness and having been previously sworn to tell the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

CROSS-EXAMINATION

BY MR. WEHMEYER:

MR. WEHMEYER: Mr. McGuire –-

I think I'm getting a little bit of -- I thought I had feedback. Now I don't.

Okay. Mr. McGuire, why don't we start, as a reservoir engineer, can you explain this equation and how you used it in your work as part of this case?

THE WITNESS: No. Not at this time. I'd have to remind myself of what all of these variables are.

MR. WEHMEYER: The most basic of material balance equations that would be taught and known off of top of mind by any reservoir engineer, you can't help us at all with?

THE WITNESS: Not at this current moment.

MR. WEHMEYER: Let's talk about just some graphs. You're familiar with a best-fit curve, an R-squared analysis?

THE WITNESS: Yes, sir.

MR. WEHMEYER: As we -- okay. As we look at these data points, these data points line up pretty close if you were going to draw a line through them as part of an R-squared best-fit, don't they?

THE WITNESS: They appear to, but there's no scales on this. I have no idea what I'm looking at.

MR. WEHMEYER: You can assume a one-to-one. Now, if you just put the R-squared through it of 0.9227, does that look pretty close?

THE WITNESS: What -- what data is this?

MR. WEHMEYER: Well, we're just talking in the abstract. If you're at a mathematics class or an engineering class, if you draw the line through this, does that R-squared of 0.9227 look like what any autogenerated best-fit line should look like there, 0.922? Just eyeballing it, you can see that's a pretty darn good fit?

THE WITNESS: Yeah. It -- it appears to be a decent fit, but I have no idea what this data is.

MR. WEHMEYER: With respect to R-squared ranges, would you agree that generally

something between 0.7 and 1.0 would be considered a good fit? If you're in a physical science where systems are more predictable, something over 0.9 is often expected?

THE WITNESS: Not always, no. It's not always expected, no.

MR. WEHMEYER: If you'd like to disagree -- again, over 0.9 is not a good fit as far as you're concerned on a best-fit curve?

THE WITNESS: That -- that wasn't your question. I agree that a 0.9 would be considered a good fit.

MR. WEHMEYER: Do you see this star that I've placed here on the best-fit line?

THE WITNESS: I do.

MR. WEHMEYER: Again, just eyeballing this, that star would be a pretty good fit, wouldn't it? Nearly dead on?

THE WITNESS: Yeah. That's close to the -- to the fit curve -- to the fit line.

MR. WEHMEYER: The two red dots would not be good fits, would they? Just eyeballing this thing as an engineer, you could say something's not fitting the trend?

THE WITNESS: Yes. But I would need

more context as to why those two dots fall off of the trend.

MR. WEHMEYER: You would want to do a scientific analysis as to why they're not on trend?

THE WITNESS: Sure.

MR. WEHMEYER: And I assume as a scientist if it was something material, you would've performed that analysis; right?

THE WITNESS: Yeah. I mean, that would be something that I would want to look at for sure.

MR. WEHMEYER: Now, Steve Brewington, he's an educated, licensed engineer. He's actually out of San Antonio. Do you know Steve?

THE WITNESS: Yes. We've worked together.

MR. WEHMEYER: Have you met Steve before?

THE WITNESS: Not in person, but I've been on multiple Teams calls with Steve.

MR. WEHMEYER: Mr. Brewington is a very good engineer, isn't he?

THE WITNESS: Yeah. I have no reason to think that he's not.

MR. WEHMEYER: So here we're working on the Rhino well. To put everybody into context on the

timeframe, do you see this as taken as of October 19, 2024?

THE WITNESS: That's what the date says on this workover report, yes, sir.

MR. WEHMEYER: Mr. Brewington's rep has arrived at location, and he used the encore tool to separate and remove the tree from tubing hanger. So here as we just take us back in time to October 19, '24, we know there's no injection occurring in the rhino and that the tree's been at -- the wellheads literally been removed; right?

THE WITNESS: That's what it's -- yeah. That would -- yes.

MR. WEHMEYER: So I would hope we can agree there's no injection happening on that day?

THE WITNESS: Yes, sir.

MR. WEHMEYER: Now --

THE WITNESS: Well, I don't know if there was an injection right before they took the -- the -- I -- so I can't speak for the whole day, no.

MR. WEHMEYER: Now, so the Commission knows how old this well is, when was the Rhino well drilled and completed?

THE WITNESS: It was originally drilled

to the Devonian in 2018.

MR. WEHMEYER: When in 2018? Early or late?

THE WITNESS: Late, I believe.

MR. WEHMEYER: Okay.

THE WITNESS: Mid -- mid to late, if I'm remembering right.

MR. WEHMEYER: So to just put this into perspective, this wellhead, that Christmas tree, is less than six years old at that point in time; yes?

THE WITNESS: That would be correct, yes.

MR. WEHMEYER: Have you ever had to re replace an entire Christmas tree on a well so young?

THE WITNESS: Other than this one, maybe. None of -- none come to mind, but I wouldn't be surprised if we had to.

MR. WEHMEYER: In your experience, this would be unusual?

THE WITNESS: Not necessarily.

MR. WEHMEYER: Additionally, you've already got tubing -- yellow band tubing on site. So do you see at the bottom that they've unloaded 119 joints of lined yellow band tubing?

THE WITNESS: Yes, sir, I see that.

MR. WEHMEYER: And tubing is not inexpensive. You're not going to purchase and have that tubing already arranged on site unless you know you have a tubing leak and need to replace the string of tubing?

THE WITNESS: That's not true.

MR. WEHMEYER: You would replace less than six-year-old tubing as part of ordinary course?

THE WITNESS: Yeah. That's pretty standard that you want to keep your equipment new and fresh.

MR. WEHMEYER: There's also identification here of "Several damaged pins with threads starting to break and separate, liner damage on several joints as well as corrosion. Did not see any holes." And on the Christmas tree, it's described as having "Lots of scale and rust on top tubing and flange. Sent trees for repair and cleanup."

Why would there be so much scale and rust on a less-than-six-year-old Christmas tree? And why would there already be liner damage on joints, corrosion, and damaged pins and threads?

THE WITNESS: Corrosion is a very common issue in all oil and gas wells. It's not uncommon at all.

MR. WEHMEYER: How frequently is Empire having to replace its wellheads and its tubing strings?

THE WITNESS: They have a -- they have a lot of issues with their wells for sure.

MR. WEHMEYER: Now, let's move to the next date. Do you see in the daily workover report: "We know there's been no injection happening since at least October 19, 2024. We're nearly an entire month later"? Can you explain how a wireline fluid measurement -- that's going to be dead on, isn't it?

THE WITNESS: It should be, yes.

MR. WEHMEYER: The tool has gone down the hole, and when you contact that fluid, you know it's exactly at 750 feet subsurface, don't you?

THE WITNESS: That would probably be true, yeah -- yeah. I have no reason to think that they miss -- they missed the fluid level.

MR. WEHMEYER: And at that point in time, the well has been shut in an entire 25 days, hasn't it, at least?

THE WITNESS: I haven't done -- I haven't done the math, but I'll take your word for it.

MR. WEHMEYER: You'll agree with me that a wireline fluid level reading is going to be

much more accurate than a fluid gun, isn't it?

THE WITNESS: Not necessarily.

MR. WEHMEYER: So we were talking on the Rhino. Let's first just zoom in here. And, again, you didn't produce this document to us, did you? The fluid level reading of 750 feet in the Rhino? Goodnight did not produce this document to Empire in the case, did it?

THE WITNESS: I -- I think we did provide to some of the workover reports to Empire for that.

MR. WEHMEYER: In fact, the workover report -- the only ones y'all would give over are the two I'm publishing now. Empire made demand for the remainder of the workover report, and y'all refuse to give over the remainder of the workover report.

Why would you not just produce the entire workover report on the Rhino well, which is in the EMSU, when it was expressly requested? You gave us two pages. We want the rest.

MR. RANKIN: Mr. Hearing Officer, I'm going to object to the line of question. This was addressed between counsel. The discovery request was for documents reflecting corrosion. We provided the documents that reflected corrosion.

And if counsel had issues with it, they could have and should have gone to the hearing officer, but they didn't. This is not a question for Mr. McGuire.

THE HEARING OFFICER: We're not going to revisit discovery issues, Mr. Wehmeyer. So the objection is sustained.

MR. WEHMEYER: As we look at the fluid level from surface graph that we've seen before, you actually used this graph in your sworn testimony to begin the examination, didn't you?

THE WITNESS: I did.

MR. WEHMEYER: And so do you see over on the left, the fluid level from surface 750 feet?

THE WITNESS: I see that, yes, sir.

MR. WEHMEYER: And we see that what we've highlighted is the Rhino well. And, again, this is off of your exhibit, isn't it?

THE WITNESS: Well, it's Empire's exhibit. But yes. I republished it.

MR. WEHMEYER: And you're the one that swore to it as part of the opening testimony with Mr. Rankin?

THE WITNESS: I did.

MR. WEHMEYER: If we -- and if we look

at the Rhino well specifically, so these -- do you see this data point and this data point, the two I'm indicating at way down here?

THE WITNESS: I do

MR. WEHMEYER: What you told the Commission was that in the Rhino well, on April 7, 2025, it was at 858 subsurface, and on July 20, 2024, it was at 868 subsurface, didn't you?

THE WITNESS: Yes, sir. Those were the measurements that were taken.

MR. WEHMEYER: With what?

THE WITNESS: A sonic fluid level tool.

MR. WEHMEYER: How was it calibrated?

THE WITNESS: You'd have to ask the -- the company that owns and operates the tool.

MR. WEHMEYER: Have I accurately plotted the location -- as we complete the graph that you started in your direct testimony, have I accurately plotted the data point for the wireline measurement by Mr. Brewington on November 13, 2024, at 750 subsurface after the well had been shut in for 25 entire days at least?

THE WITNESS: I guess I -- I'd have to review the workover report to make sure that they didn't put it back together and we injected.

But, I mean, this -- this data is clearly anomalous given the other data that we have, so I'd want to investigate that for sure and understand if the -- if the -- that could have been a typo. It could have been 850. That would be right on the line. So I -- I would want to investigate that and talk to Steve about that.

MR. WEHMEYER: In fact, that data is not in any shape, form, or fashion anomalous. It's precisely on the R-squared best-fit line, and the two data points that are anomalous are the two red ones from the earlier slide.

The two data points, as we talk about anomalies, using your word, can you agree as a scientist that the anomalous points is not the star that's precisely on the best-fit line, but the anomalous points would be the two red ones?

THE WITNESS: Yeah. Can we go back to the -- the data that shows the shut-in times?

MR. WEHMEYER: I'm sorry. I'm not understanding what you're -- which data you want.

THE WITNESS: The -- the figure that shows the -- the Empire figure that I used.

MR. WEHMEYER: You're talking about this?

THE WITNESS: Yes, sir.

MR. WEHMEYER: Sure.

THE WITNESS: So I can see that for the Rhino, the -- all of the fluid-level measurements before that, the well was shut in for approximately 20 minutes, and then after that it was shut in for longer. So you would expect that the reservoir would have more time to -- to bleed out into the -- to equilibrate with the lower -- the overall larger aquifer.

I wish those wells would've been shut in longer before we took those fluid measurements, but I was not overseeing that at the time and didn't make that recommendation. So -- but that -- that data feels like -- the 750 feels like a typo to me, and it should probably be 850 and be much more aligned with the two data points.

MR. WEHMEYER: So Mr. Brewington has this one wrong, even though it fits precisely onto the best-fit curve?

THE WITNESS: He might, but I don't think that the earliest data points are really good representations. It's -- it's the data that we had, and I can only -- I can only speak to the data that we have.

MR. WEHMEYER: As we just talk about credibility, do you see where the wells begin coming off of a best-fit line? Kind of right around here at November of 2023 is where the wells go off of best-fit line?

THE WITNESS: And that's when we --

MR. WEHMEYER: Is that true?

THE WITNESS: That's true. And that's at the point when we decided to shut in the wells longer before taking the fluid measurements.

MR. WEHMEYER: And that's just coincidental that it happened at the November 2023 timeframe when the revocation was filed in the OCD?

THE WITNESS: No. That's also the time that I took over the project and made that recommendation to shut in the fluid level -- or to shut in the wells for longer before taking the fluid measurement.

MR. WEHMEYER: And using a fluid gun, do you understand the importance of counting the -- you understand that fluid gun is keying off of the -- basically the casing threads?

THE WITNESS: I'm not an expert in -- in how the fluid gun works. I rely on the experts for that, that they would return an accurate

measurement.

MR. WEHMEYER: Do you understand the importance of actually counting the pup joints? If you're going to use that fluid gun and you're going to count off the threads, that you have to have an accurate count of the pup joints and their precise lengths?

THE WITNESS: Sure. And all of that data was provided to the -- to the consultant that ran this.

MR. WEHMEYER: Now, with respect to the string, you would come out -- the 108 joints of tubing, those are 39.55 in length. Do you see that?

THE WITNESS: I see what's been typed in the -- in the Excel sheet here. Can you show me where that number comes from?

MR. WEHMEYER: Straight off of the drilling report on the left where the tubing composition was counted.

THE WITNESS: Where does it say -- oh, you -- so you guys did the math for the average length?

MR. WEHMEYER: We did.

THE WITNESS: Okay.

MR. WEHMEYER: And if instead of -- no.

It's not the -- well, the average -- each one of the 108 joints of tubing is 39.55?

THE WITNESS: That sounds about right --

MR. WEHMEYER: You understand that?

THE WITNESS: That sounds about right.

MR. WEHMEYER: Do you know that counting the actual threads or collars on the way down, it comes out to 22 and that if somebody just took 39.55 as the average tubing length and you recreate the math, it would put you off by 102 feet -- well, it would put you off at 870 feet, which is 2 feet off of the fluid gun measurement that you came up with in this chart on the right that we looked at over here? Do you see the 868?

THE WITNESS: Yes, sir, I see that.

MR. WEHMEYER: If you just did 39.55 against 22 count of collars, you come to 878 -- 870, which is 2 feet off of what you had reported in the Rhino; right?

THE WITNESS: Yeah. That would be that -- that's a difference of 2, yes.

MR. WEHMEYER: If you actually calibrated the fluid gun to account for those shorter pup joints, you would've come up with a fluid reading

level of 752.03, which is off of Mr. Brewington's wireline measurement by a mere 2 feet.

Do you think this is just some great mathematical coincidence? Or do you think that your fluid gun readings have not been properly calibrated and that the fluid level is much higher in the well?

THE WITNESS: I -- I don't -- I think the fluid measurements are accurate. I trust that the -- I was ensured that the data was calibrated correctly before each one of those fluid levels was taken. They asked for the -- the wellbore information, and we provided it to them. So I have no reason to think that it's not accurate.

MR. WEHMEYER: If the Commission wanted to know how y'all are calibrating your fluid guns, you have no idea, do you?

THE WITNESS: Yeah. I would have to refer to the expert on that.

MR. WEHMEYER: But you would agree that the 750 wireline measurement from Mr. Brewington -- this will be the last question I have for you on it. Mr. Brewington's wire line measurement after the well's been shut in for nearly a month was just about dead on to the best-fit curve, isn't it?

THE WITNESS: I think it's anomalous given the other data points, and I would want to understand the -- the reason. I talked to Steve about that. Again, I think it -- it feels like a typo to me.

MR. WEHMEYER: You report reported here to the OCD that the tubing was only potentially leaking. You knew that tubing was leaking because you already had 108 joints of replacement tubing on site before the workover ever started, didn't you?

THE WITNESS: No. We -- we keep extra tubing at our yard. We can -- we can -- if we buy it in bulk, we get a better deal on it, so we keep extra tubing at the -- at the yard. We -- I think we have tubing right now and we don't have any workovers in the foreseeable future.

MR. WEHMEYER: This was one of the slides you talked on. I just want to make sure that the commissioners understand your methodology here in terms of calculating these gradients.

THE WITNESS: Uh-huh.

MR. WEHMEYER: Is it true that -- I mean these perfs, they can be a thousand feet apart from the top perf to the bottom perf. Those can be a thousand feet away from one another, can't they?

THE WITNESS: Yes they can, yep.

MR. WEHMEYER: You are not selecting -- in terms of calculating a gradient, you are not selecting a particular data point within the reservoir knowing where you are and calculating from there. What you're taking is just -- you're just taking a mid perf, aren't you?

THE WITNESS: Yes, sir, that's what I did.

MR. WEHMEYER: That is also not sound engineering practice where you've got a thousand feet of perfs to calculate gradients off of a randomly selected mid perf, is it?

THE WITNESS: Well, the -- the calculation would be the -- the same. Whether you use the top, mid, or base, it would still come out to the same gradient.

MR. WEHMEYER: You're using the same gradient across all of these different wells, aren't you?

THE WITNESS: Yes. 'Cause the hydrostatic is -- is equal the -- the entire time.

MR. WEHMEYER: These wells even have perfs nearly a thousand feet. As you calculate midpoint perf, some of these wells or your midpoints

that you're using the same gradient on are nearly a thousand feet apart, aren't they?

THE WITNESS: Well, I calculated the gradient off of that midpoint, yes.

MR. WEHMEYER: Okay. But, again, to just illustrate, the midpoint perf that you're using here on the Piper 2 is 4,368. The midpoint perf you're using here for the TED is 5,432. Those are over 1,000 feet apart, but you're using the same gradient?

THE WITNESS: I calculated the -- I'm not -- well, they -- they obviously didn't calculate to the same number.

MR. WEHMEYER: What pressure gradient are you coming up for here for the San Andres?

THE WITNESS: It's on the page.

MR. WEHMEYER: Can you just -- we need it into the record. What is it?

THE WITNESS: Well, at that point -- at that point -- well, which well? Do you want me to be specific, or do you want me to take the average?

MR. WEHMEYER: Let's just take the average is fine for this exercise.

THE WITNESS: It says 0.381 on the -- on the figure.

MR. WEHMEYER: Okay. So 0.381 is what you say the San Andres pressure gradient is?

THE WITNESS: In July of 2024 on average, yes, sir.

MR. WEHMEYER: This is October of 2024. Do you see the timing?

THE WITNESS: Yes, sir.

MR. WEHMEYER: Do you understand that this is being taken off of a pressure bomb used by Empire?

THE WITNESS: Yes, sir.

MR. WEHMEYER: What was the pressure here on October 8th of 2024 in the Grayburg that was actually measured?

THE WITNESS: At what depth?

MR. WEHMEYER: Forty fifty.

THE WITNESS: 950.860.

MR. WEHMEYER: Which would be a 0.235 gradient; yes?

THE WITNESS: I could double check the math, but that sounds that sounds about right, yeah.

MR. WEHMEYER: Which would be a significantly lower pressure than the overlying -- than the underlying San Andres that you just calculated; isn't that right?

THE WITNESS: That's right. At this particular location, this is -- this is one well out of -- I guess there's 400 wells in the -- in the field.

MR. WEHMEYER: This is part of your sworn statement. You say the high pressure zone is in the Grayburg, so flow would be into the low pressure San Andres if the formation were in communication. You swore -- you literally swore to this OCC that the pressure was exactly upside down, that the Grayburg had higher pressure than the San Andres, didn't you?

THE WITNESS: Yeah. I would point to all of the shut-in pressures that Empire provided to us. All of those wells that we had shut in with pressure at the surface. That's -- that's completely different than all of our SWDs in the San Andres.

MR. WEHMEYER: You know that that is 100 percent totally -- when you offered that testimony to the Commission just now, you knew that that statement was 100 percent false, didn't you? And you said it anyway?

THE WITNESS: No. That's not true.

MR. WEHMEYER: It has been explained to you in the sworn testimony from Mr. West, and you had that before coming. You read Mr. West's sworn -- all

of his sworn testimony, didn't you?

THE WITNESS: I did.

MR. WEHMEYER: And there was an algorithm in the system on what you want to use as Grayburg pressures. And any time that it was showing over 1,500 barrels injected --

MR. RANKIN: Mr. Hearing Officer, Mr. Wehmeyer is testifying. Objection to the form of the question.

THE HEARING OFFICER: Mr. Wehmeyer, rephrase. Please try and simplify it.

MR. WEHMEYER: Mr. McGuire, you read Mr. West's detailed identification of precisely why there were erroneous pressure readings being reported, didn't you?

THE WITNESS: Well, that's -- that's very convenient that Empire doesn't want to rely on this data. We asked specifically in discovery, "What are the shut in pressures of your injection wells in the Grayburg?"

They gave us this document. It says "Min shut-in pressure reviewed," so I took it at face value. I think that I have no reason to believe that this is inaccurate.

MR. WEHMEYER: What question do you

think I --

THE WITNESS: If they -- for the -- for the -- if -- they didn't tell us that they don't have shut in pressures. They provided this document to us for that discovery request.

MR. WEHMEYER: Mr. McGuire, what question do you think I just asked you?

THE WITNESS: Go ahead and restate it.

MR. WEHMEYER: It is incredibly important that you answer the questions presented. If there is a problem with the question, your lawyer objects, and Mr. Harwood will make a call on that. But this is not a game. You are to answer the question asked unless Mr. Harwood excuses you from it. Do you understand that?

THE WITNESS: Sure. Go ahead and re-ask the question.

MR. WEHMEYER: The question was, did you read Mr. West's detailed and sworn statement about how there is zero pressure on those wells?

THE WITNESS: On all of them?

MR. WEHMEYER: Yes. Upon shut in.

THE WITNESS: I don't know if he said that specifically.

MR. WEHMEYER: What was the explanation

that Mr. West gave in his sworn statements to this OCC about the data that you now want to swear about that makes zero scientific sense whatsoever?

THE WITNESS: I -- I guess his testimony speaks for itself. We could look at it.

MR. WEHMEYER: Do you not recall? You literally came in here and swore about data that you had a sworn explanation on from Empire, and you don't know what the explanation is?

THE WITNESS: I'm not going to try to quote Mr. West. I might get that wrong, and I don't feel comfortable quoting it here under oath.

MR. WEHMEYER: You can't even summarize your general understanding of how Mr. West explained it?

THE WITNESS: I think he said -- yeah. I -- I'd rather just let the testimony speak for itself.

MR. WEHMEYER: Okay. In terms of any scientific basis to disagree with what Mr. West explained in his sworn statement in terms of the algorithms in the system and how the algorithms created the incorrect reading, could you offer the Commission any explanation about how that sworn statement from Mr. West is wrong?

THE WITNESS: Well, they didn't say that this data was wrong when they provided it to us.

MR. WEHMEYER: Mr. McGuire, I'm talking about the sworn statement from Mr. West, and you have opinions on Mr. West and his work. Can you explain to the Commission how his statement about the algorithm and the erroneous readings that were created by the computer printout are wrong?

THE WITNESS: I -- I don't remember what he said about an algorithm, no.

MR. WEHMEYER: Are you honestly still here after seeing all of this data going to swear to this commission that the pressure in the Grayburg is higher than the pressure in the San Andres yes or no?

THE WITNESS: For the -- for the data that was provided to us, yes. I believe that the Grayburg is a higher pressure. It's been under waterflood. They've been doing pressure maintenance there.

MR. WEHMEYER: The Verlander well, do you remember in your earlier testimony yesterday, I said, "Where does the acid go?" And you go: "To the high permeability spots. That's where the acid's going to go." You remember you opined on that?

THE WITNESS: Yes, I remember that

testimony.

MR. WEHMEYER: As we talk about the Verlander, for example, how much -- we're turning down to talk about your mud theory. What is the psi per foot of mud, the mud you used in the Verlander?

THE WITNESS: Well, the -- the density is 10.2, so I could calculate it. 0.53.

MR. WEHMEYER: That would be higher than the Grayburg as measured with a literal pressure bomb and higher than the San Andres that you calculated, isn't it?

THE WITNESS: That's true, yes. But we didn't lose circulation in the -- in the Grayburg.

MR. WEHMEYER: Okay. My question is just, you say the mud is important to something. That would be higher than Grayburg and higher than San Andres; true?

THE WITNESS: Yes. The -- it looks like we were drilling overbalanced based on that data, yes.

MR. WEHMEYER: And this was the slide you were illustrating about the alleged total loss of circulation; right?

THE WITNESS: Yes, sir.

MR. WEHMEYER: Can you help the

Commission, the idea that mud losses would be used to pick tops or to opine on effective barrier seals, where in literature would we read that? Where would we find it?

THE WITNESS: The -- I was using that information to -- to delineate the two different reservoir systems.

MR. WEHMEYER: My question is, the idea that that is any kind of scientific methodology for what's before the OCC here, where would we find that in a treatise, a textbook, SPE paper, PhD, dissertation, anywhere?

THE WITNESS: I think it's pretty standard in picking reservoirs that if there are two different pressures, they're two different reservoirs, and we were trying to pick the two different reservoirs that have totally different pressures associated with them.

MR. WEHMEYER: This is just an excerpt out of Applied Drilling Engineering:

"Lost Circulation Additives. 'Loss Circulation' is defined as the loss of drilling fluid or cement from the well to subsurface formations. This condition is detected at the surface when the flow rate out of the annulus is less than the pump

rate into the well.

"Lost circulation occurs when: one, extremely high permeability formations are encountered, such as a gravel bed, oyster bed or vugular limestone; or, two, a fractured formation is encountered or created because of excessive wellbore pressure."

In terms of vugular limestone, that's actually described in the San Andres. In the core report, isn't "vugular limestone" described?

THE WITNESS: Not limestone, but "vugular dolomite" is.

MR. WEHMEYER: Well, didn't you draw in -- somebody -- we learned yesterday for the first time that the gray is supposed to represent limestone. Is there also limestone in there?

THE WITNESS: There's -- there's a few, yeah. But it's predominantly dolomite.

MR. WEHMEYER: Isn't that inconsistent with the rock facies that -- Dr. Davidson was insistent this was limestone or worse. Now you're saying that there's not much limestone in the San Andres?

THE WITNESS: I don't think that's accurately characterizing Dr. Davidson's testimony.

MR. WEHMEYER: In terms of comparisons of permeability in the Grayburg versus the San Andres, have you done that?

THE WITNESS: I've looked at the core report for the -- for the Grayburg, and so I -- I guess the question is -- is, have I compared the permeabilities in the Grayburg versus the San Andres?

MR. WEHMEYER: That's exactly the question.

THE WITNESS: I haven't quantified it.

MR. WEHMEYER: Yeah. And so, again, you want to tell a pressure story. I've shown you an engineering publication that identifies fluid loss as being associated with extremely high permeability formations.

And, in fact, throughout your sworn testimony, you talk about high permeability in the San Andres. As the commissioners read this over and over, you talk about high permeability streaks in the San Andres, don't you?

THE WITNESS: That's correct, yep.

MR. WEHMEYER: Why on earth are mud losses not explained by high permeability streaks, which you've opined on are throughout the San Andres?

THE WITNESS: You can have a high

permeability streak and it not lose circulation if the pressure in the reservoir is higher than the hydrostatic of the drilling mud.

MR. WEHMEYER: Where's the publication that says that if they don't want to take your word for it here and want to see some scientific discussion of it?

THE WITNESS: That's physics.

MR. WEHMEYER: I'm going to -- I was going to ask you a bunch of water chemistry questions. But since -- and I know you swore to them. But since we have you agreeing yesterday you're not a water chemistry expert, I'm going to just skip this. But I do want to focus on a couple things that you said yesterday very briefly.

You said you're treating the water before you inject it. What specific chemicals are you treating this water for or with?

THE WITNESS: Yeah. So they're chemicals that come from the chemical provider, and I don't -- they don't say exactly what's in it. I think that's under -- they don't want to give away their -- their trade secrets there. We've provided those chemicals in discovery to Empire.

MR. WEHMEYER: What's the name of the

chemical that you're putting down?

THE WITNESS: I can't remember off the top of my head. I think -- I might have this wrong, but I think Halliburton makes it. I don't know. You -- we've -- we've provided that. I -- I can't think of it off -- off the top of my head right now.

MR. WEHMEYER: So you're the all-vertical-pipe guy, you're the all-downhole guy for Goodnight, and you don't have any clue what chemicals you're sticking into Empire's San Andres?

THE WITNESS: That's --

MR. RANKIN: Objection, asked and answered.

THE HEARING OFFICER: Overruled.

THE WITNESS: No. That's all done at the surface by the surface operations team.

MR. WEHMEYER: Okay. Chemicals is not a downhole aspect of SWD injection?

THE WITNESS: The chemicals are -- are put into the flow stream at the surface, you know.

MR. WEHMEYER: So we can't have a discussion of what chemicals are going down. What are you treating for with the mystery chemicals?

THE WITNESS: Well, one of the primary ones is a scale inhibitor.

MR. WEHMEYER: You're treating for scale inhibitor?

THE WITNESS: No. We're treating with a scale inhibitor

MR. WEHMEYER: Now, what are you treating for? By putting the chemicals in, what good things are going to happen beneath the surface of the earth in your wells?

THE WITNESS: Well, we -- we try to prevent scaling downhole. It's from plugging off our perf or plugging off our disposal zone.

MR. WEHMEYER: Yesterday I heard you tell Mr. Rankin in your opening testimony that you're treating to lower the TDSs. Do you remember that testimony?

THE WITNESS: Yes.

MR. WEHMEYER: How on earth do you treat to lower TDSs?

THE WITNESS: You'd have to ask the folks that run the chemical treatment program. I've just looked at the data before it goes through treatment, the testing of the water before it goes through treatment, and the testing of the water after it comes out of that treatment facility. And it lowers the TDS.

MR. WEHMEYER: Do you remember I asked yesterday, "What does acid do to anhydrite?" And you didn't know.

THE WITNESS: Yeah. I don't think it breaks down anhydrite.

MR. WEHMEYER: But yesterday you didn't know. Isn't that geology 101: acid doesn't break down anhydrite, but saltwater will?

THE WITNESS: Not salt water.

MR. WEHMEYER: What about prolonged flushing of salt water?

THE WITNESS: Not -- not with salt water, so. The salt water's super saturated, so it's not going -- it doesn't want to react with anything else after that point.

MR. WEHMEYER: I'm going to keep working through as we -- and you're saying the TDSs -- did I hear that right yesterday? They start at a quarter million TDS?

THE WITNESS: That's the -- that's the data that I've seen coming -- coming from the -- from the field, yes. And that's very, very high.

MR. WEHMEYER: And then, what you're sticking into Empire's San Andres is about 120-, 130,000 TDS?

THE WITNESS: That would be -- that would be accurate, yes, sir.

MR. WEHMEYER: Still very, very high, isn't it?

THE WITNESS: That depends on your definition of "very high," but yeah. It's -- that's salty water.

MR. WEHMEYER: How about if we compare it to the TDSs in the San Andres before you start sticking TDSs down there? In comparison to the native San Andres water, what you're sticking down at 120,000 and higher TDSs is very, very high, isn't it?

THE WITNESS: What do you think that the native San Andres water is?

MR. WEHMEYER: You're the one who offered the chemistry opinions. What do you think it is?

THE WITNESS: I've seen it be highly variable.

MR. WEHMEYER: What's the mean?

THE WITNESS: I think I have it in my testimony. Maybe 30- to 40,000 TDS with a large overall average, if I'm remembering that correctly.

MR. WEHMEYER: So you can tell the Commission that into Empire's San Andres you were

sticking in TDSs that are multiples of three or more times the native water?

THE WITNESS: Yes. Yeah. Just as every other saltwater disposal well is.

MR. WEHMEYER: Now, yesterday you didn't know that you had to replace an entire Christmas tree in the Rhino well. You asked, "Can you show it to me?" And I said, "Yeah, I will." This is another document. You can tell the Commission you didn't produce this document either, did you?

THE WITNESS: I -- I don't know, but I'll take your word for it.

MR. WEHMEYER: Do you see the entry on October 22, 2024, out of the daily drilling report?

THE WITNESS: What you have highlighted, yes, sir.

MR. WEHMEYER: "Due to severe pitting, entire injection tree was replaced with 5,000 psi EE 0.5 main valves with Xylan coating by Encore." So you can tell the Commission, now that I've shown it to you, on your Rhino well -- and this was just seven, eight months ago; right? Did you have responsibility for Goodnight for this particular well at this particular time?

THE WITNESS: I do. But I'm not

responsible for the surface mechanical configurations or mechanical work.

MR. WEHMEYER: And if they wanted to know where else had you ever had to junk a tree within six years of it being put into operation? You can't recall any other location, can you?

THE WITNESS: I'm sure it happened, but I can't recall a specific at this very moment.

MR. WEHMEYER: How do you explain, as a matter of chemistry, how an entire joint, an entire string of tubing, and an entire Christmas tree had to be replaced so quickly because of pitting, coating, scaling, corrosion?

THE WITNESS: It doesn't necessarily have to be chemistry-based. It could be mechanical-based. The velocity of this water is very high as it goes down because of the injection capabilities of these wells.

MR. WEHMEYER: Speed of water creates corrosion?

THE WITNESS: Not corrosion. It could cause pitting.

MR. WEHMEYER: I'm going to keep moving through. I could spend hours on this stuff, but I'm not. I'm going to keep moving. But here also it's in

your casing. This is another document you didn't produce: "Casing from 100 feet to surface appears to either be scaled up or corroded and not allowing test packer to properly seal."

How common is it that in a well so young, your casing is so affected by scale and corrosion that you can't even set a packer?

THE WITNESS: It's -- it's very common in oil and gas wells or saltwater disposal wells.

MR. WEHMEYER: Is that a chemical reaction?

THE WITNESS: Scaling is a chemical reaction, yes.

MR. WEHMEYER: Can you explain to the Commission why that chemical reaction is happening here?

THE WITNESS: There's -- there's a lot of different reasons. I haven't looked into it in detail for this particular one.

MR. WEHMEYER: So then, how can you honestly, in your papers that you filed with the Commission, tell them that Empire's -- all of their existing wells are safe, the wells that they have drilled in the Grayburg and the wells that they have drilled in the San Andres?

If you don't even understand -- and, again, this is stuff you've sworn to. And you can't even explain why this is happening in your own?

THE WITNESS: Well, these wells are not in communication with the Grayburg wells above them. There's no evidence of that.

MR. WEHMEYER: This workover -- one workover costs $623,000 on a well that was six years old?

THE WITNESS: That's what the document says.

MR. WEHMEYER: And all of these problems in this less-than-six-year-old well, all of those -- to get to a $623,000 AFE in one well less than six years old was all because of scaling corrosion, pitting caused by chemical reactions; isn't that right?

THE WITNESS: I wouldn't agree that it's all due to chemical reactions.

MR. WEHMEYER: Moving over to your Scully State well, this is a well you're familiar with. This is your well. Can you tell the commissioners where is it?

THE WITNESS: It's a few miles south of the EMSU.

MR. WEHMEYER: Do you see that on our graph we have plotted the barrels of water per day injected in blue?

THE WITNESS: Uh-huh.

MR. WEHMEYER: And wellhead injection pressures in yellow dots?

THE WITNESS: Uh-huh.

MR. WEHMEYER: You can tell the Commission this would be an example in your own well where your daily injection volumes are going down, but wellhead pressures are going up?

THE WITNESS: That's what this graph depicts, yes, sir. But that's not necessarily due to scale or chemicals.

MR. WEHMEYER: As we come back to sulfates, you know that the San Andres is sulfate-rich; right?

THE WITNESS: Well, it depends on how you define "rich."

MR. WEHMEYER: As you go through the San Andres, it's also not uniform. The highest sulfates are up towards the upper San Andres, aren't they?

THE WITNESS: I haven't seen any data that shows that.

MR. WEHMEYER: Well, here we have injection formation water analysis. I think this is your data. And do you see that you've measured this in the Ernie Banks, the Sosa, the Nolan Ryan, the Yaz [ph], and you've got these about 2000 and higher sulfates?

THE WITNESS: Yeah. So are these -- are these from the swab data? Yeah. Okay. I see that we have swab data. OCD well file. Yeah. Okay. Yes.

MR. WEHMEYER: And, again, what you testified to yesterday was that the injection in the well that we looked at it, it wasn't even going into the bottom perfs, was it? We saw the spinner reading. The bottom half was getting, none of the injection, was it?

THE WITNESS: Didn't look like it, yeah.

MR. WEHMEYER: It was all happening up at the upper part where you actually measured in the formation water analysis having the highest sulfates; yes?

THE WITNESS: I guess so. When we took a swab sample, you perforate the entire well, and then you drop your swab cup in, and you get a fluid sample.

So it's a mixing of all of those open perfs.

MR. WEHMEYER: High-TDS environments -- let me just see if you'll agree with me on this. High-TDS environments, particularly those rich in chlorides, exacerbate H2S corrosion by promoting pitting and stress corrosion cracking. Chlorides can penetrate protective films, creating localized anodic sites vulnerable to H2S attack.

Do you think that's a fair statement about the effect of high-TDS on mixing with chlorides and high sulfates?

THE WITNESS: Maybe. I -- I mean, I agree that's what this document says. Where is this document from?

MR. WEHMEYER: I don't -- you're -- I don't know. But just given that you've sworn on water chemistry, I don't think this is a controversial issue. Do this seem controversial to you?

THE WITNESS: Not necessarily, I guess. But maybe.

MR. WEHMEYER: Now, you know that the San Andres water is being used today as makeup water as part of the properly permitted waterflood that Empire owns and is operating in the Grayburg right now; right?

THE WITNESS: I don't think that they're really using it very much, though my last review of the data, it hadn't been used for a few months. So to say that it is -- they're actively using it today, I -- I cannot confirm.

MR. WEHMEYER: You were not aware before offering this OCC sworn testimony that literally today they are still using San Andres makeup water; that is where the water is coming from for their existing waterflood that they're carrying out today?

THE WITNESS: Well, I guess the Empire has said that they're really not using it very much anymore.

MR. WEHMEYER: Where do you think the makeup water is coming from, then? If they're not taking it out of the San Andres, where do you think Empire is getting the water for its waterflood?

THE WITNESS: I don't -- I don't know if they're using makeup water. They might just be recycling all the water.

MR. WEHMEYER: Some water is certainly recycled, but you can't recycle all of it, and San Andres makeup water is being used. Additionally, with respect to a tertiary program in the

Grayburg -- which you've heard all of your experts testify there's an ROZ in the Grayburg; right?

THE WITNESS: There's a potential ROZ in the Grayburg.

MR. WEHMEYER: You need water to conduct those tertiary operations, don't you?

THE WITNESS: Depends how you're going to implement it. But generally, yes.

MR. WEHMEYER: And those minerals up there are 58 percent owned by the state of New Mexico and about 20 percent owned by the BLM, aren't they?

THE WITNESS: I -- I don't know who owns the -- the minerals.

MR. WEHMEYER: Where do you think Empire's going to get the water for the tertiary recovery in the Grayburg?

THE WITNESS: Well, they have that one water supply well, so they -- they could definitely use -- use that one. But they can't get any more permits for additional water.

MR. WEHMEYER: On the water supply well, where does that water suck out of it?

THE WITNESS: It -- it's completed in the -- in the water management interval.

MR. WEHMEYER: The San Andres; right?

THE WITNESS: Yes, sir.

MR. WEHMEYER: Where you're sticking the high-TDS and high-chloride water?

THE WITNESS: That's true. But the one water supply well that's left is the most distal well from -- from our injection, and there's no indication that we've had any impact on that water up there.

MR. WEHMEYER: As we look at the manner in which the existing Grayburg waterflood is being conducted, do you see that if you put in one drop of water the way the system is set up, it spreads through the entire EMSU?

THE WITNESS: Yeah. I -- go ahead.

MR. WEHMEYER: Literally one barrel of water comes up out of the San Andres after you've injected your TDSs and chlorides into it, and the way the system is configured, it will literally make its way through the entire EMSU, touching every single Grayburg producing well and injector well. Do you understand that?

THE WITNESS: I'll -- I'll take your word for it.

MR. WEHMEYER: Doesn't that seem like that should be a cause of concern to the OCC and to Empire?

THE WITNESS: Not if the water chemistry of that well is not -- is -- is remaining constant.

MR. WEHMEYER: But you're not you're not the water chemistry expert? You're not the right guy to talk about to on that?

THE WITNESS: Well, Empire hasn't provided any data that it is changing.

MR. WEHMEYER: This actually came out of Mr. Knights's. I thought this was interesting. "The subsequent unitization and operation of the EMSU involved the combined geologic engineering and operational expertise of world-class major oil companies, such as Conoco" -- I think he meant to say "Chevron" -- "Exxon, and Gulf."

Do you agree that Chevron, Exxon, and Gulf at their respective times of operatorship of the EMSU would've been geologic, engineering, and operational experts?

THE WITNESS: Sure. I could agree with that.

MR. WEHMEYER: Do you agree that XTO Exxon had calculated -- we're moving now to talk about ROZ -- had calculated 912 million barrels of oil in place in a ROZ in the San Andres?

THE WITNESS: Yeah. That's what the -- the document says, and they -- they walked away from it. That's -- that's just marketing material.

MR. WEHMEYER: Help me. How did they walk away from it if they sold it for tens of millions of dollars in positive revenue plus the avoidance of tens of millions of dollars of P&A liability? How is that walking? They plugged all the wells and released the leases?

THE WITNESS: No. They sold it so they didn't have to.

MR. WEHMEYER: They sold it for positive value to Empire, didn't they?

THE WITNESS: Yeah. They probably made some money on it, if that's your question. But they didn't -- they didn't sell it primarily for the ROZ. That was upside potential. Again, that's just marketing material. It's not proven.

They -- they walked away from it, and they said in the -- Empire agreed in the purchase and sale agreement that they could not rely on those statements.

MR. WEHMEYER: You said it was sold primarily for the existing Grayburg PDP?

THE WITNESS: Yes.

MR. WEHMEYER: I want to talk about the remainder, then. What allocation of value is on the San Andres ROZ?

THE WITNESS: I don't know what allocation of value the -- Empire put on that.

MR. WEHMEYER: But apparently two parties arm length assigned value to the San Andres ROZ before leases exchanged hands; yes?

THE WITNESS: I bet -- I bet XTO was very happy about that. Their marketing material worked.

MR. WEHMEYER: Is it your testimony for Goodnight that Exxon was lying to Empire about the ROZ in the San Andres?

THE WITNESS: Didn't say they were lying, but it's -- it was sold as upside potential in marketing material and is unproven. I mean, yeah. It's just marketing material.

MR. WEHMEYER: When you say "unproven," are you now moving over to SEC concepts? Because I'm probably going to have some more questions for you on "unproven."

THE WITNESS: I'm not, no. It's -- there's -- the ROZ has not been proven to be -- there's -- it's not proven.

MR. WEHMEYER: I spent so much time with Dr. Davidson trying to figure out in terms of rock facies selection -- and did you hear Mr. Birkhead's testimony and Mr. Bailey's testimony about this being a shallow-water environment?

THE WITNESS: Yeah. There's been a lot of testimony. I can't remember everything, but I'll take your word for it.

MR. WEHMEYER: And I just want the Commission to see that we can take Goodnight -- and you were the corporate representative when it -- you've been the corporate representative of Goodnight from the jump, haven't you?

THE WITNESS: From the jump of what?

MR. WEHMEYER: Of this entire case.

MR. RANKIN: Mr. Hearing officer, I don't know if Mr. Wehmeyer is asking Mr. McGuire if he's testifying as a 30(b)(6) witness or if he's testifying in his individual capacity, so I just want to make that clear for the record.

THE HEARING OFFICER: Mr. Wehmeyer, can you rephrase.

MR. WEHMEYER: Mr. McGuire, you're the only Goodnight human that's going to testify in this case; right?

THE WITNESS: That's accurate.

MR. WEHMEYER: Did Goodnight choose you for this role?

THE WITNESS: To -- to be testifying here?

MR. WEHMEYER: Yes.

THE WITNESS: Came with the job responsibilities that I took.

MR. WEHMEYER: You swore here -- and you are an educated geologist -- "Additionally, given the nature of the San Andres being deposited on a shelf slope with a rapidly increasing water depth to the west, the San Andres porosity diminishes very quickly just west of EMSU." So there you're talking about to the west of EMSU; right?

THE WITNESS: Yes.

MR. WEHMEYER: "This is due to a finer grain material, mud-dominated, being deposited into the deeper water, which has little to no porosity as opposed to the shallower water environment at EMSU, which allowed for porosity development. As" --

THE WITNESS: Yeah. Shallower -- sorry. I don't mean to step over you. Go ahead.

MR. WEHMEYER: "As discussed above,

this is due to a loss of porosity and permeability in the San Andres as you move west due to a lithology change because of deeper water deposition." You know that you've sworn several places that the EMSU is a shallow-water depositional environment at San Andres, haven't you?

THE WITNESS: Well, in this particular instance, I said it was shallower than the mud dominated stuff off -- off the structure. That doesn't mean it's a shallow-water environment with, you know, grainstones or -- and -- and things of that nature.

MR. WEHMEYER: Do you see the formula in the bottom left? We're working off of Mr. Birkhead's slide here. Do you see that formula?

THE WITNESS: I do. And I don't think this is Mr. Birkhead's slide. I believe this is a Dr. Davidson's slide.

MR. WEHMEYER: Well, I think -- yeah. You may be right on that. I thought we added something to this one. But the formula in the bottom left, can you explain to the Commissioners how that formula works and how you used it here in your methods?

THE WITNESS: I -- I didn't use that.

That's Dr. Davidson's SW model.

MR. WEHMEYER: Can you explain how that formula works?

THE WITNESS: I would rely on the expert in petrophysics. I think he talked extensively about that.

MR. WEHMEYER: So as we -- if the commissioners go back and read your witness statements and they see pages and pages and pages about ROZ, you can't even explain how the formulas would work in terms of calculating water and oil saturations, can you?

THE WITNESS: I -- I didn't calculate any of those, and all of my ROZ discussion was based on the core measurements. I didn't calculate -- I didn't --

MR. WEHMEYER: With respect to core measurements, can you help the commissioners and explain what core adjustment factors you made for oil expulsion during depressurization as the core was removed?

MR. RANKIN: Mr. Hearing Officer, objection, outside the scope of Mr. McGuire's direct testimony.

THE HEARING OFFICER: Well, I'm going

to overrule that. Overruled.

THE WITNESS: Can you repeat the question, please, Mr. Wehmeyer.

MR. WEHMEYER: Yeah. You just said you made your ROZ opinions based on the core data. That literally is what just came out of your sworn mouth; yes?

THE WITNESS: Yes, sir.

MR. WEHMEYER: Will you explain to the commissioners the formula or methodology that you employed to calculate corrected oil saturation due to the expulsion of oil and water during depressurization as the core was removed?

THE WITNESS: I did some different sensitivity analysis by adjusting the core data by different percentages that would be based on losses. But I didn't think that the -- that you needed to adjust the ones in the water management that much because it's claimed to be an ROZ and the -- how do I want to say this?

I didn't think you really needed that much adjustment to the core data. If you -- the proof of needing a high adjustment to the core data would be if the water supply wells produced oil, and they didn't.

They effectively dropped the pressure near wellbore. And if there was producible oil there, they would've produced it, given that depressurization of the near-wellbore.

MR. WEHMEYER: Okay. And, again, qualifications, you've never had any ROZ experience before this case; right?

THE WITNESS: Well, yeah. Neither has Empires testifying -- or employees that are testifying here.

MR. WEHMEYER: Mr. McGuire, what question do you think I just asked you?

THE WITNESS: I gave you the answer.

MR. WEHMEYER: My question is for Mr. McGuire. You had no ROZ experience whatsoever before this case. Do I have that right?

THE WITNESS: That would be accurate.

MR. WEHMEYER: And then you volunteered, which wasn't what I asked, about Empire's witnesses. I really hope you're not telling this commission that Mr. Meltzer doesn't have ROZ experience and that Dr. Trentham doesn't have ROZ -- do you want to adjust the sworn testimony you just gave a minute ago in response to a question I didn't ask?

THE WITNESS: I was specific to Empire's employees that are testifying.

MR. WEHMEYER: Oh, do you understand Empire has a whole pile of employees that have worked on ROZs for many, many years? Do you understand that employed by Empire right now -- we could go to The Woodlands, Texas, and you could shake hands with numerous folks who have decades of experience on ROZ. Do you know that?

THE WITNESS: They -- they didn't testify.

MR. WEHMEYER: They chose witnesses who do have ROZ experience. If the idea is that Empire hasn't brought witnesses with ROZ experience, you can tell the Commission they certainly did, didn't they?

THE WITNESS: I guess that would be accurate with Mr. Meltzer.

MR. WEHMEYER: And so just to -- so we talked qualifications. Now we move to data review. You said core -- you looked at core. Then I asked methodology, and I said obviously you have to make a core oil adjustment. You agree that if you want to get to oil saturation, you have to make a core adjustment, don't you?

THE WITNESS: Yes. Generally, some

core adjustment is -- is warranted.

MR. WEHMEYER: And I asked, "What's your methodology here as the reservoir engineer in making core adjustment factors?" Have you now had an opportunity to fairly and fully answer that question and tell the Commission what your methodology was?

THE WITNESS: Yeah. I -- I used a different -- a range of values, talked with Dr. Davidson about that. I agreed with -- with his methodology.

MR. WEHMEYER: No. I want to ask -- my question is what Preston McGuire did. In terms of your particular methodology on making a core adjustment, I want it in one place on this transcript. Tell the commissioners what your method for making core adjustment was.

THE WITNESS: I did a -- I did a range when I was originally looking at the core and then talked to Dr. Davidson and felt that his -- his adjustments were reasonable.

MR. WEHMEYER: You've had an opportunity --

THE WITNESS: It was a team effort.

MR. WEHMEYER: You've had an opportunity to fully and accurately answer my question

on methodology?

THE WITNESS: I told you what I did.

MR. WEHMEYER: Do you see here on the Rhino well on the left?

THE WITNESS: I do.

MR. WEHMEYER: Actually, let's start here. This was your slide. Is this the slide you actually testified to with Mr. Rankin yesterday?

THE WITNESS: It is.

MR. WEHMEYER: And you could have configured this slide any way you want. In terms of things Preston McGuire created, you didn't create that many organic papers here. This is one of the ones you made.

THE WITNESS: I didn't hear a question. Yes. I -- I created this figure.

MR. WEHMEYER: In what you've termed "water management zone," first, have you ever seen the OCD in its permitting speak to water management zones? Or do they speak in terms of formations?

THE WITNESS: Generally, they speak in formations. But we had discussions with the OCD about our methodology, and they agreed with us.

MR. WEHMEYER: I'm just trying -- I just didn't on all of the C-103s, 105, 113, I didn't

see anything that asked about a quote water management zone. The OCD permitting doesn't make any question or consideration on water management zone. What they speak of is formations; isn't that right?

THE WITNESS: That would be accurate.

THE HEARING OFFICER: Mr. Wehmeyer, are you at a point where we could take our morning break?

MR. WEHMEYER: Absolutely. Now's a logical spot.

THE HEARING OFFICER: All right. Let's take our morning break and let's be back at 10:30 for continuation.

(Off the record.)

THE REPORTER: We are ready.

MR. WEHMEYER: Mr. McGuire, do you remember earlier your counsel objected and said the only documents y'all were required to produce were those that were associated with corrosion scaling?

THE WITNESS: I -- I heard Mr. Rankin say that.

MR. WEHMEYER: "Due to severe pitting, entire injection tree was replaced." You would agree that that would be evidence of corrosion chemical reactions. Yes?

THE WITNESS: Not --

MR. RANKIN: Objection, asked and answered previously. Mr. McGuire testified --

THE HEARING OFFICER: Yeah. I've seen this before, Mr. Wehmeyer. Why are we going over the same territory?

MR. WEHMEYER: Because counsel just conceded that he didn't produce responsive documents. This document was never produced that deals with the corrosion issues. This document, "Casing is scaled up or corroded and not allowing to test," counsel has stated on the record he was required to produce this document, and he did not.

THE HEARING OFFICER: Well, we're not here to fight discovery battles. I mean, you can make the point for the record that it was within the scope of your production and wasn't produced. But it's neither here nor there for this witness or this proceeding.

MR. WEHMEYER: Well, I guess my question, then, Mr. McGuire is -- just one question on this. We agree that the slide I'm publishing here about the casing from 100 foot to surface is scaled up or corroded, that would certainly be a document evidencing in corrosion or scaling in a well in the EMSU, isn't it?

THE WITNESS: The word "corroded" is on this document.

MR. WEHMEYER: Do you know if this was given to Empire?

THE WITNESS: I do not.

MR. WEHMEYER: Now, earlier you talked about there was no evidence of production of oil out of the water supply wells. Do you remember that testimony?

THE WITNESS: I do.

MR. WEHMEYER: You're not seriously urging that there was not production of oil out of the water supply wells historically, are you?

THE WITNESS: There's no evidence. There's no reported oil associated with those wells.

MR. WEHMEYER: Okay. Well, now your answer's different. Did you just say "reported oil"?

THE WITNESS: I did say -- yeah. There's -- there's no evidence that oil came out of those wells.

MR. WEHMEYER: Have you been onto the EMSU before?

THE WITNESS: A long time ago.

MR. WEHMEYER: So you have been physically on the EMSU?

THE WITNESS: I've been to our facility.

MR. WEHMEYER: On the EMSU?

THE WITNESS: Yes. Our -- our facility is in the EMSU.

MR. WEHMEYER: Did you bother to go look at the tank configuration for the water supply wells and the Grayburg producers?

THE WITNESS: I did not, no.

MR. WEHMEYER: Let me just -- since you've been out there, let me ask. Did you see two 10,000 barrel tanks that collect both the water supply water and the produced water from the Grayburg oil producers?

THE WITNESS: I don't know. Maybe.

MR. WEHMEYER: And are you aware that there is skim oil collected off of those tanks and then reported and sold?

MR. RANKIN: Mr. Hearing Officer, objection to this line of questioning. Mr. Wehmeyer is testifying, number one; number two, Goodnight asked repeatedly for any documentation that there was any skim oil produced from the water supply wells, and in Mr. West's deposition, he confirmed that there was no documentation of any production or skim oil from the

water supply wells.

THE HEARING OFFICER: Okay. So all right. Well, Mr. Wehmeyer, it's a fair objection. I mean, you're going to have to lay more foundation. You can't just be stating facts. You got to show the witness evidence and then question him about it. So the objection is sustained.

MR. WEHMEYER: Mr. McGuire, what I'm doing here is digging into your testimony, which is completely unfounded as an operational surface facility configuration matter, that you gave the Commission that there was no oil produced out of water supply wells. You offered that testimony to this Commission, haven't you?

THE WITNESS: No evidence that it was.

MR. WEHMEYER: To be able to have an opinion of that, you would have to know what the tank battery configuration is in terms of how the water from the water supply wells is gathered in relation to the water coming off of the Grayburg producers. And you have done no investigation as an expert in this case into the tank configuration, have you?

MR. RANKIN: Objection, Mr. Hearing Officer. Mr. McGuire was reasonably relying on Mr. West's own testimony in his deposition.

MR. WEHMEYER: May I respond?

THE HEARING OFFICER: No, no. I'm going to overrule that objection.

Go ahead and answer, Mr. McGuire.

THE WITNESS: Can you restate the question, please.

MR. WEHMEYER: To have opinions about oil produced or not coming off of a water supply well -- 101, an engineer like Mr. Macbeth [ph] would've done this work -- you would need to know what the tank battery configuration is, where is the water gathered, is it commingled with other water, where, wouldn't you?

THE WITNESS: Well, if it's commingled with other water, then you can't -- you can't say that that oil -- that skim oil came from the -- the water supply wells. If it's commingled, you don't -- if there's skim in that tank and it's co-mingled with a bunch of different wells, you don't know where that oil came from.

MR. WEHMEYER: You also couldn't --

THE WITNESS: Chevron metered -- Chevron metered that, and they reported no oil from the water supply wells.

MR. WEHMEYER: You also could not

testify that there's not oil out of the water supply wells, is the point.

THE WITNESS: There's no evidence that there was.

MR. WEHMEYER: Do you understand that when you say "metered," this is, like, literally a water bottle sample once a month is what you take off of a water supply well in terms of reporting to the OCD? Do you understand what the water reporting composition protocol is?

THE WITNESS: Yeah. They have to report the water, the volume of water, volume of oil, and volume of gas. And the oil and gas was zero for the life of those wells.

MR. WEHMEYER: Do you understand the sample size is literally the size of a water bottle, and it's about once a month?

THE WITNESS: There's -- sorry. Is there some --

MR. RANKIN: No.

THE WITNESS: Yeah. There -- there's documents out there where you're -- you have to report how much water came out, how much oil came out, how much gas came out. It's zero for the life of those wells.

MR. WEHMEYER: I'm only -- because you've put your hand up and claimed to be a engineering expert in this case, this is why you're getting the questions. As you talk about water composition, do you understand that is a water bottle taken once a month? Literally one water-bottle size? If you're talking about water composition, that's the size of it.

THE WITNESS: We're -- I -- I feel like we're talking about two different things here.

MR. WEHMEYER: In terms of volumes being commingled or not, you also have no clue about what's commingled or where between Grayburg producers and water supply wells, do you?

THE WITNESS: Yeah. Well, you're -- you're telling -- you're representing to me that it's all commingled with the water from the Grayburg, so you don't know if the oil that's in that skim tank came from the water supply wells. It probably came from the -- from the Grayburg wells.

MR. WEHMEYER: What would be the other explanation?

THE WITNESS: I don't think there is one.

MR. WEHMEYER: You said "probably."

Well, where else could the oil have come from?

THE WITNESS: All right. I change my answer. It definitely came from the Grayburg wells.

MR. WEHMEYER: Okay. This is where we left off a while ago. This is your slide. And we visited earlier about water management zone; that is not any nomenclature you're familiar with the OCD ever using. And, again, this was your slide you created?

THE WITNESS: It was a modified slide, yes.

MR. WEHMEYER: In your water management zone, you can tell the Commission this is where y'all are injecting water right now?

THE WITNESS: Yes. We inject into the water management zone, but we do not inject near these -- these wells in this -- in this figure here.

MR. WEHMEYER: What's all this green where you're injecting salt water, since this is your slide?

THE WITNESS: That's where OPS has calculated what I feel to be unreasonable oil saturations.

MR. WEHMEYER: Oh, so you can tell the Commission that from your slide, the green is Mr. Birkhead's oil saturation calculations?

THE WITNESS: Yes, those are them, yes.

MR. WEHMEYER: If the Commission finds Mr. Birkhead's testimony credible, you can also tell the Commission that you would be watering those out, wouldn't you?

THE WITNESS: Not necessarily. I mean, if -- if it's truly ROZ, then it's not going to move, and it's not being watered out.

MR. WEHMEYER: Wouldn't that also explain why there's not oil out of the water supply wells according to you?

THE WITNESS: Well, no. Because the water supply wells used a test method that the ROZ experts have -- have discussed in their literature, and they -- they effectively tested the ROZ zone, and it was negative.

MR. WEHMEYER: We're moving over to the -- I want to focus on this slide. Do you see the Rhino wells reflected here on the left? And we talked yesterday that you have perfs all the way in the upper San Andres, even by your agreement, on San Andres; right?

THE WITNESS: In the water in that Rhino well, yes. I guess we -- yeah. Sure.

MR. WEHMEYER: Can you agree with me as

a geologist and engineer that water -- and you see Lovington San is beneath where you're injecting?

THE WITNESS: Uh-huh.

MR. WEHMEYER: Water's going to move updip, upstructure, isn't it?

THE WITNESS: Not necessarily. And, number two, those perfs, as we discussed yesterday, aren't taking any water.

MR. WEHMEYER: Have you shown the Commission any evidence of that whatsoever? What --

THE WITNESS: We went through that yesterday with the -- with the spinner survey. You -- you presented the spinner survey to me. We went through it.

MR. WEHMEYER: Yeah. I fear you do not know how to read the spinner survey. When have you had to read a spinner survey in your career?

THE WITNESS: All the time when we run them here.

MR. WEHMEYER: Okay. I'm just going to leave that one to Mr. Lamkin and Dr. Ampomah.

With respect to the -- I think I've made the point on this one. Well, I've got this one on the Rhino. You just said -- explain -- I want the commissioners to have this as they take it away and

analyze the credibility of your testimony. What off of this spinner data makes you think that there is no water going into the upper perfs?

THE WITNESS: Okay. So if we look at the spinner survey, the gray curve there, we can see that the rate decreases at the two at the -- at the packer. So you go from an -- or a more -- a smaller diameter pipe to a larger diameter pipe in the casing, so that's what that first big jump is.

And then we can see it's a constant rate for a number of feet there, indicating that no water is being -- is leaving the -- or is leaving the well until you get down to the next set of perfs. There's a little bit that happens there.

And then once you get down to, you know, approximately forty-eight forty-five, that's where the -- the spinner stops, indicating that all the water is leaving the -- or leaving the well -- or the remaining water is leaving the well at that depth.

MR. WEHMEYER: Hold on. "The remaining water." You are seriously suggesting that water isn't entering all the perfs above the last one? Let me re-ask --

THE WITNESS: Be specific. We -- we can talk about the perfs. If you point to one, I

can -- I can tell you.

MR. WEHMEYER: This perf, how on earth can you say that there is no water going into that perf?

THE WITNESS: Because the spinner survey is constant at that depth, indicating no water is leaving the -- or leaving the well.

MR. WEHMEYER: You've had an opportunity to fully explain your answer on that, on your method?

THE WITNESS: Yeah. Just -- just did --

MR. WEHMEYER: So looking at this survey, which of these perfs is getting all of the water?

THE WITNESS: Well, according to this, the vast majority of the water is going out right around forty-eight forty-five, so that's going to be -- do we have maybe a little shallower than that? So I -- I would say it's those two perfs right where you're cursor is.

MR. WEHMEYER: Forty-eight forty-five right here?

THE WITNESS: Well, yeah. I -- I would say --

MR. WEHMEYER: There's no perfs at forty-eight forty-five. How on earth could you tell this commission that water's going out at forty-eight forty-five when there's no perfs there?

THE WITNESS: Because there's no -- there's no flow below forty-eight forty-five, so there's no more water passing that -- passing that propeller.

MR. WEHMEYER: So where, looking at the survey, according to you, is all of the water going?

THE WITNESS: The vast majority of it looks to be going into those two perfs that are right above your cursor.

MR. WEHMEYER: Just these two? This is your testimony? Out of this entire well, those are the two perfs that's taking all of the water?

THE WITNESS: Not all of it.

MR. WEHMEYER: Where's the rest?

THE WITNESS: There's a few that are going in maybe the next two perfs up, but there's no -- there's no flow going into 43 or that top perf.

MR. WEHMEYER: If the Commission were to believe you that only these two perfs are getting the water, what would that -- if we look at this like a bubble map, what would that do to the geographic

area of influence? How fast -- if they accepted that as correct, how fast is that water passing the five acres, moving hundreds and thousands of feet away?

MR. RANKIN: Objection, mischaracterizes Mr. McGuire's in testimony he just gave; and it's getting back into the questions about trespass, which the hearing officer already ruled on. So, number one, mischaracterizes Mr. McGuire's testimony he just gave; and then also, it's addressing an issue that the hearing officer already ruled on about trespass.

MR. WEHMEYER: This is not a matter of trespass. This is a matter of the plume expanding very rapidly on a different net pay than what Goodnight has provided this commission.

THE HEARING OFFICER: All right. I didn't hear the word "trespass," but rephrase the question.

MR. WEHMEYER: Mr. McGuire, what I understand you wanting to tell this commission now is that somehow off of this particular survey reading, it's your opinion that the vast majority of the water is going into these two little perfs here that would be maybe 60 feet -- am I -- 60 feet of pay?

THE WITNESS: Probably -- well, the

perfs are 20-foot shots, I believe, so the perfs are 40 feet. But yes. There's porosity across that entire interval, so we -- I'll go with you with your 60 feet.

MR. WEHMEYER: This would be behaving very differently than a vast ocean of San Andres that goes into Texas, isn't it?

THE WITNESS: What do you mean?

MR. WEHMEYER: You are saying the only -- after you've selected the perf locations, the only perfs that are actually taking water are just these two in this little 40, 50, 60 feet of what you would call disposal pay?

THE WITNESS: That's what the -- that's what the data suggests.

MR. WEHMEYER: So what does that mean about how quickly that's going to move laterally? If only those two perfs, according to you, are taking the water, is the water going to move much quicker laterally or slower laterally than if all of the perfs were contributing to the disposal?

THE WITNESS: It would be quicker.

MR. WEHMEYER: I do want to talk about the Ted Williams. The Ted Williams well, where is that well in relation to EMSU?

THE WITNESS: It's outside the EMSU.

MR. WEHMEYER: How close?

THE WITNESS: I don't know. Maybe a mile or so.

MR. WEHMEYER: Within 2 miles of the existing EMSU oil unit?

THE WITNESS: Yeah. It's -- I -- I believe it's within 2 miles of the boundary.

MR. WEHMEYER: If the Commission is left with some idea on San Andres being this vast ocean, there were originally perfs put in the bottom in lower San Andres by Goodnight; right?

THE WITNESS: Yes, sir.

MR. WEHMEYER: Why did you abandon those perfs?

THE WITNESS: We did not abandon them.

MR. WEHMEYER: Why did you have to add new perfs?

THE WITNESS: Because we reached an agreement with a protester. We had an agreement with a company called Penroc, and they didn't want us to perforate above a certain depth. We came to an agreement after showing them data, got them comfortable that we could perf higher in the zone, and they agreed. And so we added the perfs.

MR. WEHMEYER: Didn't Penroc sell out? I thought they sold their position.

THE WITNESS: I'm talking about at the time that this work was done.

MR. WEHMEYER: Did Penroc sell their position?

THE WITNESS: I think so. That sounds right.

MR. WEHMEYER: Did you reach a new settlement agreement with Penroc, or did they just sell?

THE WITNESS: No. We -- we had conversations with the principals of Penroc.

MR. WEHMEYER: Why was Penroc concerned about injection into the upper San Andres?

THE WITNESS: They thought it might reach their gas zone. And then we showed them the data on the pressure differentials, and they agreed with us and said we could go ahead and perforate that zone.

MR. WEHMEYER: When was Penroc concerned about injection in the San Andres?

THE WITNESS: When we originally filed the permit to inject.

MR. WEHMEYER: When was that?

THE WITNESS: 2017/2018 timeframe, if I'm remembering right.

MR. WEHMEYER: So if the Commission happened to have heard or seen written testimony about Empire being the first oil company concerned about injection into the San Andres, that would not be true? In fact, Penroc had concern and objected over injection into the San Andres, didn't they?

THE WITNESS: And then they got comfortable with it and allowed us to proceed.

MR. WEHMEYER: Did that timing coincide with when they sold their position?

THE WITNESS: No.

MR. WEHMEYER: Now let's just continue looking at this. If I understand your methodology now about where water is actually injecting, so you started with the red perfs, then you went back and perf'd into the upper San Andres; right?

THE WITNESS: That would be -- well, it depends on what you're calling "upper." But according to this figure here, yeah, it looks like there's two perforations in what somebody is calling the "upper."

MR. WEHMEYER: Isn't this yours?

THE WITNESS: No.

MR. WEHMEYER: And so that the

Commission understands, according to your methodology, all of the injection would be going into the upper 100ish feet?

THE WITNESS: No. I don't believe so. I'd have to -- let's see. What are these depths?

MR. WEHMEYER: Let's get this right in the record. Here's 4,600. Here's 4,800. So aren't we just measuring here to here under your methodology?

THE WITNESS: Yeah. So it says spinner went to zero at 4,800. Yeah. It looked -- that looks to be roughly accurate based on that spinner survey. So yeah. we had our -- that shows we had mud losses there. So that's what appears to be a very under pressured part of the reservoir, so it makes sense to me that a lot of the water is going into to that -- that zone.

Looks like the spinner was fairly constant from when it came out of the tubing until it got down to about that 48-. So yeah. I guess I have no reason to disagree that a lot of the -- the water's going out roughly about where you have it plotted there at 4,800.

MR. WEHMEYER: So you think it's just this perf?

THE WITNESS: No. I think it's

probably some of those other ones, but it looks like it's constant for at least those top few. Kind of hard to tell at the scale.

MR. WEHMEYER: So which of these -- based on your methodology off of the spinner survey, which of these perfs would you say is receiving the water?

THE WITNESS: It's probably that one right where your cursor is. We got higher porosity right there, so that's probably taking a lot of the water.

MR. WEHMEYER: So this would explain -- and you're using "porosity" as a stand in for "permeability," aren't you?

THE WITNESS: Sure.

MR. WEHMEYER: So what you've picked to say this is where the water's -- is based on a high-permeability streak; true?

THE WITNESS: It's higher -- higher porosity, and I'm mostly basing it off of the spinner survey that you have in front of me here.

MR. WEHMEYER: So this would be a permeability story, not a pressure story, wouldn't it?

THE WITNESS: Well, there's obviously a low pressure there, so I think it's probably both.

MR. WEHMEYER: So, again, I just want the Commission to understand your methodology. I've given you the spinner survey off to the left. We did it with the -- you wanted -- because it's in the upper San Andres above the Lovington San, you wanted to insist no water's going into that perf in the Rhino.

Walk me through the same methodology you would use here and tell the commissioners which of these five perfs is getting the water.

THE WITNESS: I think --

MR. RANKIN: Objection, asked and answered.

THE HEARING OFFICER: Yeah. Mr. Wehmeyer, he has answered that question. I could even answer it, and I don't know anything about this stuff.

MR. WEHMEYER: I truly don't know. If it's these two, I have another question. If he's saying it's all five, I don't know how he correlates that to --

THE HEARING OFFICER: Well, that's not what he said. He said it's to one where the cursor -- where you had the cursor. So objection sustained.

MR. WEHMEYER: So am I talking about

the right perf that's getting all of the water in the Ted Williams well, according to you?

THE WITNESS: Not all of it, but a lot of it.

MR. WEHMEYER: Which other ones are getting it, then?

THE WITNESS: It looks -- well, I'd have to -- the -- the depth lines on the spinner survey are -- are -- I can't see them.

So what I would do if I had more time to actually thoroughly evaluate this, I would get a high-quality image, zoom in, plot the perfs, and do a further evaluation. I'm just giving you my -- my answer as I see it sitting right here today.

MR. WEHMEYER: How many feet, then -- when you say the vast majority of the water's going into this one, if they want to know, how many feet are accepting the water? How many feet is that?

A It looks like about -- well, that -- these perfs are -- they're -- used 20-foot guns, so that's a 20-foot section. So a lot of the water's going in that 20 feet. There's probably some going into the next one up.

MR. WEHMEYER: Okay. So, again --

THE WITNESS: And maybe the next

one -- sorry. Go ahead.

MR. WEHMEYER: So as we talk about pluming, if they believed you that it's only going into this approximately 20 feet, what does that mean about how fast horizontally that's going to plume laterally?

THE WITNESS: Radial -- in a radial flow model, it would -- it would increase it. But it could create -- it could connect to some other vertical -- just outside the wellbores some vertical pathways in this reservoir below the confining -- below the confining there. And, I mean, we haven't done plume analysis; so --

MR. WEHMEYER: And this is calculated as of June of 2025. It would be your testimony to the commissioners that on net to gross, it is not -- these wells are not behaving where it's getting 50 percent net to gross in terms of injection interval and what's accepting water; true?

THE WITNESS: Not at the time that that spinner survey was -- was taken.

MR. WEHMEYER: And this model's 10 percent net to gross, which that would even be way too big of a percentage if we believed your methodology on the Rhino and the Ted Williams; isn't

that right?

THE WITNESS: Sure.

MR. WEHMEYER: You're talking, like, 40 feet out of 1000; right?

THE WITNESS: What it looked like.

MR. WEHMEYER: And so just to illustrate here -- I know you haven't done any plume modeling -- but the plume would look a lot more like this over on the right in the green that I'm indicating around the Rhino, the Banks, the Sosa, the Yaz [ph]; isn't that right?

THE WITNESS: If the well is flowing radially.

MR. WEHMEYER: Which would -- as we talk about a 2-mile halo, that would mean the Yaz [ph] is already injecting within the EMSU? That water's already reached there as of June of '25 on an assumption of 10 percent net to gross, which based on the two wells you looked at and the spinner survey, would be two too high, should be even lower; true?

THE WITNESS: That's what this figure is -- is depicting.

MR. WEHMEYER: And even using what you're saying now is too conservative, if we carry it out to June of 2029, the graphic on the right would

demonstrate the pluming there as well, wouldn't it? Yes?

THE WITNESS: I'm sorry. Can you -- can you rephrase that or re-ask it? Sorry.

MR. WEHMEYER: If we carry out your volumes to June of 2029 -- we're just going five years out from 2024 -- at 10 percent net to gross, the model on the right would show pluming that'd basically enclose the entire EMSU, wouldn't it?

THE WITNESS: What -- what volumes are you using for this projection?

MR. WEHMEYER: Goodnight's historical volumes up through 2024 to calculate going forward.

THE WITNESS: What is it?

MR. WEHMEYER: I don't have it fingertips. I mean, why have y'all not modeled the pluming? Since you're the one sticking it in, why has Goodnight not modeled the pluming? Why are we having to do this for you?

THE WITNESS: It's just something that we -- we have not done at this time.

MR. WEHMEYER: And so, again, we're using June of 2024, your actual volumes through June of 2024, to model additional production on the same volumes that you'd been doing up to that point. And

through June of 2029, five out years, at 10 percent, you've already got the entire EMSU covered.

MR. RANKIN: Mr. Hearing Officer, I'm not sure if that was a question or if that was Mr. Wehmeyer testifying, so objection.

THE HEARING OFFICER: Rephrase, Mr. Wehmeyer. It's ambiguous.

MR. WEHMEYER: In terms of a plume modeling, has Empire modeled this correctly? Use your historical volumes, calculate what you claim your net to gross percentage of injection pay would be, and then calculate laterally how far that moves out over time? Is that a fair methodology?

THE WITNESS: Well, I don't -- did he -- did he use our -- our average injection over the past however many years we've been injecting? Or did he assume that we're injecting 24/7/365, at -- at some rate?

MR. WEHMEYER: My understanding is this is off of actuals.

THE WITNESS: Well, this is June of 2029, so it can't be actuals. I'm just trying to understand what -- what he used -- what he used for his assumption of the injection volumes to -- from today to June of 2029.

MR. WEHMEYER: I actually just had a question come in. They think they saw it on the video. Are you reading off of your cell phone right now?

THE WITNESS: Nope. Playing with a piece of paper.

MR. WEHMEYER: Coming back to the modeling, again, through 20, 30, 40 out years, I guess you can't comment on the plume model because you've just done no plume model whatsoever, have you?

THE WITNESS: Haven't done the analysis. I have an idea of where the water's going, but I -- I don't think it looks like that.

MR. WEHMEYER: You would agree, though, that based on your interpretations of the spinner surveys, 10 percent net to gross, that that would be too conservative?

MR. RANKIN: Objection, vague question.

THE HEARING OFFICER: I've got a problem with this whole line of questions because it feels to me like there's not enough foundation laid for the witness to be able to, you know, have meaningful answers here.

Mr. Wehmeyer, I think you need to lay more foundation if you want to go here; otherwise,

we're just -- it's basically you testifying about the information that went into why we're seeing these green circles. So --

MR. WEHMEYER: Thank you, Mr. Harwood -- go ahead.

THE HEARING OFFICER: I'll sustain that objection.

MR. WEHMEYER: If the commissioners understand this, Mr. McGuire, I just want to talk about the 10 percent net to gross.

Based on your methodology in interpreting the spinner surveys on what net pay is actually accepting injection volumes, you can tell the commissioners with positivity that 10 percent net to gross, based on your actual observed experience in the Ted Williams and the Rhino, would be too conservative? It should be a lower number that would have the effect of expanding the circle out faster and larger; true.

THE WITNESS: Not necessarily. Some of those other -- if that one perf were to build pressure, then it would push back, and it would force water in more perforations.

MR. WEHMEYER: We're going to talk permits very briefly, and we're done. We covered some of this with Mr. Alleman. I'm not going to belabor

it. But the first -- when you were going to the Devonian, you have actual knowledge within Goodnight that certified mail return receipt requested was sent to XTO at this Englewood, Colorado, address; right?

THE WITNESS: Yes, sir --

MR. WEHMEYER: As well as its Fort Worth corporate headquarters?

THE WITNESS: Yes.

MR. WEHMEYER: And you have enough knowledge from the industry that you know XTO's corporate headquarters were in Fort Worth, don't you?

THE WITNESS: Yeah. At that time.

MR. WEHMEYER: Now where are they?

THE WITNESS: Houston -- well, I guess --

MR. WEHMEYER: Spring, Texas --

THE WITNESS: They -- they've been purchased -- they've been purchased by ExxonMobil, so I would -- the -- the ExxonMobil's corporate headquarters are actually in Dallas, but the main campus is in Houston.

MR. WEHMEYER: It's Spring, Texas. And the one you're referring to in Dallas is actually Las Colinas. They're near the Pioneer campus. But the point being, you sent the XTO notice to XTO

corporate headquarters return receipt requested when you were going to the Devonian. True or false?

MR. RANKIN: Mr. Hearing Officer, objection to this line of questioning. Mr. Alleman's company did this notice. Mr. Alleman was examined on this issue by Empire's counsel. This is not within the direct scope of Mr. McGuire's testimony.

THE HEARING OFFICER: All right. Well, I've been pretty liberal in not holding Mr. Wehmeyer to the precise scope of your questioning, and I will extend you the same courtesy on redirect. So overruled.

THE WITNESS: One more time for me, Mr. Wehmeyer?

MR. WEHMEYER: When Goodnight was permitting to the Devonian, they sent the notice of the application return receipt requested to XTO's corporate headquarters; yes?

THE WITNESS: That's what this appears, yes.

MR. WEHMEYER: But then you changed the name and decided you were going to come up shallower, isn't that right?

THE WITNESS: That is correct.

MR. WEHMEYER: I want to nail down the

depths. The permitted depths were 4,320 feet to 5,625 feet; yes?

THE WITNESS: Yeah. We're -- we're still talking about Rhino here?

MR. WEHMEYER: Yep.

THE WITNESS: That sounds right.

MR. WEHMEYER: I'm going to calculate that, and you disagree with me if I've got it off. That's an interval of 1,305 feet; right?

THE WITNESS: 1,305.

MR. WEHMEYER: All right. We'll hold that number, and we're -- I'm going to write it down here. So 4,320 to 5,625. Do you know, is public notice required to also be running the newspaper?

THE WITNESS: It is.

MR. WEHMEYER: Is it important so that the public has an opportunity to object?

THE WITNESS: Yeah. That -- that's my understanding. That's why you do that.

MR. WEHMEYER: You would agree it's important?

THE WITNESS: That -- that's why you do this, yes.

MR. WEHMEYER: Here's the publication. What depths did Goodnight report in in the publication

it ran?

THE WITNESS: It says San Andres 4,500 to 5,350.

MR. WEHMEYER: That's wrong, isn't it?

THE WITNESS: Those numbers are different than what we just looked at. That is correct.

MR. WEHMEYER: If we do that math, that would be an interval of 850 feet, wouldn't it?

THE WITNESS: Once again, I agree with you.

MR. WEHMEYER: And that would actually be 180 feet deeper than what Goodnight actually permitted and has placed perforations into, isn't it?

THE WITNESS: That's different than what was permitted. I'd have to remind myself of the perforations.

MR. WEHMEYER: And that would only be 850 feet, which would mean that the notice was different than the permit by 455 feet. That's not immaterial, is it?

THE WITNESS: They're different.

MR. WEHMEYER: The question was, that's not an immaterial difference, is it?

THE WITNESS: Yeah. They're -- they're

different. Not one foot, but could be considered material.

MR. WEHMEYER: When publication was run, why did Goodnight not accurately identify so that the public could protest or not the depths that were intended to be perforated?

THE WITNESS: Goodnight --

MR. RANKIN: Objection, Mr. Hearing Officer. Mr. Wehmeyer knows that Mr. McGuire was not responsible for this area at this time. This was in 2019.

THE HEARING OFFICER: Overruled.

MR. WEHMEYER: Why did Goodnight not accurately tell the public the depth -- in the legally required publication the actual depths it was going to put perfs into?

THE WITNESS: That was not the responsibility of Goodnight. That was the responsibility of the permitting consultant that did the work.

MR. WEHMEYER: Who was that -- well, so, like, the 2.5 million pounds of hazardous waste that ended up in Oregon, that's not Goodnight's fault? Somebody else's fault?

MR. RANKIN: Objection, argumentative.

THE HEARING OFFICER: It is sustained.

MR. WEHMEYER: Dasco Cattle Company, they're also suing Goodnight right now in the EMSU, aren't they?

MR. RANKIN: Objection, relevance.

THE HEARING OFFICER: Mr. Wehmeyer, where are we going with this? Is this character evidence?

MR. WEHMEYER: Yeah. We could put -- but it is right in the EMSU. Maybe the commissioners would like to know what else the wonderful operator Goodnight is being sued for in the EMSU.

THE HEARING OFFICER: All right. Sustained.

MR. WEHMEYER: Now, when you came up from the Devonian into the San Andres, why did you not send this to the same XTO address that was used not long before and instead sent it to Midland?

MR. RANKIN: Mr. Hearing Officer, objection. These exact lines of questions were addressed to the person that was responsible for this portion of the testimony, Mr. Nathan Alleman, and he addressed this question on the record.

THE HEARING OFFICER: All right. Well,

maybe we'll hear a different answer. Overruled.

THE WITNESS: Yeah. My understanding is -- is that they used the -- the addresses that are associated with the OGRID number for XTO and that address was changed on the OCD website.

MR. WEHMEYER: Now, within the EMSU -- I mean, we can look through the permit -- but you know nowhere on the permit applications for any of the SWDs in the EMSU was the EMSU oil unit identified; isn't that true?

THE WITNESS: I'd have -- I'd have to go look at the -- the permit applications, but I guess I'll take your word for it.

MR. WEHMEYER: Now, I asked yesterday, and you said, "Can you show it to me?" Do you remember when I said, "But on other wells that were outside of the EMSU, you did show the EMSU boundaries"? Do you remember when you said, "Can you show it to me?"

THE WITNESS: Yeah.

MR. WEHMEYER: And I told you I would. Do you remember that?

THE WITNESS: I think so.

MR. WEHMEYER: This is your TED SWD AKA Schneider 28 application. You see this is 2018. Just

to help orient the commissioners, am I identifying the right location of the TED?

THE WITNESS: Yes, sir.

MR. WEHMEYER: It's within 2 miles of the EMSU?

THE WITNESS: It is.

MR. WEHMEYER: And here, as part of the permit applications, do you see the EMSU identified with the red boundaries in connection with that SWD application?

THE WITNESS: Which red boundary are you referring to?

MR. WEHMEYER: Eunice Monument South Unit. I'm over it with my cursor, and it's got -- there's a legend over here where you can actually trace EMSU boundary.

THE WITNESS: I guess I don't see the -- I see the words "EMSU," but I -- I'm not seeing the -- the boundary being posted.

MR. WEHMEYER: Why did you identify the Eunice Monument South Unit on your TED application, but didn't do it for the wells inside the EMSU?

THE WITNESS: I didn't do this work.

MR. WEHMEYER: Was it somebody working for Goodnight?

THE WITNESS: Yeah. It was probably the permitting consultants. Sure.

MR. WEHMEYER: Here on the TED permit, Goodnight identified it as being both open and closed. This is outside of EMSU. Do you remember Dr. Ampomah's questions about closed system, open system?

THE WITNESS: I think so, yes.

MR. WEHMEYER: Can you explain -- and we know that on the ones inside the EMSU, it was identified as closed. Can you identify the wellbore configuration on the TED that would be different than the one, for example, Rhino that we looked at in detail with Mr. Alleman?

THE WITNESS: I don't think that there's any difference. The -- this is referring to, I -- I believe -- my understanding is -- is that this is talking about the gathering system, and it is a closed system, because it's all on pipe. So I would disagree that this is an open system at -- at the surface.

MR. WEHMEYER: This is your permit. I didn't make this. You made this.

THE WITNESS: I did not make this.

MR. WEHMEYER: My question -- I'm going

to get an answer to my question. If the commissioners would like to go back and understand the wellbore or gathering configuration for the Rhino, in which you told the OCD it was a closed system, versus the configuration for gathering and wellbore of the TED, what is the difference in terms of the facilities or drilling configuration between those wells, if there is one?

THE WITNESS: No difference to my knowledge.

MR. WEHMEYER: This is just an example. Do you see that this report reporting the spudding of the well was only filed on April 4, 2024?

THE WITNESS: I -- yes. I do see that. Which well is this specific to?

MR. WEHMEYER: There's many instances where it's years after the fact before required papers are filed with the OCD. Why does Goodnight wait years to file papers that are required back in a matter of 20 to 60 days?

THE WITNESS: Sorry. I thought I heard something.

MR. WEHMEYER: I'll show you more examples. Here's another example. Injection commence 2018, but you're only filing it with the OCD in April

of 2024. Why? Why as a matter of habit do y'all wait years before you file some of these basic required papers?

THE WITNESS: So at the time, for a lot of this stuff, it was our understanding that it was the responsibility of the drilling consultant for a lot of these regulatory filings.

We did a self-audit and realized that we were -- that those filings did not get submitted, self-identified. Worked with the OCD to get all of the necessary filings into the -- sent to the regulator.

MR. WEHMEYER: Pass the witness.

THE HEARING OFFICER: All right. Thank you, Mr. Wehmeyer.

All right. Rice, any questions for Mr. McGuire?

MR. BECK: No questions for this witness.

THE HEARING OFFICER: Pilot, any questions for Mr. McGuire?

MR. SUAZO: No questions, Mr. Hearing Examiner.

THE HEARING OFFICER: All right. That brings us to the Commission, but I see that the time

is 11:17 a.m., and we have to break at 11:30, so I don't want anybody to feel like they need to be pressured into getting all their questions answered before we go to the lunch break.

So let me ask you, Chairman Razatos. What are your thoughts on that subject? You know, and maybe the commissioners have a preference whether they prefer not to break up their examination of this witness or proceed at this time, realizing we only have 15 minutes to get going on this.

MR. RAZATOS: So that is a good question, Mr. Hearing Officer.

Commissioner Ampomah, Commissioner Lamkin, did you want to just start after lunch, or did you want to start a few questions now, realizing that we only have a few minutes?

DR. AMPOMAH: I definitely do have a lot, so probably after lunch would be good for me.

MR. RAZATOS: Okay.

Commissioner Lamkin?

MR. LAMKIN: Either way is fine with me. I -- I only have a handful of questions.

MR. RAZATOS: Okay.

Mr. Hearing Officer, being that we only have 12 minutes before we would have to break, let's

just extend the lunch hour. We'll come back at 1:30, and then the commissioners can have the afternoon to be able to ask their questions.

THE HEARING OFFICER: Okay. That sounds great. All right. Thank you, Mr. Chairman. With that said, then, we'll give our court reporter's fingers a rest, and we'll all be back here at 1:30. Have a great lunch.

MR. RAZATOS: Thank you.

(Off the record.)

THE REPORTER: Good afternoon. My name is John Shavers; I'm a reporter assigned by Veritext to take the record of this proceeding.

I am a reporter authorized to take -- take acknowledgements and to administer oaths in Texas.

Additionally, absent an objection on the record before the witness is sworn, all parties and the witness understand and agree that any certified transcript produced from the recording of this proceeding:

- is intended for all uses permitted under applicable procedural and evidentiary rules and laws in the same manner as a deposition recorded

by stenographic means; and
- shall constitute written stipulation of such.
That's it, Mr. Harwood.
THE HEARING OFFICER: All right. Thank you, Mr. Shavers.
Are we ready in the room, Ms. Apodaca?
MS. APODACA: Yes, we're ready.
THE HEARING OFFICER: All right.
Dr. Ampomah, I guess we'll start with you on the theory that you have probably more questions, and maybe some of the answers will also answer questions that Mr. Lamkin has, not to short him in any way, shape, or form. But if you don't mind, if you'd take the lead.
DR. AMPOMAH: Thank you, sir.
Mr. McGuire, thanks so much for your testimony today. So I do have some few questions for you.
And I'll ask if Goodnight's Number 3 Testimony, Mr. McGuire, and 4, 5, Goodnight's rebuttal statement, all will be more or less open up so I can go through that.
MR. RANKIN: Dr. Ampomah -- Commissioner Ampomah, just so I'm clear, which

documents? You want the rebuttal statement?

DR. AMPOMAH: Yeah. So I want the Goodnight Number 3 testimony.

MR. RANKIN: The supplemental testimony?

DR. AMPOMAH: No. This will be the original testimony, Goodnight Number 3 testimony and Exhibits B-1 to B-26, Preston McGuire.

MR. RANKIN: Okay.

DR. AMPOMAH: And then 27 to 35, Preston Number 4 -- that would be Number 4.

MR. RANKIN: When you say "Number 4" or "Number 3," what are you referring to?

DR. AMPOMAH: Okay. So I want -- I'll be going through the Number 3, Number 4, and Number 5 all interchangeably.

MR. RANKIN: Paragraphs Number 3, Number 4? No. I'm sorry. I'm just --

DR. AMPOMAH: The exhibit.

MR. RANKIN: Oh, exhibits.

DR. AMPOMAH: Yeah.

MR. RANKIN: From the slide presentation?

DR. AMPOMAH: No --

MR. RANKIN: No. From the direct

testimony. Okay.

DR. AMPOMAH: Yeah --

MR. RANKIN: I apologize.

DR. AMPOMAH: From the direct testimony.

MR. RANKIN: Okay. I apologize. Let me -- I'll get there, and I'll get everything up. The files are big, so I'm going to try to open them only one at a time as we need them, because Adobe doesn't like very big files, so I'm going to just -- I'll do that slowly over time.

DR. AMPOMAH: Okay.

MR. RANKIN: So I'll start with the --

DR. AMPOMAH: The Number 3.

MR. RANKIN: Exhibit 3, yeah, yeah. Okay. Dr. Ampomah, is this the Exhibit 3 that you're asking about?

DR. AMPOMAH: No. This is different from what I have. So the direct testimony in Exhibits B-1 to B-26.

MR. RANKIN: B-1 is his resume; B-2 is this overview. Oh, okay. I see. Okay. So this slide?

UNIDENTIFIED SPEAKER: That entire portion --

MR. RANKIN: I'm sorry. What?

UNIDENTIFIED SPEAKER: The testimony and exhibits. So when they were sent to us, it was Goodnight 3, 4, and 5, Exhibits 1 through 26, Exhibits 27 through 35, and then 36 through whatever. And so those are Goodnight 3, 4, and 6.

MR. RANKIN: So I apologize. Is it possible for me to see just so I'm clear about what it is? I want to make sure we know. Do you mind if I approach so I can see? So yeah. If you can tell me what exhibit number it is, if it's B-1, B-2, B-3, so there's exhibits attached. So, you know, yeah, if you just tell me the paragraphs, I'll go to that.

Okay. I apologize. Yeah.

DR. AMPOMAH: Okay. Mr. McGuire, sorry for the delay. Let's go to Paragraph Number 6, which will be the summary. Thank you. So on the Bullet Point Number 1 -- and we'll go through this quickly, because definitely you do have a lot of information to substantiate this. Now for the first bullet point, I hope you can see the screen.

THE WITNESS: I can, yes, sir.

DR. AMPOMAH: Okay. So the first Bullet Point Number 1, my question for you is, can you explain just briefly, based on material balance -- or

let's say, did you utilize material balance in coming up with this conclusion?

THE WITNESS: No, we did not. This -- this conclusion is based -- is based on our -- how our wells are performing.

DR. AMPOMAH: So when you say it's based on how your wells were performing, in terms of petroleum engineering, I mean, what analysis is that?

THE WITNESS: So it's just an observation of how the wells are performing. They can inject at very, very high rates at -- at very, very low operating pressures.

DR. AMPOMAH: Are you familiar with the "material balance" term?

THE WITNESS: Yes, I am. Yep.

DR. AMPOMAH: And did you use material balance in any of your analysis?

THE WITNESS: No, we have not. Not -- not in detail.

DR. AMPOMAH: Now, on Number 2, you describe how -- you talk about the extensive pressure differential between the Grayburg and San Andres aquifers. One, you're saying that the presence of an effective geologic barrier between the two formations. I want to ask you, did you use RFT to also help you in

coming up with this conclusion?

THE WITNESS: No, we did not use RFTs. It was based on the differences in pressures that we observed from multiple different data sets. The -- the shut-in pressures from the Grayburg wells, the drilling experience where we were able to hold a column of drilling fluid while drilling through the Grayburg.

And then once we passed below what is the confining layer that separates these two reservoirs, we see a completely different reservoir system down below that confining layer. So that pressure differential that we see across the field could not be sustained for -- for very long periods of time if those formations were in communication.

So we feel pretty strong that these two separate reservoirs are -- are isolated from one another.

DR. AMPOMAH: So based on all the testimonies that we've listened for couple of -- multiple weeks, Empire and then Goodnight's experts utilized the RFT to describe the pressure profile within the Grayburg. Do you agree with that?

THE WITNESS: Yes. I agree that there was some RFTs that were taken in the Grayburg.

None -- there was no RFTs taken below the confining layer that separates these two reservoirs.

But even in the RFTs that we have seen, John Macbeth [ph] talked about that, that there's big pressure differentials between very small vertical distances that also show that there's isolation in different zones within the Grayburg itself.

And -- and a lot of that has been discussed through all the different conformance issues. The -- the Grayburg is a very highly compartmentalized reservoir in of itself, but all those compartments in the -- in the Grayburg reservoir are totally separated from the disposal reservoir.

DR. AMPOMAH: You know, the reason why I brought that up, as you said, the Grayburg do have a lot of compartments, and even it can be shown right on the pressure based on what you just said.

Now, you picked a lot of barriers within the San Andres. Did you do any analysis using pressure data to confirm these barriers that you picked in the San Andres formation?

THE WITNESS: Well, the only one that I can speak to confidently is the one that's separating these two reservoirs. We did not do any analysis within the disposal reservoir to see isolation within

the disposal reservoir. But we do see that there's a change in reservoir characteristics once we passed from the Grayburg into the disposal reservoir.

DR. AMPOMAH: So is it your testimony that you did not include any engineering data in supporting those barriers that you picked in the San Andres?

THE WITNESS: No. I -- I think we did. I talked about that in my -- in my direct testimony as well as my presentation. I -- I pointed to wells that are very close to each other, one being in the disposal reservoir, one being in the Grayburg, and those pressures are very, very different.

DR. AMPOMAH: Mr. Rankin, can we go to Number 12?

So Number 12, I'm going to read from line 3 from the bottom. So you said "Goodnight gave extensive testimony that it's San Andres disposal zone at the EMSU has been tested and confirmed to be a non-hydrocarbon-bearing aquifer and not a candidate for ROZ." Did I read that correctly?

THE WITNESS: Yes, sir, you did.

DR. AMPOMAH: Is this statement supported by the two other witnesses that were presented by Goodnight, specifically Dr. Davidson and

then also Mr. Knights?

THE WITNESS: Yes. I -- I believe so. I -- I guess, given that I would slightly modify that, they did put some very, very minor oil saturations in the disposal zone, but they're intermittent and spread out and at very, very low saturation.

So to be technically correct, non-hydrocarbon, we do see some minor -- minor indications, but they are not at the levels that would meet ROZ definitions. And as those experts explained, they do not feel that they are producible.

And Dr. Davidson also said that they were abandoned migration pathways and -- and not a really a high -- a producible -- producible hydrocarbons.

DR. AMPOMAH: So is it your testimony to the Commission that if we go back and look at all the transcripts, that based on the discussions that I had, even Empire's counsels had with Dr. Davidson and Mr. Knight, there is nowhere where they consider that there is ROZ, in fact, in the upper San Andres?

THE WITNESS: Well, I think that they were pretty clear that there's no ROZ in the disposal zone. Now, we've -- you guys have heard a lot of testimony about where the chronostratigraphic pick for

the top of the San Andres is and how difficult that is to pick.

Empire claims they have it right. I -- I disagree. I -- I don't -- I don't think that they necessarily have it exactly correct for the chronostratigraphic pick. But that would be the interval that Dr. Davidson and Mr. Knights was referring to was the interval that is above the confining layer that separates the two reservoirs that we're talking about here.

DR. AMPOMAH: Sir, based on the cross-examination, you know, there were cross sections shown to the Commission where your perfs are all over the San Andres. Do you dispute that?

THE WITNESS: They are all over what we would define as San Andres. They are not in intervals that Empire would define as the San Andres.

DR. AMPOMAH: Thank you for that.

Can we go to -- can you bring up the bottom part up where it starts with the observation? Yeah.

MR. RANKIN: Which ones?

DR. AMPOMAH: Yeah. Just scroll up a little bit. Yeah. Right there. Thank you. Oh, go down. Still Number 12, but -- yeah. Right there.

Thank you.

So we'll go to what has been termed as a cartoon where you do have all the barriers that are in there. But I want to ask you if you utilized any geological information, you know, from the core specifically to support the barriers that you picked in the San Andres?

THE WITNESS: Yes. The 679 core has a confining layer that's shown by the vertical permeability that was measured in that core. That equates to the zone that we've correlated across the field and isolates these two reservoirs from one another.

DR. AMPOMAH: Can we go to page 105 where we do have the cartoon, as it's been called. Okay. Thank you. So it seems like I'm looking at a different one.

MR. RANKIN: Dr. Ampomah, which exhibit at the bottom is it?

DR. AMPOMAH: Okay. Let me try to find that.

It's B-9.

MR. RANKIN: Okay. One moment.

Okay. This is good. Thank you.

DR. AMPOMAH: So, sir, I just want to

confirm that the methodology that you used in picking these barriers is 7 percent porosity; is that correct?

THE WITNESS: Yes. That was generally the methodology we used, and that was supported by the core data that we had at the time.

We got the additional core data from Empire from the 679, and it confirmed that we probably could have drawn some of these barriers a little bit thicker given the -- the core data. That confining interval that I was showing had intervals of porosity that were as high as 15, 16, 17 percent and had zero vertical perm.

DR. AMPOMAH: Now, have you done any geological analysis on each of these barriers that you've picked?

THE WITNESS: I guess, what specifically are you looking for? I'm going to need a little bit more specific there.

DR. AMPOMAH: Okay. Yeah. Let me give you more. So can you point to the Commission where -- let's say we were seeing some anhydrites in the core. And even Dr. Davidson talked about anhydrite being a potential ceiling for barriers that he talked about. Can you show right here on this cross section where we have anhydrites that has been

mapped?

THE WITNESS: Sure. So there's intervals that have elevated anhydrite material, and it's found at the top of this area that we're showing here. I -- I have an open hole log with the Rhino. That was the primary well that I used in building this cross section. It was the most recent up-to-date data.

We can see intervals at the top of there where it's very, very low porosity, calculating to negative porosity on a dolomite matrix. The PE was getting closer to 5, indicating that there was anhydrite material in there.

Now, I'm not -- I'm not willing to say that it's 100 percent anhydrite, but there are definitely intervals at the top that are more than -- well, I didn't do an exact percentage analysis on there. But there's intervals in that zone that have significant anhydrite content in there as well as very, very tight dolomite with no porosity.

DR. AMPOMAH: So, sir, you are referring to the Rhino well. Has there --

THE WITNESS: That's -- oh, sorry. Go ahead. Didn't mean to cut you off.

DR. AMPOMAH: So is there any core? Is

there any spectral gamma ray logs? Is there any detailed logs that have been evaluated to confirm that there is anhydrite, even the cuttings, to confirm that, indeed, there is resistance of anhydrite?

THE WITNESS: Yeah. So the -- the anhydrite material in the cuttings, it's -- it's basically powderized with -- with the drill bit. There was not any described in the mud log. We did see some anhydrite described in the 679 core.

But using the triple combo information that we have here with the Rhino, Dr. Davidson was able to calculate these intervals of elevated anhydrite as I was describing.

DR. AMPOMAH: So, sir, if I recall correctly, Dr. Davidson said he used a different well outside the EMSU to check the signature. So he did not actually, based on his testimony, testify that he had any anhydrite within the EMSU. You can tell me if I'm wrong or not. The transcripts are there.

THE WITNESS: No, yeah. He -- he definitely did do a mineralogical analysis using the Rhino well, and that's included in his testimony.

DR. AMPOMAH: Okay. We will check into that. So, you know, I do know, at least based on my experience, that carbonates do have really low

porosities. You know, I've even seen -- you know, you are familiar with the Devonian where porosity goes to, like, 4 percent, and we say that it is an injection zone.

Can you provide a reference to the Commission where 7 percent has been used as a cutoff to say that it is a barrier in the petroleum engineering industry?

THE WITNESS: Yeah. So the -- the 7 percent comes from porosity and perm cross plots that we had for the San Andres. And that 7 percent equated to a 0.5 millidarcy permeability, which is, in my opinion, a effective seal for -- for flow.

DR. AMPOMAH: So, sir, your response is your personnel opinion, not necessarily published in any literature?

THE WITNESS: It was -- I mean, I've seen 0.5 used as a -- as a permeability cutoff in -- in different areas. That's just the -- the one that I -- I can't point to a specific citation right now at this point. But I -- I do know that in other fields, a 7 percent cutoff has been -- or a 0.5 millidarcy cutoff has been used to define barriers.

DR. AMPOMAH: So, sir, based on the cross, I had about 7 percent porosity that you used as

your methodology. So are you changing your testimony now?

THE WITNESS: I don't -- I don't believe I changed my testimony. I -- I explained it a little bit better as to what that 7 percent equated to in a permeability standpoint. But no, I'm not -- I'm not changing that testimony.

DR. AMPOMAH: So the barrier analysis that you did, you know, I do see there is one that you plotted the vertical permeability for the log -- for the Well 6, 7, 9. Did you correlate this particular, let's say, barrier that you're showing here -- we're showing on the screen to core?

THE WITNESS: Yeah. So I'll point you on the very left-hand side of this -- of this figure here is the EMSU 460.

That well is 300 feet from the cored -- from the cored well, and that low vertical permeability that I -- that I described in that -- in that core plot equates to that interval that's showing as blue at the top of the San Andres on the left-hand side of this. And that's what I correlated across this particular cross section.

DR. AMPOMAH: So did your analysis -- well, was your analysis corroborated by

any of them Goodnight's experts?

THE WITNESS: Yes. We had discussions, and they -- they agreed that with that methodology and -- yeah. They -- they agreed.

DR. AMPOMAH: Now, my question was did they corroborate your assessment as an evidence to -- or, let's say, through a testimony to the Commission?

THE WITNESS: I guess I'm a little lost on the question. Yes. They agreed with it, and I think they used that knowledge in a lot of their testimony and corroborated that statement throughout all of their testimonies.

DR. AMPOMAH: Mr. Rankin, can we go back to Number 13?

MR. RANKIN: Paragraph 13.

DR. AMPOMAH: Paragraph 13. Sorry. Thank you.

So I'm going to read the bold -- where it's been bolded, the bottom of that. So you said that "Empire was unable to show through evidence that, one, the San Andres disposal zone had ever produced any oil; the San Andres contains recoverable hydrocarbons; and if the hydrocarbons exist, can be produced in paying quantities." Do you still stand by

this?

THE WITNESS: Well, yes. I do stand by this, because this particular paragraph was discussing the hearing that was had on the Piazza [ph] case. And in that case, Empire really provided no technical evidence. There was -- a geologist didn't testify on behalf of Empire. I don't believe an engineer testified on behalf of Empire.

There was a Mr. Eugene Sweeney. I think he was a higher-up corporate representative, maybe the VP of operations or the chief operating officer. But he did not provide -- he did not discuss any technical evidence in his testimony. So I do stand by this as it relates to the Piazza [ph] case that was had in Case Number 22626.

DR. AMPOMAH: So I'm bringing it back to this particular case.

THE WITNESS: Okay.

DR. AMPOMAH: So for this particular case, do you believe that this statement is still true?

THE WITNESS: Yes.

DR. AMPOMAH: Explain to the Commission how ROZ will be produced.

THE WITNESS: Well, there's a few

different -- a few different methods. One of them is obviously what we've been discussing here, is the CO2 flood. But the other one is the depressing method that I discussed in my testimony, and -- and that test was effectively enacted by the water supply wells, and -- and that test was negative.

DR. AMPOMAH: So when you made that conclusion, did you crosscheck the evidence or the testimony that Mr. West provided to the Commission where he used 18 percent as a recovery factor?

THE WITNESS: I remember him stating that. I guess, again, I'm -- I'm a little lost on the question. My apologies.

DR. AMPOMAH: So my question to you, you said you still stand by that statement where there is no ROZ -- there is no recoverable ROZ. So I'm asking you, based on that testimony that we listened for multiple weeks that was given by Mr. West, is it your testimony that what he presented is not necessarily true?

THE WITNESS: I think that that 18 percent recovery factor is -- is a guess at best and not substantiated. I think that Mr. John Macbeth [ph] discussed that in detail in his testimony.

DR. AMPOMAH: What could have been the

recovery factor?

THE WITNESS: Well, there's no -- no recovery factor has been established to date. There's no -- there's no production in what we call San Andres; there's no production in what Empire calls San Andres. Empire has admitted that there has been zero production to date in the San Andres.

DR. AMPOMAH: And you believe that the oil that we saw, at least from the core, cannot be produced through CO2 injection?

THE WITNESS: There might be some oil in that core that could be produced by CO2 injection, but it's above what we call the San Andres and above our confining layer. I don't think that there's any evidence that is establishing that there is recoverable hydrocarbon in the disposal zone.

But yeah. Like I said, in the -- in the core, there is some hydrocarbon content that's below the oil-water contact in the Grayburg that goes down in the transition zone or the ROZ just below the oil-water contact.

I think that if Empire wants to go try to get that oil, they -- they can definitely go try to do that. And our operations will have no effect on that because all of that hydrocarbon is above the

confining layer that separates our reservoir from that reservoir.

And I don't think that there would be any interference if Empire wanted to try to go chase that oil if they so chose.

DR. AMPOMAH: So your description, you're talking about the formation that Empire is saying is an ROZ -- or is San Andres; is that correct?

THE WITNESS: They call it San Andres. We did not call it San Andres. But yes. I'm talking about that interval that's above our confining layer that separates these two reservoirs.

DR. AMPOMAH: Do you remember that one of your witnesses talked about how Goodnight did not spend extensive amount of effort in characterizing the San Andres? Even Mr. Knight talked about the San Andres is not even widely described or known. So why should the Commission more or less agree to your description of the San Andres?

THE WITNESS: Well, like I said, the -- the chronostratigraphic pick for the San Andres is -- is very difficult to -- to pick in well logs. That was described by -- by Dr. Lindsay [ph]; that was described by the unit documents that -- that unitized the formation. So for the exact chronostratigraphic

pick for the San Andres, it's difficult.

What we described as the San Andres, as I described in my testimony, I called it the -- the functional top of the San Andres. The San Andres and the -- and the EMSU has always been the water management interval for disposal and water supply. And so when we define the San Andres, we defined that water management interval as it's been used for -- for decades in the EMSU.

That interval is completely different from everything above it. I -- I -- to me, it does not matter what you call the -- that interval above it. I -- I think that we need to be talking about the different reservoirs here.

It'd be a interesting geological academic exercise to find that chronostratigraphic pick and correlate that around the field. But for this case, I don't really think that that should have much weight in this -- in this hearing.

DR. AMPOMAH: So you talked about weight. Now, you also talked about confirming that there is some ROZ somewhere that if Empire wants, they can proceed and then go for it. And they want to go for it, but they believe that your operation is impacting them.

And let me also say that, you know, you picked -- you have different picks. Let me put it this way. Did any of Goodnight's experts corroborated your picked independently of what you did?

THE WITNESS: Yes. I -- well, they corroborated that the -- the -- where I have delineated the -- that difference in those reservoirs, they did agree with that delineation. Now, going back to the chronostratigraphic pick of the San Andres, no, nobody did that work.

DR. AMPOMAH: So you listened to Empire's experts -- multiple experts doing their own independent analysis on the topics. And even there was a discussion where even at some point, you need to come to a compromise.

Goodnight's experts more or less relied only on the top that you provided to them. So why should the Commission more or less agree with your pick compared to multiple experts doing independent work and more or less coming to the same conclusion?

THE WITNESS: I disagree that they came to the same conclusion. They had different picks. Their picks disagreed with one -- with one another. I -- I described some of that in my -- in my testimony. And that just goes to how difficult

picking that chronostratigraphic top of the San Andres in the EMSU really is.

They -- it's been done differently throughout the history of the EMSU. So I think that our pick of what we're calling the San Andres, or as I've defined it, the water management zone, is the -- the -- is the best -- it's the most reasonable place to put that separation of these two different reservoirs which act completely different from one another.

I think the reservoirs -- we can talk about the -- the geology and -- and the timelines that are found within the -- the interval here, but what really matters here is -- is the -- the different reservoirs.

DR. AMPOMAH: Mr. Rankin, do you have a copy of the utilization document? So that will be Empire's Exhibit Number 1.

MR. RANKIN: I can pull it up if you give me a moment.

DR. AMPOMAH: Sure.

MR. RANKIN: I may need to close some windows.

DR. AMPOMAH: I hope you did not close the Number 3.

MR. RANKIN: No.

DR. AMPOMAH: Okay.

MR. RANKIN: I don't know. Maybe I did, but I'll go back to it.

DR. AMPOMAH: Okay. So I'm interested in Section 10.

MR. RANKIN: Okay. Yeah. Oh, you know what? I think it's up to the top. One moment. This is --

DR. AMPOMAH: Yeah, page 35 of --

MR. RANKIN: That's the purchase. Yeah. What page do you think it was?

DR. AMPOMAH: Yeah, 35.

MR. RANKIN: Yeah, yeah.

DR. AMPOMAH: Of the PDF

MR. RANKIN: I'm getting there.

DR. AMPOMAH: Yeah. Okay. Thank you.

So, Mr. McGuire, I asked previous Goodnight's experts, and they thought that you'd be the one to really respond to this question.

THE WITNESS: Okay.

DR. AMPOMAH: So Section 10 talks about the rights and obligation of the unit operator. So I don't want to read all of it, but I just want you to read and then tell the Commission your understanding

on this section.

THE WITNESS: Okay. My -- you're asking for what? My understanding of this?

DR. AMPOMAH: Yes.

THE WITNESS: Well, one, I'm not a lawyer, so I might not be the perfect person to answer this. But I guess my overall thoughts about this is that it says "unitized substances." I take that to be oil. There's no oil.

Other experts have -- have described that there's -- they feel that there's no producible oil in this and that the San Andres is -- is largely an aquifer, and the OCD has no right to unitize an aquifer. I -- I feel like the San Andres was unitized erroneously. It never had primary production.

And my understanding is that to be unitized, it has to -- it has to be reasonably defined by a primary production. Empire agrees that the San Andres has never produced a barrel of oil and -- and for sure has not been reasonably defined. So therefore, I think that most of this document should not apply to the San Andres itself.

DR. AMPOMAH: Okay. So I will take them one after the other. And we are lay people, so we'll try to probably see if we can understand it, and

hopefully the lawyers will discuss that in their closings as well.

So they talk about "Except as otherwise specifically provided herein, the exclusive right, privilege, and duty of exercising any and all rights of the parties hereto, including surface rights" -- so I'll probably skip to -- "producing, storing."

So I'm more interested in the producing and then also the storing. So based on this unitization document today -- you know, until, let's say, this one is amended or more or less reevaluated or whatever is done, this is the working documentation that Empire do have.

Don't you believe that they do have the exclusive right to produce the ROZ that they've identified -- potential ROZ that they've shown to the Commission in the San Andres?

THE WITNESS: Yeah. They -- they operate the unit, which means that they hold those leases. And so to the extent that there is any minerals in the -- in the leases, they have the right to produce those. But this does not say that they actually own the pore space. They own the minerals in the pore space if there's any there to be had.

DR. AMPOMAH: Well, I'm a lay person.

But the way I read this, my understanding is that they do have the authority vested, you know, in this document that they have the right to produce. Even when it comes to storing, it sounds like they do have the right to do that. Do you agree with me on that?

THE WITNESS: I would -- I would disagree with that, given my understanding of how the unitization works.

DR. AMPOMAH: So have you seen -- and this question has been asked, but just for completeness, have you seen any operator or any company being allowed to inject into someone's unitized zone? Have you ever seen that?

THE WITNESS: Yes.

DR. AMPOMAH: Where?

THE WITNESS: EMSU, North Monument, AGU.

DR. AMPOMAH: So that is going to be the first, first one; is that correct?

THE WITNESS: Well, those -- those three, I -- I'm aware of -- of those three. Now, I haven't gone and -- and looked for this specific case all over the Permian Basin, but those are the three that I'm aware of.

DR. AMPOMAH: Mr. Rankin, if we can go

back to a previous document, I'm interested in Number 18 -- Paragraph 18, sorry.

MR. RANKIN: Dr. Ampomah, just so I know, will you want to go back to the unit agreement at some point, or can I close that document?

DR. AMPOMAH: No. You can close that one. Thank you.

MR. RANKIN: Okay. It'll make my Adobe function --

DR. AMPOMAH: Yeah. You can close that.

Okay. So on the 18, so as you described, these are all issues that were discussed during the Piazza [ph] hearing, and I believe that it applies to this case as well. So we're going to go through -- and it's part of your testimony, so we're just going to go through that, at least for my understanding.

Now, Mr. Rankin, if you can scroll up a little bit to page 9. Yeah. Okay. Thank you.

So in there, you're saying that "First, the Division expressed concerns that the proposed injection could cause Class 2 disposal fluids to encroach towards the northeast and interior of the EMSU where the San Andres was being used as a source

of water for Grayburg waterflood injection wells, and may not be compatible with the San Andres."

Now, to the San Andres formation fluids. So let's just talk about that portion. Do you agree with that statement?

THE WITNESS: No. Absolutely not. None of that evidence was -- was presented in that hearing, and so we were quite -- quite surprised at that -- at that ruling because no evidence was -- to that nature was -- was discussed in that -- in that hearing.

There was -- like I said earlier, really no technical evidence was -- was presented by Empire in that case. So I've -- I -- it's my opinion that that ruling was -- was unjust and -- because the -- the -- there was no evidence presented to support at that conclusion when that issue -- when that order was issued.

DR. AMPOMAH: Yeah. So when I ask questions about this, I really want to discuss that in the context of this hearing, not necessarily the Piazza [ph] hearing.

So here, don't you believe that there has been an evidence that has been more or less presented to the Commission with regards to the water

chemistry changes from -- even though Goodnight treats their water before injection. But don't you believe that they presented evidence here?

THE WITNESS: Yes. In this particular case there, lots of evidence has been discussed. I would not disagree that our water chemistry is -- is different than what's in the San Andres. But I would also note that incompatible water has been injected into the San Andres -- confirmed incompatible water has been injected into the San Andres since the 1950s from the Grayburg.

It's documented that those two formation fluids are incompatible. I have not seen analysis stating that our fluid is incompatible. That -- that analysis has not been done, so there's no evidence out there. Yes, they're different. But are they incompatible? I don't know.

Furthermore, there's -- there's additionally no evidence that the water chemistry of the waters of the -- the one remaining water supply well in the EMSU has changed or that our water has -- has made it up there or if it will ever make it up there.

So I -- I don't think that the water chemistry issues have -- have been

necessarily -- what's the word I'm looking for here? I went blank. Yeah. There's just no -- there's no evidence that the water supply well has -- has had a change in chemistry as a result of our injections.

So therefore, I don't think -- we can't think about what may happen or may not happen in the future. I think if we're going to have a big change in the regulatory environment here, that needs to be based on evidence -- overwhelming evidence.

DR. AMPOMAH: You know, I was going to go there when you talked about now. But what about the future?

THE WITNESS: I don't -- I think -- I'm not convinced that our water will -- will make it to the water supply well that's the one left. It's the most distal from our -- from our well, and I'm not convinced that our -- that our water is -- is even migrating that direction.

So no. I -- and I don't want to speak -- I don't want to pontificate or anything like that, and I don't think that the Commission should pontificate. I think that they need to see the evidence that's been presented to date and rule on the evidence that's presented to date.

And if that evidence changes in the

future, Empire can come back to this commission and -- and renew their applications with -- with new evidence.

DR. AMPOMAH: So you don't believe -- okay. Let me ask you this way. So you said that you did not believe that there could even be any communication. Did you do any material balance analysis or did you do any modeling to substantiate your claim?

THE WITNESS: No. We have not done any modeling. I just have -- I have thoughts about -- about how the -- the water moves within the reservoir.

DR. AMPOMAH: And then, most of these water supply wells are all open-hole completions?

THE WITNESS: No. Two of them were cased and perf'd, while the others were open-hole. The first two, the 457 and the 458, are -- were cased and perf'd; the remaining four were open-hole.

DR. AMPOMAH: So going back to the second part that -- you said this one's from OCD. So they're saying "Second, the Division determined Empire had provided sufficient evidence for continued assessment of the unitized interval for potential recovery of any additional hydrocarbon resources." Do

you believe the statement?

THE WITNESS: Well, no. Well, I'm going to go back to the context of the Piazza [ph] hearing, and I totally disagree with that. I don't think that Empire at the time did not -- they -- they did not talk about ROZ hardly at all in that.

I -- I think -- I don't even know if the term "ROZ" was discussed in that particular -- in that particular case. So I -- I disagree with the statement of the -- of the OCD.

DR. AMPOMAH: So I'm mostly interested -- you know, I'm looking at what was discussed there, and I'm comparing to this hearing to see if there has been any changes in your thoughts.

So then let's bring it back to this particular hearing. Do you believe that this statement applies or is true for the case that we are hearing now?

THE WITNESS: No. I think that Empire has done more work than they did at the -- at the time of the Piazza [ph] hearing, but I -- I don't think that they've met their burden of proof. And they -- they certainly haven't shown any intent of actually developing the ROZ to date.

They've had four years to -- since

they've purchased this field, to go gather all, you know, new data that they are claiming that they need to have a more concrete answer about that, and they've chose not to do so.

So I think that they're -- that they're -- well, I find it very interesting that they haven't done that. If they really believed in this project, why -- why haven't they gone and -- and done that to date? That's -- that's quite interesting to me, and I think it shows an ulterior motive here.

But I think that they've had their -- their chance, and we're -- we're at hearing today to discuss all of this, and they're still saying they need more time. And justice delayed is justice denied from our perspective.

DR. AMPOMAH: So, sir, are you saying that Empire has not presented enough evidence to establish that there is a potential ROZ in the San Andres?

THE WITNESS: Well, I -- I think that for this hearing, for you -- for the Commission to revoke permits, I think that there needs to be overwhelming evidence to have this massive change in the -- in the regulatory environment. And no. I don't think that they've met that burden of proof at

this hearing today.

DR. AMPOMAH: Well, your experts, Dr. Davidson, Mr. Knights all agree that they've been able to prove that there is existence of ROZ. So do you disagree with them?

THE WITNESS: Well, they definitely have -- I -- I did not get the impression whatsoever that they said that there is an ROZ in the disposal zone. For sure they did not say that. So I -- I think their testimony speaks for theirselves, and -- and I agree with their -- with their testimony.

DR. AMPOMAH: So you said that there was a higher burden on the Commission to make a determination when it comes to revocation of permits. Would you agree that if the Commission finds that there is existence of potential ROZ in the San Andres, there's a justification to revoke the permits?

THE WITNESS: Well, it depends on what we're talking about the San Andres here.

I would -- I would say that if you -- if you think that there is a -- if you find that there's a potential ROZ in what Empire has defined as the San Andres above our confining layer that separates these two reservoirs, I think that would be unjust because there's no communication

between our disposal zone and what Empire has called the ROZ or the -- the San Andres.

We call that Grayburg, to be frank. I -- I don't care what you call it. It's a different reservoir than what is in the -- the disposal zone.

DR. AMPOMAH: So, sir, if there is this exists ROZ in the upper San Andres, definitely I do know that Dr. Davidson and Mr. Knights, you know, they went through that extensively and also even shown where Goodnight is injecting into.

Now, my question to you is, can you name the formation, the barrier -- the name of the barrier, the name of the formation that separates even the upper San Andres from the lower San Andres?

THE WITNESS: Name the formation? Well, it's -- it's all within the San Andres. But I -- I -- like I've said, I've -- I've stayed -- I've tried to stay away from that timing nomenclature and talk about the different reservoirs. So I think that -- I think that's the more important thing here as opposed to what name you give a particular interval of rock.

DR. AMPOMAH: So if we go back and check the transcripts, Goodnight experts did not dissociate or do not delineate the upper San Andres

from the lower San Andres?

THE WITNESS: No. Again, I think that they were just talking about -- it gets confusing 'cause we're -- we're using this timeline nomenclature to try to define these -- these rocks, and -- and I don't think that that's necessarily the most -- the -- the best way to be talking about these two different reservoirs.

I did hear Dr. Davidson say that there might be a potential ROZ in what Empire calls the upper San Andres, but he -- he definitely does not agree with Empire that there is an ROZ in the disposal zone of the San Andres.

DR. AMPOMAH: Which will be probably the lower San Andres?

THE WITNESS: Not necessarily. I -- I don't know how Dr. Lindsay [ph] is defining the lower San Andres. I'm assuming it's another timeline. Again, I don't think that timeline separates -- I don't think any given timeline necessarily separates two reservoirs.

DR. AMPOMAH: So based on the cross, you talked about, you know, discussion with the NMOCD, and NMOCD agreed with your assessment. Is that still the case? Is that true?

THE WITNESS: Yeah. That's true to -- to my knowledge. I know that our company discussed with the OCD prior to filing the applications. We saw just before we approached the OCD that they had approved two commercial SWDs inside the unit. That would be the P-15 and the N-11.

Subsequent to that, we -- we wanted to -- at that time, wanted to recomplete the -- the Rhino well from the Devonian into the San Andres, and so we -- we met with the OCD and discussed our -- our thoughts and our applications. There was discussions about the nomenclature of the tops and how the -- the top of the San Andres was inconsistently picked across the unit.

They encouraged us to use a deeper top for the San Andres to give a larger standoff from the producing zone in the Grayburg. We then filed the applications, and they were -- they were subsequently approved by the OCD.

DR. AMPOMAH: Why is OCD not here to confirm the statement, sir?

THE WITNESS: Because we reached a -- they -- they were -- in this case because they had concerns about the -- the Capitan Reef and its alleged communication with the San Andres disposal

zone. They wanted a monitoring program in the Capitan Reef to help them in case they got questions from the EPA about -- about the Capitan Reef.

We came to an agreement that we would do a monitoring program in the -- in the Capitan Reef, and that satisfied the reason that they were in this case and withdrew from it.

DR. AMPOMAH: So you don't believe that if Phil was on the stand, this question was not going to be asked?

THE WITNESS: I didn't say that. I'm -- definitely asked Phil that question. Phil was in those meetings, to my knowledge.

DR. AMPOMAH: You know, and you also talked about a discussion of the unitization documentation. It came up at some point during the application process. Can you comment on some of the discussions that were held between OCD and Goodnight?

THE WITNESS: Yeah. OCD was aware that this was inside the EMSU, and like I said, we weren't the first to do this. We had previously just seen the OCD approve these two other permits inside the unit and had discussions with them. And yeah. They were -- they were well aware that this was inside the unit.

DR. AMPOMAH: So then why is OCD saying that you do not have the authority to inject into the San Andres and thereby denied the Piazza [ph] application?

THE WITNESS: That -- that's a question for Phil. But to be clear, we do have the authority to inject into the San Andres currently. We have -- we have four valid permits that were issued by the UIC department of the NMOCD, and with -- with those permits, they give us the right to inject into our permitted interval.

DR. AMPOMAH: Don't you believe that OCD tried to use that to correct the wrongs or, let's say, the missteps for approving those earlier permits?

THE WITNESS: That's -- that's not what the order said.

DR. AMPOMAH: I'm just saying that. So I'm just saying that. And so then why is Phil not here to confirm, or at least, you know, to discuss why he believed that you do not have authority to inject into the San Andres?

THE WITNESS: I would love for Phil to answer those questions. I -- to be quite frank, I wish he -- he was still -- still in the case to testify about all this stuff. I -- I totally agree

with you that I have a lot of questions for Phil.

DR. AMPOMAH: You gave him a buyout?

THE WITNESS: No. I mean, yeah, no, I -- that they were pretty clear that they didn't want -- they didn't want to testify and -- but no. I agree with you. I -- I wanted to see Phil answer some questions as well.

DR. AMPOMAH: Yeah. But Phil is not here. Now you've put all the burden on the Commission to make this tough decision. Whereas OCD, they made all these decisions by approving these permits, and because of the settlement, OCD is not here to answer any of these questions.

THE WITNESS: I can -- I can see your frustration, and I'm -- I'm somewhat frustrated with that, with that as well. I mean, I -- I guess the only thing I can say is talk to Phil. I -- I wish I could listen in on that conversation. But yeah. Unfortunately he's -- he's no longer testifying in this case. And yes. I agree. I would love to ask Phil some questions.

DR. AMPOMAH: Yeah. So OCD is not testifying in this case. But they do have statements that has been reported here as part of the evidence to the Commission. So unless he's on the -- on the stand

to dispute those -- I mean, these are documents, so how do you dispute that?

THE WITNESS: Yeah -- yeah. I agree with you, and Brandon Powell said that there needs to be overwhelming evidence to overturn prior -- prior decisions made by the OCD. And I don't think that there has been overwhelming evidence to change the status quo in this case.

DR. AMPOMAH: So where is Brandon to more or less speak to that?

THE WITNESS: Same answer as -- as the answer for Phil.

DR. AMPOMAH: In the same way it's all now up to the Commission to make this tough decision after the settlement between Goodnight and OCD.

Mr. Rankin, can we go to paragraph 26? Yeah.

So in paragraph 26, you talked about the water management zone and the formation of the EMSU. Now, on paragraph 26, you said "Rice Engineering drilled the SWD in April 1960," and you continue on with that.

So during the unitization hearing, why did Rice or, let's say, any other operator injecting into the San Andres oppose the inclusion of the

San Andres as part of the unitization interval?

THE WITNESS: Well, I can't speak for anybody. But if I were to guess, it would be because these two -- these two operations could coexist in the same space without affecting one another.

That's what the data supports even to this day. There has been no confirmed communication between these two zones. There's been no effect on the oil production in the Grayburg, even though that there's been these massive amounts of water put into the -- into the disposal zone.

I mean, the -- the EME-33 [ph] has put more than 60 million barrels in the ground. It's -- it's on top of the structure. And we have -- I mean, there's -- there's no evidence that that affected any, any production.

If these two -- if these two operations couldn't coexist, that would've been found out many, many years ago, and we wouldn't be here because that disposal would've been shut in decades ago.

DR. AMPOMAH: Mr. Rankin, let's go to number -- paragraph 32.

Now, in paragraph 32, you highlighted -- you bolded "The San Andres was included in the unitized interval, not because it is

hydrocarbon productive, but because it was to be used as a source of water supply for planned waterflood." Did I read that correctly?

THE WITNESS: Yes, sir.

DR. AMPOMAH: Is that not supporting the Section 10 of the unitization documentation that we went through?

THE WITNESS: No. I don't believe so. Just because it was unitized, it -- it didn't mean that they had the rights to the water. They still had to go get state engineer's permits to get those waters to -- to get that water. So it really didn't provide -- the unit didn't really provide the unit operator really any advantage to having it in there.

I'm just stating that because that's what was stated in the unitization at the unitization hearing. I -- I guess really the only thing that it maybe helped them with is that they could put their well wherever they wanted on the surface as opposed to having to get a separate surface use agreement to -- to do that.

But it really didn't -- other than that, it did not provide them any advantage to having the -- the San Andres in the unit, because, again, they had to -- they still had to go through the state

engineer's office to get those permits to withdraw all that water.

DR. AMPOMAH: Yeah. I get that they have to get all the permits. But are you saying that they do not have the first right to storing, producing from this unitized interval?

THE WITNESS: No. Because there's a -- it's -- because it hasn't been defined by primary production, it shouldn't be unitized. So that -- that document, I think what erroneously included the San Andres, and the Commission had no -- no authority to unitize the San Andres at that time because it had not been defined by production.

And there has -- to date has never been any production, so that still stands true today.

DR. AMPOMAH: So why is that document not challenged anywhere?

THE WITNESS: We -- we have definitely challenged it. We have -- we tried to -- to move the Commission to rule on that before this hearing. But they said that they wanted -- that they wanted to hear all of this evidence before they made a determination on that. But it has definitely been challenged.

DR. AMPOMAH: If that documentation is challenged now, especially now that the unit operator

has seen or more or less discovered that there could be a potential ROZ, how is that going to be challenged other than giving them the opportunity to proceed with the assessment to fully understand if this ROZ can in fact be recovered?

THE WITNESS: Well, for -- my understanding is -- is for the -- the Commission to unitize the interval, it has to be reasonably defined by production. So to do that, Empire would have to go reasonably define the production, come back to the Commission and say, "This is why it should be unitized." That hasn't been done to date. So therefore, it should not be in the unit right now.

DR. AMPOMAH: I mean, you and I probably were not there at 1984, so definitely there should have been a reason for the Commission at that time to make that determination. And even now that Emperor has shown the Commission through their experts that there could be a potential ROZ, why should the Commission more or less side with you on this issue?

THE WITNESS: I'm not a lawyer. I have my opinions on that. But at the -- the evidence that was presented at the unitization hearing does not support inclusion of the San Andres in the unit, and therefore, it would -- it -- it should have never been

included in the unit.

To date that -- the -- it -- it still hasn't been -- it still hasn't met the defining factors for meeting unitization. And so even today, it shouldn't be in the unit. Like I said, Empire would need to go and reasonably define the San Andres production, show where that is, and unitize it.

But that hasn't been done to date, so it has no business being in the unit right now.

DR. AMPOMAH: Well, so until that documentation is revoked, they do have the first say in the unitized interval; is that correct?

THE WITNESS: Okay. What do you mean by "first say"? I -- I think I disagree with you, but I want to make sure I -- I understand what you mean.

DR. AMPOMAH: Okay. So the Commission gave them the authority based on that unitization document that they have the right to stall to produce. So until that documentation is revoked by the Commission, they still do have those rights. Is that a fair assessment?

THE WITNESS: They have rights to the minerals inside of that unit. That doesn't necessarily give them rights to the pore space itself.

DR. AMPOMAH: But the mineral is in the

pore space.

THE WITNESS: Agreed. And they -- and they own that -- they own that product, but not the pore space itself.

DR. AMPOMAH: Yeah. But they own the product, so they have the first right to make a determination on it?

THE WITNESS: If there's product in the pore space.

DR. AMPOMAH: And it's been established here to the Commission that there is a potential ROZ, which has been confirmed by even your own experts.

THE WITNESS: Not -- not in the San Andres. It's definitely not in the disposal zone, so there should be a lower limit of that that we're talking about here. And no. I -- I don't -- I do not think that that has been clearly established by Empire.

DR. AMPOMAH: So is there anywhere in that utilization document that really establishes the differences between the upper San Andres and then the lower San Andres?

THE WITNESS: There is not. And I don't think we -- that we should really even be contemplating that, because even Empire agrees that

there hasn't been primary production from the San Andres, so therefore, it should never have been unionized.

I think that this is a pretty simple answer that the Commission could fix pretty quickly and just say that they didn't meet their -- their burden of proof to unitize this back in 1984; and if Empire wants to try it again, they're more than welcome to after they've reasonably define the production.

DR. AMPOMAH: But what the Commission knows is that the unitized interval goes all the way up to the base of the San Andres, which clearly we all know where the base of the San Andres is. Is that a fair statement?

THE WITNESS: Yeah. I think the base can be reasonably defined, yeah. It -- it's -- that one's a pretty clear chronostratigraphic pick.

DR. AMPOMAH: Now, let's go to 39 -- oh, yeah, 40. Paragraph 40.

So paragraph 40, 41, 42, 43 all shows all the wells that are in contention right now in front of the Commission. So I want to ask you where you define the San Andres. Is that where the wells have been perforated?

THE WITNESS: Yeah. So, again, as I've discussed, the -- the San Andres that we're -- what we're calling San Andres here is the point that separates these two reservoir systems, and -- and that's -- that's what I've put -- labeled as San Andres in these -- in these particular tables here.

DR. AMPOMAH: And that is the same San Andres that has -- that more or less is in the unitization document; is that correct?

THE WITNESS: Yes.

DR. AMPOMAH: So if the Commission finds that there is injection into an ROZ, these permits could be revoked; is that correct?

THE WITNESS: I guess when you say -- I think that there -- it needs to be established that it is, one, producible and, two, economic because if it's not producible and it's not economic, it's not waste.

DR. AMPOMAH: So that would be for the lawyers to tell us whether it's a potential or it needs to be shown that it's recoverable.

Let's go to paragraph 53. Yeah.

So you've highlighted -- and I think we probably touched on this a little bit, but I'm mostly interested in the engineering analysis that was done to really come up with this conclusion.

So you said that "With the depletion of the San Andres aquifer from NMSU-labeled water supply wells, along with the other four historical water supply wells in the EMSU, Goodnight Midstream's active and proposed disposal wells near the former water-supply wells have very low operating pressures, creating an ideal situation for disposal injection operations."

And my question is, how long would that continue? How long?

THE WITNESS: Good question. We've tried to predict it, but every time we try to predict it and we get a new data point on what the reservoir pressure is, it's not increasing, even given our mass amounts of water going into -- going into the system.

I could point you to the -- the bottom hole pressure information that we've provided here. And yeah. It's -- it's amazing how much water is -- has come out of this and -- and is -- is currently going in, and we're seeing a de minimis change in that reservoir pressure.

So to answer your question directly, I -- I don't know exactly, but it -- it appears right now, given the data that we have, it'll -- it will be quite some time before it were to reach back to what

we would consider to be a normal pressure gradient. It'd be a very long time, is what it looks like.

But, again, I'm just speculating, but the data that I have says that it's -- it's well into the future.

DR. AMPOMAH: So let's discuss that for a moment.

THE WITNESS: Okay.

DR. AMPOMAH: You know, as you go to the west, you talked about there's tight, you know, porosity or something like that to the west; is that correct?

THE WITNESS: Yes -- yes, sir.

DR. AMPOMAH: And then does it pinch out in the east?

THE WITNESS: The formation doesn't pinch out. But yes. Farther to the east, you do get -- we do see a big reduction in the porosity, yes, to the east.

DR. AMPOMAH: So why is Goodnight continuously saying that "We are injecting into a vacuum"? Is there not -- with all these boundaries that we've just gone through, is there not some kind of a boundary to the San Andres?

THE WITNESS: So I -- I think the

question you're asking is, is this an open or closed system?

DR. AMPOMAH: In a different way.

THE WITNESS: Yes. Yeah. Of course. So we have a boundary to the east where the porosity diminishes. We have a boundary to the west where the b where the porosity diminishes. We are confined on top, and we are confined on bottom.

But I -- I feel like this reservoir is so large that it is effectively acting like an open system given how we -- given how the pressures are -- are not really changing with the -- with the water that's going in and.

And that -- that aligns well with the ROZ experts of the -- these meteoric fairways. They've shown these fairways where this water has moved through the San Andres for -- from hundreds of miles from central New Mexico all the way down to the southern end of the Central Basin Platform.

Now, whether that -- that system is closed on each one of those ends today, I -- I haven't looked at it. But because that -- that area is so large, when we zoom in just to the EMSU, it effectively is acting like an open reservoir in the north and south directions.

But, again, it's closed on the east side, it's closed on the west side, and it's closed on top, and it's closed on bottom.

DR. AMPOMAH: So, sir, based on your description, does this support material balance analysis?

THE WITNESS: Well, I -- I think the material balance analysis would show that -- exactly what I just described is that this is a massive reservoir.

And that was part of Dr. Buchwalter's issue that he had in his model is that he couldn't make the model big enough to accurately represent how -- how the pressures aren't changing, given how much water is -- is -- has gone and continues to go into these reservoirs.

I think I -- I still think that his model wasn't large enough to accurately model this reservoir. But, I mean, that's -- that's another data point that kind of supports what I'm saying here was the -- the difficulties that Dr. Buchwalter had in -- in building his model.

DR. AMPOMAH: So Mr. West and then Dr. Buchwalter, they presented a scenario. They accounted for the water supply wells. They also

accounted for all the injection.

They accounted for -- let's say, at the end of the historical data, they did a scenario where there's a point where the water injection more or less fills it up to the initial San Andres water less the distribution and even continued with the model to show the injection and its impact, you know, on the pressures within the San Andres.

Is it your testimony that all of that is not a good scenario or a good model?

THE WITNESS: Yeah, no. I -- I cannot say that I think that Dr. Buchwalter's model is -- is a good model and accurately representing this reservoir. I think he was on -- on the way to the -- to the -- to the right answer, but I don't think he -- he got there. And I definitely don't agree with the scenario that he is allowing for communication between the two zones.

I would also disagree that he used all of the injection data and all of the water supply well data. He was -- he excluded many, many, many waters -- water-supply wells as well as injection wells. And Mr. Wehmeyer tried to put a figure up there saying that "Well, all this water in and all this water out that he was missing, it kind of equals

out."

Well, if you're trying to get a history match, you have to understand when that water went in and when that water went out. That's the -- the goal is to match the history, not just to say that we balanced this correctly.

So no. I -- I don't think that Dr. Buchwalter's model accurately represents this reservoir as he has it built today and what he presented to the -- to the Commission.

DR. AMPOMAH: What is your alternative?

THE WITNESS: We did not present a model. You're -- you're correct. And I -- we discussed this, that we -- we contemplated it, talked with doctor -- or, excuse me, John Macbeth [ph] about that, and we came to the conclusion that we don't have enough of the early history data to build a model that we felt would accurately represent the history.

And we didn't want to present the data that we didn't -- that we didn't think that we could stand behind, given its input values, so we decided not to.

DR. AMPOMAH: So let's go to 54. Yeah.

And I'm interested in -- so I'll read where you bolded it. I'll just read the last part. I

know we've talked about the earlier part, so let me just focus on the last part: "Within the target injection zone, there are several intervals of porous and permeable carbonate rock with evidence of karsting capable of accepting large volumes of produced water."

Did you analyze the presence of the cast within the San Andres and its impact on the upper formation? When you talk about there are boundaries to the east to the west and confined, did you analyze the presence of the karst to fully ascertain the effectiveness of your boundaries?

THE WITNESS: Yes. I think we did. I -- I think that the -- we know that there's karsting. We have 3D seismic over this -- this area that -- that we can see that -- that karsting in it. We can see that that karsting does not affect the upper seal of the San Andres.

I think that the -- the major difference that we know -- the main reason that we know that this boundary is -- is effective across the entire areas is because of these major pressure differentials indicating that there's two reservoir systems that are not in communication with one another. And I think that's -- that's really the ultimate test.

Additionally, Dr. Lindsay [ph] wrote in his PhD thesis that the ultimate test that these two formations are not in communication is the pressure differences that are observed between these two formations.

DR. AMPOMAH: Okay. Now, I thought you said that -- yeah. So you said that -- or did I have you correctly saying that you had seismic data to really ascertain this?

THE WITNESS: Yeah. We do have 3D seismic data over part of the field. That's correct.

DR. AMPOMAH: Was this presented to the Commission?

THE WITNESS: Unfortunately, it was not. There was issues with the, I guess, contract of that licensed data that we -- that we could not show it in a public form nor any derivatives of that data.

DR. AMPOMAH: So during the cross-examination, I thought I heard you say that your boundaries were based on just porosity. So I'm curious if you have 3D seismic data. And as you and I -- we all agree that we used 3D seismic to map up surfaces. Why was it not utilized to solidify your case?

THE WITNESS: I -- I just described why

we couldn't use it. We don't have it over the entire EMSU over the entire field, so I'm sure we would've been attacked that "You don't have it over the entire EMSU."

But we do see that there is an interval that equates to our map and tried to stay away from that. But because you asked me about what other data that we have on karsting, that would be it.

DR. AMPOMAH: But I --

THE HEARING OFFICER: Dr. Ampomah, I just note that it's almost three o'clock. I'm wondering -- I'm thinking people might need a ten-minute break. If you're in the middle of something, continue and just let us know when it's a good point for you.

DR. AMPOMAH: Yeah. Let me ask one last one before I forget.

THE HEARING OFFICER: Sure.

DR. AMPOMAH: So Dr. Davidson used analogous wells to establish the existence of anhydride, you know, and tried to look at the same signature and tried to use it in the EMSU. So when you talk about you don't have the 3D seismic covering the entire EMSU, probably we are not going to more or less agree to that.

You don't -- the seismic data interpretation is just the structure, not showing us the entire 3D seismic in terms of, let's say, you are concerned about confidentiality. Is that a fair statement?

THE WITNESS: Yeah. We -- we could not show it in the -- in this public form.

DR. AMPOMAH: But you could show if you pick up surfaces from it, you could show that?

THE WITNESS: No. We can't -- we can't show any derivatives of the seismic data. That's -- that's what it says in the contract.

DR. AMPOMAH: Well, sir, you know, we are all in the industry; okay? We're all in the industry.

So let me pause here and then let's go for a break, and we'll probably be back. Thank you.

THE WITNESS: Okay.

THE HEARING OFFICER: All right. Let's be back at 3:15.

(Off the record.)

THE HEARING OFFICER: We're back on the record?

THE REPORTER: We are.

THE HEARING OFFICER: All right.

Dr. Ampomah, sorry to interrupt. Please continue.

DR. AMPOMAH: Thank you, sir.

Mr. Rankin, can you share back the screen? Okay. Thank you. And I want to go to paragraph 64, if you can scroll down to the bottom a little bit. Yeah. Okay.

So, Mr. McGuire, thank you for still sticking around. So I'm going to read the last three lines on the page 24 saying that the oil-water contact for the units and EMSU oil pool is shown." And you've shows that on the cross session, yeah. And you said that the horizontal line at minus 325 feet below sea level.

So my question to you is, did Goodnight confirm this oil-water contact from the petrophysical analysis, or it was based on literature?

THE WITNESS: That is based on -- on literature that's from the unitization document itself.

DR. AMPOMAH: So you did not do any additional work to confirm or to disprove that oil-water contact?

THE WITNESS: No, we did -- we did not. In -- in this case it was -- we had no reason to -- to

disagree with the unit documents and -- and -- yeah. We -- we did not, no.

DR. AMPOMAH: Let's go to paragraph 72.

Now, in paragraph 72, you are describing -- you're saying that the upper San Andres -- and here you use the upper San Andres; right? So you're saying the upper Andres is capped by tight dolomite and anhydrite, which serves as the upper geologic seal to prevent migration to the formation above, including the Grayburg and then on and on.

Now, my question to you is, if there is a clear marker -- because what you are describing here seems like a clear marker -- why is it not widely established? The --

THE WITNESS: Yes -- go ahead.

DR. AMPOMAH: Well, if you know the question then you can go ahead, yeah. Why is it not established?

THE WITNESS: Well, I think that's the difference between the -- again, the chronostratigraphic pick of the San Andres and then what we've defined as the -- as the top of the San Andres being the barrier that separates these two reservoirs.

I think the barrier that separates these two reservoirs, you can correlate across the field. That's what I've done, and my predecessor -- I guess primarily my predecessor did before I stepped into my role.

But yeah. I think that marker, you can -- you can find across the -- across the field. And it -- and it's an aggregate of barriers that are -- that you can correlate across the field.

DR. AMPOMAH: Okay. Thank you. Checking to see. Okay. I'm going to switch to your presentation and go through some few questions.

Mr. Rankin, if you can bring up the presentation that was presented to the Commission, that'll be helpful. Okay. Now, let's start with Number 2, and I'll be quick. I promise. Can you move to Number 3? Let me see. Okay.

You know, I do appreciate this slide a lot, even though I'm still -- went really hard on you on this one. Yeah. Thank you for that.

Now, one thing that you did not talk about is the impact on the state of New Mexico. You know, Empire has presented that, I mean, if they are not allowed to produce this oil, the state is going to lose a significant amount of revenue; right?

So in your estimation, if, let's say, these four wells are more or less shut in, how much impact is there going to be on the state of New Mexico?

THE WITNESS: Well, I think it depends on how many of them are shut in. I did -- when I was describing, I think, this slide or maybe the slide before, we -- on -- on average, the four wells -- long-term average, the four wells inside the unit, do -- they inject about 60,000 barrels of water per day.

If we use the overall water-to-oil ratio, that would equate to that we're supporting with that 60,000 barrels of water produced water disposal that we're supporting about 19,000 barrels of oil per day.

And I said in my opening statements there that if -- if that 60,000 barrels of water per day of disposal is revoked, that would have an immediate impact on approximately 19,000 barrels of oil per day that would need to be shut in until it could find a new home for disposal if it could find a new home for disposal.

And then I guess to -- to further your -- answer your question, the next slide kind of

went into the oil production that we have supported, oil sales in the state of New Mexico that we have supported in -- in the past and -- and looking forward. That's the next slide, I believe.

DR. AMPOMAH: Yeah. And Mr. Wehmeyer also showed you various drilling info as you all attributed to that saying that the cumulative liquid production in the state has really gone down. So he was also --

THE WITNESS: Yeah.

DR. AMPOMAH: Yeah. He was arguing that there's still probably a home for the water that would probably more or less be coming into your injection site. How would you respond to that?

THE WITNESS: Yeah. That -- that one threw me. Oil production and water production in the state of New Mexico is definitely not decreasing. It is -- is increasing almost every day as new wells are being drilled. That one threw me. I got a little confused there on what I was looking at.

But -- I can't think of any document that -- or any data set that shows that oil production is declining. We went back and looked at the numbers, and they're definitely not declining since 2023. They've only gone up and continue to go up, both oil

and water production.

DR. AMPOMAH: Can we go to Slide Number 18? Yeah.

Well, this is something that we talked about. So, you know, I just want to dive a little bit. So if you're saying that there is no clear marker for the top of the San Andres which can be traced across the field, don't you believe that there is a lot of uncertainty associated with the characterization of the entire San Andres in its totality?

THE WITNESS: Yeah. I -- again, I think the chronostratigraphic top of the San Andres is very difficult to pick inside the EMSU. But I think that there's a clear confining layer that separates two reservoirs: the water management below, which acts as one reservoir; and everything above it, which is the producing zone, which acts and behaves as a different reservoir.

And that is what I have defined as -- as the functional top of the San Andres here at the EMSU. I can't say that it's the exact chronostratigraphic pick, but I do think that that is the point that separates these two reservoir systems.

DR. AMPOMAH: So on Slide 21 -- yeah.

Go back. Yeah. Right now here.

So how was the above management zone identified? Or how was it established?

THE WITNESS: The interval that's colored in yellow in this figure?

DR. AMPOMAH: Yes.

THE WITNESS: Yeah. So that's -- that's the interval that's the difference between what we have defined as -- as the San Andres and what Empire has defined in the San Andres in this cross section. So Empire's top of San Andres is the red; the -- the top of -- our functional top of the San Andres is the blue.

And like I said, that -- that -- where we have picked it is the point that separates these two reservoirs. So that yellow interval is -- is what Empire calls San Andres; we called it at Grayburg. I -- I don't care what you call it. It's a separate reservoir from everything that's below in blue.

DR. AMPOMAH: So you're saying that -- okay. But that above management barrier that was picked by Goodnight, that was more or less established by Goodnight?

THE WITNESS: No. The -- the red barrier is Empire's top of San Andres. We're just

highlighting the interval that -- that's in between that we call different things.

But like I said, that interval that's highlighted as yellow does not -- it acts as a different reservoir from the -- from the blue interval below, which -- which is how we know that these two intervals are -- are not in communication with one another.

DR. AMPOMAH: It sounds to me that the EMSU 628 well is much easier to pick these tops. Would you agree?

THE WITNESS: Well, I think that there's a definite gamma ray marker right there about where we have picked the -- the top of that water management interval, but that gamma ray marker is -- it's -- it's not that clear when you -- when you start going across the entire field.

I know that I -- so for this conversation, I -- I covered that in the 658, but that gamma ray marker, it -- it can come and go throughout the field. So it's not necessarily a very clean and correlatable marker across the field.

But what is -- what we can correlate across the field is the low-porosity, low-perm interval that separates these two reservoirs.

DR. AMPOMAH: My last question to you -- probably before the last one. So there were a lot of discussion about corrosion, you know, well integrity issues. I mean, is there a concern, you know, with regards to well integrity in this area, at least for Goodnight wells?

THE WITNESS: No. I think that all of our wells are -- have integrity. We have to make sure that they have mechanical integrity on a -- on a consistent basis as per the permit, and we ensure that they -- that they are mechanically integrable. So specific to our wells, I don't think that there's any issue with the mechanical integrity of any of our wells.

DR. AMPOMAH: Okay. Thank you.

Ms. Rankin, can we go back to the previous document, paragraph 74?

So that will be my last question to you, sir. Now, we've done a lot of back and forth on all the claims. You know, you made a lot of claims in the rebuttal. You know, I think I've covered most of it here, so I will not really bother you with that.

But on your paragraph 74, do you still stand by this statement without any reservations based on the extensive discussion on the methodology that

you use in picking these barriers? And from my opinion, I'm saying that these were not corroborated by any other Goodnight witnesses. So can you respond to that?

THE WITNESS: Yeah. So just to be, just to be clear, you're talking about the bold statement in paragraph 74 here?

DR. AMPOMAH: Yeah. So it's more or less summarizing everything that you more or less talked about --

THE WITNESS: Yeah.

DR. AMPOMAH: -- in terms of the seal and all of that. So I'm just asking, do you still stand by this statement knowing that, you know, clearly other Goodnight witnesses did not actually collaborate extensively?

THE WITNESS: Well, no. I would -- I would disagree with that second statement that you have there. I think that all of or the majority of our -- of our other experts said something to the same effect.

We had many, many discussions throughout the this process and collaborated extensively on this entire project with all of our consulting experts. We had many round tables where we

discussed the data and -- and talked about the data as a whole.

And in the end, all of those experts came to this same conclusion that I stated here in -- in paragraph 74.

DR. AMPOMAH: You know, I just spot something here in your rebuttal. Mr. Rankin was asking you about if Empire has reached out to Goodnight, you know, to get a settlement or at least some discussion, and I think you said no; is that correct?

THE WITNESS: Yeah, that's correct. We've -- we've reached out to -- to Empire multiple times over the past few years to see if we could come to some sort of agreement, and they -- they have refused to -- to talk to us about any compromise that could be found in this -- in this situation here.

And it wasn't for a lack of effort of trying on Goodnight's part. They just said that they didn't want to talk to us about it; so --

DR. AMPOMAH: Even after Mr. Wheeler's testimony?

THE WITNESS: I don't -- I -- I don't think that we reached out after Mr. Wheeler's testimony, but they -- they definitely didn't reach

out to us after -- after Mr. Wheeler's testimony.

DR. AMPOMAH: Thank you, sir, for your time. I do appreciate that. Yeah. It's been a tough one. Okay. Thank you.

THE WITNESS: Of course. Yeah. Thanks. Appreciate the questions.

THE HEARING OFFICER: Thank you, Dr. Ampomah.

So that brings us to you, Mr. Lamkin. Questions for Mr. McGuire?

MR. LAMKIN: Yeah. I still have a couple. Thankfully Dr. Ampomah covered several of mine.

Good afternoon, Mr. McGuire. Thank you for your time and testimony over the past couple days.

Would you agree that it's difficult to draw conclusions for a development region the size of the EMSU using minimal data from a scant few wells and interpolate that across the development region in a shoreline environment such as this?

THE WITNESS: I might have to have you repeat that question. I want to make sure that I -- I get it correct. Sorry. Would you mind repeating your question? I apologize.

MR. LAMKIN: Yeah. No problem. For a

development region the size of the EMSU, is it difficult to draw broader conclusions for the entire region based on data from a handful of wells in a transgressing/regressing shoreline environment such as this?

THE WITNESS: I guess it depends on what data we're talking about here. Could you be a little bit more specific about what data you're referencing?

MR. LAMKIN: Well, there's been a bunch of testimony presented that would indicate that the reservoir is highly compartmentalized, you know, based on the cartoons and pressure readings and, you know, lack of fluid transmissivity between wells and such like that. So I guess that's the underlying theme of the question.

Can you say definitively that characteristics that you see in one well in one location in the EMSU are going to be representative of characteristics of the geology that you see in another well 2 miles away?

THE WITNESS: No. Probably not. I -- I think that the -- the Grayburg has -- is -- Grayburg has more wells, and even in those tightly spaced wells, there's major differences between

the -- the geology that you see from well to well.

And we know that the Grayburg is highly compartmentalized as shown by Dr. Lindsay's [ph] study as well as the conformance issues they've had on the field. We have less data on the full San Andres section, and it does appear to be a very complicated system.

So, again, I guess it depends on what specific data you're asking for, but I would -- I would tend to agree with you.

MR. LAMKIN: Okay. What would cause two wells that are injecting into the same reservoir -- this is with regards to the fluid level testing that we've seen testimony on -- that were shut in for similar amounts of time show drastically different fluid levels aside from compartmentalization of the San Andres?

THE WITNESS: Well, I -- I guess I -- I don't think that necessarily the fluid levels are that different with the exception of the -- with the Piper well. The Piper well was shut in for longer, so it had more time to equilibrate with the overall reservoir.

And I think that if we were to shut in those other wells that they would probably all

equilibrate to close to the same fluid level as -- as they totally equilibrated with the -- with the overall reservoir and -- and the -- and the pressures in the greater reservoir area.

MR. LAMKIN: Was the Piper well the well that Empire had a discrepancy with the fluid level reading? Because I think that I was more so comparing the piper to that well.

THE WITNESS: Got you. So we're going back to the -- the well -- the Rhino well where Mr. Wehmeyer brought up and showed that it was -- that it was at 750 feet. Yeah. So I went back and -- and talked to some of our experts on that as to why that fluid level was -- was so high.

And there was actually a plug in the well, and it was not open to the reservoir. We were doing an active workover. There was a plug in the well, and it was not open to the reservoir. They were looking for a potential casing leak and were continuously adding fluid on top of that plug. And so that's why that particular one was -- was anomalous.

MR. LAMKIN: Okay. Thank you. Can you remind me which well the spinner log was run?

THE WITNESS: It was -- it was run in the Rhino. There was another spinner log that we

looked at that's in the -- in the Ted well, which is outside the EMSU. But the main one that I referenced was, yeah, the Rhino.

MR. LAMKIN: Could you, Mr. Rankin, bring up -- let's see -- that Exhibit B-5, I believe it is, again, the cartoon? B-9. Sorry. B-9.

So it looked like on that spinner log you guys ran that you testified that the majority of the fluid was going into a perf at forty-eight thirty-five. Isn't that smack dab in the middle of one of your barriers on this cartoon?

THE WITNESS: No. If we zoom into the Rhino well on the -- on that -- yeah. So the spinner survey stopped at about forty-eight thirty-five, but all of the, that indicates that all of the fluid was going into those perfs above that.

So I -- I think that all -- the -- the majority of that fluid was going into those two set of perfs right there at forty-eight. Yeah.

Just -- yeah. forty-seven fifty to forty-eight.

The -- those two sets of perfs, that's where I think the -- that water was -- was going.

There's no perforations in that -- in that barrier there, so it clearly wasn't leaving the -- the well at -- at exactly forty-eight

thirty-five. Or I can't remember exactly what Mr. Wehmeyer had on the -- on the screen there.

MR. LAMKIN: Okay. For your Llano Disposal Network, what proportion of the contracted fluid is being disposed of in the four wells within the boundary of the unit?

THE WITNESS: Well, it depends day to day. The way that these -- these contracts work is that the -- they send us -- well, they're all -- they're all a little different. But for the relative proportion, I guess I couldn't speak -- speak to that right now.

But, you know, we have -- we have 11 active wells right now, and -- and these four wells that are right here are four of the best, although Dawson and -- and Banks are -- are rate-limited, whereas the other ones are -- are not rate-limited.

Well, I guess Sosa is limited at 42,000. So these -- these four wells are taking a large -- a large proportion of that contracted volume.

MR. LAMKIN: Was the 60,000 barrels of water per day you mentioned total network disposal, or was that the wells within the EMSU boundary?

THE WITNESS: No. That was specific to those four wells. They -- long-term average, they do

about 15,000 barrels of water per day, so that's how I got to my 60,000 barrels for -- for those four wells.

MR. LAMKIN: Okay. Thank you. Can you remind me what the historic incompatibility -- the reasoning for the historic incompatibility between Grayburg and San Andres formation water was?

THE WITNESS: I don't know exactly what constituents caused the incompatibility. All I can point to is the Chevron papers that -- where they state that it was known to be incompatible. They -- they did not go into detail as to what constituents created that incompatibility.

MR. LAMKIN: Okay. What is your understanding of --

THE WITNESS: Well, I guess I -- I -- well, I guess I'd better not get out on that limb. I -- I guess I can't really confirm that.

But they did say that they -- well, they said they had issues with barium and sulfate, and then they decided to put that San Andres water into the -- into the Grayburg. And so there was some scaling that was a co associated with barium and sulfate.

MR. LAMKIN: That was -- that was my recollection as well.

Is the Delaware Basin production water going to exacerbate those differences in formation waters?

THE WITNESS: By injecting it into the -- the San Andres disposal zone?

MR. LAMKIN: Uh-huh.

THE WITNESS: I don't know. I would have to -- the sulfate content of our injection water is roughly equivalent to the sulfate content of the -- the water that's in the -- in the San Andres.

But, again, they've been putting Grayburg water into the San Andres for more than 50 years. So what is it today? It's definitely not Greenfield anymore. So that's -- it's a complicated story.

MR. LAMKIN: Did -- no. Wait. Let back up a little bit.

What is your understanding of OCD's level of involvement or tracking of unit progress post unitization?

THE WITNESS: I -- I guess I don't know. Yeah. I don't -- I don't know.

MR. LAMKIN: Would it surprise you to hear that they don't have much, if any, involvement?

THE WITNESS: I -- I guess it would not

surprise me, no.

MR. LAMKIN: Did Goodnight have any discussions with the acting unit manager at the land office prior to applying for injection within the EMSU boundaries?

THE WITNESS: You're talking about at the state land office?

MR. LAMKIN: At the land office, yeah.

THE WITNESS: I know that my predecessor had some conversations with the state land office. They did protest some of our SWDs. My predecessor met with the state land office, and they ended up withdrawing their protest.

MR. LAMKIN: Yeah. I believe those protests were mainly surrounding pore space issues and not injection into the unitized interval.

Do you think that it would've behooved Goodnight to meet with the person managing units at the land office prior to applying for these wells?

THE WITNESS: Yeah. I'm -- I'm going back through my head, 'cause I know I've had conversations with Mr. Drake about conversations he had with different folks at the -- at the state land office.

Now, whether he talked to the person

you're describing that's -- that was overseeing the units, I'm -- I'm not sure. But yeah. I'm not sure if those -- if the -- those conversations occurred.

MR. LAMKIN: Do you believe that the upper and lower San Andres should be separated under different pools by the OCD?

THE WITNESS: Well, I guess that's a complicated question, because how are you going to define what is upper San Andres versus lower San Andres? I guess maybe. But I -- I don't -- I don't feel comfortable speaking too much on that right now until I have more information.

MR. LAMKIN: Okay. Do you know if there's production in the San Andres to the north or south of the EMSU historically?

THE WITNESS: How far?

MR. LAMKIN: You know, I would just say on trend. I don't think distance necessarily matters.

THE WITNESS: I -- I guess I haven't looked too far, but on trend north and south, I don't believe that there is any San Andres production. I think it's all Grayburg and the Artesia Group.

MR. LAMKIN: Is that something that the OCC should be concerned with, considering you've testified that water is migrating primarily to the

north and south?

THE WITNESS: Well, I guess I didn't necessarily say that. I said that's the direction that it's open. My opinion is -- is that it's probably migrating south downdip, given the -- the differences in the salinity. The water that we inject is denser than the -- the native water.

So just my opinion -- I haven't done a study on it -- but I would anticipate that the water would migrate south downdip. And I know there's no production to the south in the San Andres for a very, very long distance.

MR. LAMKIN: Can you remind me under what circumstances the, quote/unquote, world class disposal reservoir was discovered by Goodnight?

THE WITNESS: Yeah. So when we -- when we started looking around for where to -- to develop a project for this, we started looking at where has the most water been moved in any reservoir, and we looked around the whole Permian Basin. And we feed off of the water supply wells that were in this area.

Originally, we saw how much water had come out of the reservoir and at -- at the rates that it came out of the reservoir. That's how we identified this specific area. We then started

looking at -- we noticed that there was other SWDs that were already operating in this area.

We -- we did an analysis of those SWDs and noticed that they had put ginormous volumes in the ground. They could achieve pretty high rates at -- at zero surface tubing pressure, so we knew that -- that the transmissivity of this reservoir was very, very high, which is ideal for disposal operations 'cause, you know, injecting at low pressures is -- is a good thing.

And we also noticed that there's -- again, there's all these large injection volumes that had -- and there had never been any claims of communication or -- or interference from that large injection volume, so that's how we -- that's how we settled on -- on this particular area.

MR. LAMKIN: Has Goodnight performed any studies to ascertain the size of the reservoir?

THE WITNESS: No, we have not. But like I said with Dr. Ampomah, just given the way that all of these wells, the water supply wells and the water disposal wells have behaved over the last, you know, 50-plus years, it has to be very, very large because we're not seeing any -- any pressure increases

for -- given that that large volume of water that's gone in the ground.

So no. I have not quantified how large it is, but I can say that it is quite large.

MR. LAMKIN: Thank you for your time.

That's all my questions.

THE HEARING OFFICER: Thank you, Mr. Lamkin.

We come full circle back to you, Mr. Rankin, for redirect of Mr. McGuire.

MR. RANKIN: Chair Razatos may have a question or two.

MR. RAZATOS: I actually do.

THE HEARING OFFICER: Oh, I'm sorry, Mr. Razatos. Excuse me. It's getting late --

MR. RAZATOS: No worries. I understand. Mine will be quick. I have two questions.

Mr. Rankin, if you could just stop sharing your screen so I can see Mr. McGuire. Awesome. Thank you. I appreciate it.

Mr. McGuire, thank you for your time. We appreciate you taking the time to be with us, so thank you so much for that.

Two questions from me. A lot of talk

has been -- a lot of discussion has been around how fluids are migrating in this area. In the permits, what is the standard area of review when permitting these type of permits? Do you know what the standard area of review is?

THE WITNESS: Yeah. I might -- I -- I permit wells in three different states that have different AORs. I -- I think it's a mile or two. I can't remember specifically off the top of my head, but it's -- it's one of those two. It's either a mile or 2 miles.

MR. RAZATOS: Okay. So whether it's a mile or 2 miles, my follow-up question to that is, in your opinion, are the fluids contained within that mile or 2 miles or within that area laterally?

THE WITNESS: I have -- there's been a lot of discussion about that. I have not studied that in detail, so I would be uncomfortable to give you a direct answer right now.

MR. RAZATOS: Okay. Great. Thank you. I appreciate that.

Also, there's a lot of discussion -- my next question -- there's a lot of discussion regarding the units themselves on how the unit is formed and unit this and unit that. Do the units regulate

mineral rights?

THE WITNESS: They do.

MR. RAZATOS: Okay. Do they affect water rights?

THE WITNESS: No. That's under the purview of the state engineer's office, I believe.

MR. RAZATOS: Okay. So what kind of rights are the SWDs running under?

THE WITNESS: I guess that's a legal question that I'm, again, uncomfortable giving you an answer right now. Sorry.

MR. RAZATOS: Okay. No worries. So then my follow-up with that is -- and you may know this; you may not know this -- but did Goodnight evaluate to see if the agreement -- the unit agreement is based on mineral rights and if it affects the water rights or the surface rights in the area?

THE WITNESS: I'm sure that somebody has done that associated with Goodnight through -- through counsel or -- or somebody else. But yeah. I guess I can't -- well, can you ask it one more time just to make sure I'm not missing something here? I'm sorry.

MR. RAZATOS: Sure. Has Goodnight evaluated to see if the unit agreement that is in

place is based -- that the unit agreement that is based on mineral rights, has it affected water rights or surface rights?

THE WITNESS: No. I think the unit agreement has everything to do with the minerals that are in that pore space, not necessarily the pore space itself --

MR. RAZATOS: Okay -- sorry. Go ahead. I didn't mean to interrupt you. My apologies.

THE WITNESS: No. That's -- that -- I'll -- I'll stick with that answer.

MR. RAZATOS: Okay. And that was your opinion. But the question was, has Goodnight evaluated to the actual unit agreement?

THE WITNESS: I -- yes. I think through counsel that we've looked at the unit -- the unit agreement in detail.

MR. RAZATOS: Okay. Excellent.

Those were my questions, Mr. Hearing Officer.

I appreciate it, Mr. McGuire. Thank you for your time. Appreciate it.

THE HEARING OFFICER: Thank you, Chairman Razatos.

I guess before I return it to you,

Mr. Rankin, let me double check with Mr. Shandler.

Mr. Shandler, second chance. Do you have any questions for Mr. McGuire?

MR. SHANDLER: I do not.

THE HEARING OFFICER: All right, then. At this point I believe it actually is back to you, Mr. Rankin, for redirect.

MR. RANKIN: Thank you, Mr. Hearing Officer. Appreciate it.

REDIRECT EXAMINATION

BY MR. RANKIN:

MR. RANKIN: Mr. McGuire, do you recall during your testimony in cross-examination with Mr. Wehmeyer where he asked you about a notice of violation that was issued in Oregon for some waste?

THE WITNESS: Yes, I do.

MR. RANKIN: And he referenced that violation. Is this a copy of the violation that was issued by Oregon to the entity that was responsible for that issue?

THE WITNESS: Yes.

MR. RANKIN: Okay. And it was not issued -- state of Oregon did not identify Goodnight Midstream as responsible for that issue. Is that your understanding?

THE WITNESS: Yes, it is.

MR. RANKIN: Okay. Do you recall, Mr. McGuire, during the course of your cross-examination with Empire counsel, his question for you about what he called the Marsden lawsuit in Texas?

THE WITNESS: I do.

MR. RANKIN: Do you recall that in your discussion with Mr. Wehmeyer, you and he confirmed that Goodnight Midstream had won that lawsuit on the basis of summary judgment? Do you recall that?

THE WITNESS: I do.

MR. RANKIN: And do you recall that Mr. Wehmeyer told you in his questioning that that lawsuit was now on appeal or was at the time on appeal at the 8th District of Texas?

THE WITNESS: I do.

MR. RANKIN: On the screen here, am I showing you the front page of -- is this the case caption reflecting that appeal in the 8th District of Texas?

THE WITNESS: It is.

MR. RANKIN: And Marsden's identified and Blackbeard and Goodnight Midstream are identified; correct?

THE WITNESS: They are.

MR. RANKIN: And if I scroll to the bottom of this memorandum opinion -- and, again, this is from the 8th District Court of Appeals in Texas; correct?

THE WITNESS: It is, yeah.

MR. RANKIN: Okay. If I scroll to the bottom of this memorandum opinion, it's dated December 12, 2024; correct?

THE WITNESS: It is,

MR. RANKIN: And it's -- I've highlighted here at the end of the conclusion, it states that: "The Marsdens failed to meet their burden in responding to Blackbeard and Goodnight's no-evidence motion for summary judgment. The judgment below is affirmed." Did I read that correctly?

THE WITNESS: You did.

MR. RANKIN: Okay. Is it your understanding that this appeal is final and that there's been no appeals from this decision?

THE WITNESS: That's my understanding.

MR. RANKIN: Okay. Thank you. There's some discussion about the -- with Dr. Ampomah about the questions you received from Mr. Wehmeyer about recent production of oil and produced water in

New Mexico. Do you recall that testimony between yourself and Mr. Wehmeyer?

THE WITNESS: I do.

MR. RANKIN: And you told Dr. Ampomah that you were, I guess, confused or taken aback or surprised by the presentation of the data that Mr. Wehmeyer showed you? Do you recall that?

THE WITNESS: I do, yes.

MR. RANKIN: So I'm going to share my screen here. I'm going to show you -- I went to the OCD last night, and I pulled down a report, and this is the report. The only change I made to it was I highlighted a couple columns.

But it's the New Mexico OCD Division, Natural Gas and Oil Production Report, dated Friday, May 16, 2025. I think that's the most recent update for the data. And I've highlighted the column here that says "Oil, southeast oil wells" and the column that says "Production water in southeast oil wells."

I'll scroll down to -- and if I just slowly scroll, you'll see the annual volumes for each year. And when I get up to around '2021 and 2022, you'll see -- are you seeing any decline in the oil production or in the water production from southeastern New Mexico?

THE WITNESS: No, I am not.

MR. RANKIN: Is it -- is it, in fact, going up?

THE WITNESS: It is continuously going up.

MR. RANKIN: And is it going up between 2023 and 2024?

THE WITNESS: It is.

MR. RANKIN: So I'm going to share with you another document that I prepared. It's a graph using that same data showing the OCD data on a per day basis for oil production and water production. Water production is in blue, and the oil production is in green.

Does this curve -- do these two curves look more like what you understand current water production and oil production in southeastern New Mexico to look like?

THE WITNESS: They do.

MR. RANKIN: Do you recall Mr. Wehmeyer's questions of you about the 1998 Love paper that is Goodnight Cross Exhibit Number 1?

THE WITNESS: I do.

MR. RANKIN: Do you recall him asking you questions about a reference to bottom water in the

paper suggesting that the paper was referring to bottom water coming up from the San Andres? Do you recall that?

THE WITNESS: I do.

MR. RANKIN: And you disagreed with him at the time. When he asked you, you disagreed that the reference was to San Andres bottom water; is that right?

THE WITNESS: That's correct.

MR. RANKIN: Why did you disagree with him on that basis?

THE WITNESS: Because Tracy [ph] Love in a 2000 division hearing testified that the only unaccounted for water in the unit was Edgewater.

MR. RANKIN: And that testimony that you're referring to was including your testimony as an exhibit; is that correct?

THE WITNESS: That's correct.

MR. RANKIN: Just so we can confirm, I think it was actually a rebuttal. One moment. Yeah. Here it is. Okay. Is this your Exhibit B-50? And does this reflect the testimony that you're referring to just now that was provided by Mr. Love in the year 2000?

THE WITNESS: I'm sure it is, if you

share your screen.

MR. RANKIN: Oh, there you go. I think after five weeks of this, I would figure that out. Let me go back to the top so you can see the beginning of that exhibit. Is this your Exhibit B-50 showing the testimony from Mr. Love in that 2000 hearing?

THE WITNESS: It is.

MR. RANKIN: Okay. And this testimony was provided within two years of that paper being published; is that correct?

THE WITNESS: Yeah. It was two years after that paper was published. That's correct.

MR. RANKIN: Okay. Do you recall Mr. Wehmeyer's questions to you yesterday about the EMSU 679 core and Dr. Lindsay's [ph] core analysis?

THE WITNESS: I do.

MR. RANKIN: If there were extensive fracturing in Goodnight's confining layer allowing communication with the overlying Grayburg, can you explain how the pressure differences that you discussed yesterday would be possible between what you've identified as Goodnight's disposal zone and the overlying reservoir?

THE WITNESS: Yeah. That pressure differential would not be possible. Those -- those

formations will -- would equilibrate with each other if there was communication between these two different reservoirs.

MR. RANKIN: Okay. Do you recall Mr. Wehmeyer's examination of you on the Piazza [ph] order yesterday?

THE WITNESS: I do, yes.

MR. RANKIN: I think he was asking about one particular paragraph, paragraph 11 of the order where it states -- and I'm not going to read the whole thing -- but that "Empire has provided sufficient evidence for continued assessment of the unitized interval for potential recovery of any additional hydrocarbon resources remaining in place."

Do you recall the discussion yesterday with Mr. Wehmeyer on that point?

THE WITNESS: I do.

MR. RANKIN: Now, when I scroll down, this order was issued at the end of November of 2023; correct?

THE WITNESS: That's correct.

MR. RANKIN: That's what? How many months ago was that approximately?

THE WITNESS: Seventeen, eighteen months maybe. Something like that.

MR. RANKIN: Okay. And in the same order, in paragraph 2, the Division orders that "Empires is to provide monthly" -- "it is to reinstitute its obligation to provide monthly reports to both the OCD and the State Land Office." Do you see that in the paragraph there?

THE WITNESS: Yes, I do. Yep.

MR. RANKIN: To your knowledge, in those 17 months since this order has been issued, has Empire provided any plans or stated any plans or explained what it's doing to undertake or evaluate as part of its continued assessment the potential for additional hydrocarbon recovery in the EMSU in its monthly reports?

THE WITNESS: Not to my knowledge.

MR. RANKIN: Do you recall the testimony and examination that Mr. Wehmeyer conducted against you on the Verlander well?

THE WITNESS: I do, yes.

MR. RANKIN: Do you recall when he was asking you about the fact that Goodnight had decided to drill its validly permitted Verlander well, even though Empire had filed an application to revoke its injection authority?

THE WITNESS: I do.

MR. RANKIN: Do you recall when he asked you why Goodnight did not just ask the Division for an extension that, in his words, are easily granted by the Division?

THE WITNESS: I do.

MR. RANKIN: Can you explain whether Goodnight recently filed an application for an extension of time to drill another SWD outside the EMSU?

THE WITNESS: Yeah. We tried to get an extension on the Rocket.

MR. RANKIN: And approximately, relative to the EMSU, where is that located?

THE WITNESS: About a mile outside the unit.

MR. RANKIN: In which direction?

THE WITNESS: South.

MR. RANKIN: Okay. What happened when you filed for an application -- an extension of time on that well?

THE WITNESS: It was protested and got hung up. We weren't able to get the extension.

MR. RANKIN: Who protested it?

THE WITNESS: Empire.

MR. RANKIN: Okay. And the Division

did not approve that extension request because it's pending protest by the by Empire; correct?

THE WITNESS: That's correct.

MR. RANKIN: Okay. And that application to extend the Rocket was filed before Goodnight decided to drill the validly permitted Verlander; correct?

THE WITNESS: That's correct.

MR. RANKIN: Okay. And that case, the protest under the Rocket, is currently pending before the Commission in the cases that are not right now before the Commission?

THE WITNESS: That's correct.

MR. RANKIN: Okay. And Empire decided to drill the Verlander at its own risk; correct?

THE WITNESS: Goodnight did, yes.

MR. RANKIN: I'm sorry. Goodnight did. Goodnight decided to drill the Verlander at its own risk; correct?

THE WITNESS: That's correct.

MR. RANKIN: Okay. Earlier today do you recall questions from counsel for Empire addressing a single Grayburg waterflood injection well that, in the exhibit he showed you, had a lower pressure than what is reflected in your documents in

the San Andres?

THE WITNESS: I do.

MR. RANKIN: Can you tell me whether you believe that that pressure reading in the Grayburg is representative of the Grayburg?

THE WITNESS: I do not think that it's representative of the Grayburg as a whole, no.

MR. RANKIN: What's your basis for that?

THE WITNESS: Well, we -- as we've discussed a lot in this case, it's a highly compartmentalized reservoir. Just because this one well was at a lower pressure does not mean that the entire Grayburg is lower pressure.

Furthermore, that's -- we drilled our wells very near this data point and were able to hold a column of drilling fluid while drilling through that zone. And then when we passed through the confining layer that separates the disposal zone, we had a complete loss of circulation.

So that indicates to me that those two reservoirs are -- are completely different and, in fact, that the Grayburg would be higher pressure than the -- than the San Andres. So while that one -- you'd have to look at where that well is

perf'd, is it in direct communication with an offset producer.

That would explain why that one particular zone may have been under pressure, but it's definitely not representative of the entire Grayburg Reservoir.

MR. RANKIN: Do you recall Mr. Wehmeyer's question of you asking you whether you agree that Empire brought witnesses to this hearing who have actual expertise in ROZ and referred to Mr. Meltzer and Dr. Trentham?

THE WITNESS: I do.

MR. RANKIN: Is it your understanding -- did Empire provide Mr. Meltzer or Dr. Trentham or allow them to review any actual data on the EMSU or the San Andres or the purported ROZ in the EMSU other than the core data?

THE WITNESS: No. They did not. They were totally unaware of a lot of the details associated with the -- with the San Andres. They had no idea that these water supply wells were there -- were here, how much volume they took out of the ground.

They didn't know really anything about those wells or -- or a lot of the -- the San Andres

reservoir as a -- as a whole in this particular area.

MR. RANKIN: In your experience, Mr. McGuire, is it reasonable, if you're going to put up an expert in an area, to not give them the data to review relating to the underlying issues that any reasonable ROZ expert would want to review?

MR. WEHMEYER: I have an objection. The idea of what experts do or don't do, it's very clear that this witness knows nothing about being an expert or how experts work.

THE HEARING OFFICER: Sustained.

MR. RANKIN: Okay. I'll move on.

Mr. McGuire, do you recall the examination by Mr. Wehmeyer about the radial plume demonstratives that he was showing you?

THE WITNESS: I do, yes.

MR. RANKIN: In your opinion, do you believe that radial plume modeling is appropriate in this context?

THE WITNESS: No. Not for this particular reservoir, given its heterogeneity. Radial flow does not typically occur in a carbonate reservoir.

MR. RANKIN: Okay. Do you recall questions from counsel about whether Goodnight is

injecting? I think the way it was phrased was injecting into Empire's San Andres. Do you recall questions around that line of questioning?

THE WITNESS: I do.

MR. RANKIN: Did you understand that to mean the San Andres as a formation as opposed to ownership rights or rights that were exclusive just to Empire?

THE WITNESS: Yeah. I was -- I was talking about the formation. I -- I was not speaking to ownership or anything like that.

MR. RANKIN: Mr. Hearing Officer, I believe I'm done. I just want to make sure that I have the opportunity to confer with my colleague real quick. But I think that's the only questions I have on redirect for Mr. McGuire. Let me just confer with my colleague. One moment.

Yeah. Sorry. Thank you, Mr. Hearing Officer. I just wanted to confer with my colleague. Yeah. No further questions on redirect for Mr. McGuire.

THE HEARING OFFICER: Okay. Thank you Mr. Rankin. So it's about 4:15 p.m.

Chairman Razatos, what are your thoughts?

I guess, let me make sure at this point that Goodnight, I take it, then, at this point you rest your case?

MR. RANKIN: I believe, Mr. Hearing Officer, we have completed the presentation of all of our witnesses. So yes.

THE HEARING OFFICER: All right. And may the long-suffering Preston McGuire be excused?

MR. RANKIN: Yes.

MR. WEHMEYER: For Empire, in light of the testimony that just came out on redirect, we are going to move to admit Empire Cross Exhibit 12, which is the entire workover report reflecting no plug in the wellbore.

Other than ensuring as a procedural matter we can admit Empire Cross Exhibit 12, which is the entire workover report in light of the redirect testimony, we don't have any objection to him being excused.

THE HEARING OFFICER: Thank you, Mr. Wehmeyer. Any objection, Mr. Rankin, to that exhibit being admitted and made a part of the record?

MR. RANKIN: Mr. Hearing Officer, I guess I'd like to just -- before we agree to what's being admitted, I'd like to make sure that it is the

complete workover report. But other than that, I have no other concerns about it.

But I myself haven't seen it in its entirety, so I would like to see what Mr. Wehmeyer is planning or proposing to admit. So short of that, no other considerations on my part.

THE HEARING OFFICER: Okay. I guess my thought on that is why don't the two of you confer after we go off the record for the day today, and we can take that up as a preliminary matter tomorrow morning. Does that sound reasonable to you folks?

MR. WEHMEYER: That's perfect. As a procedural matter, I just -- as we've closed testimony and before the last witness was excused, I wanted to make sure we'd made the offer.

THE HEARING OFFICER: All right.

And just to round out the field, Rice, assuming Mr. Rankin and Mr. Wehmeyer agree on what the exhibit actually is, do you object to it?

MR. BECK: No.

THE HEARING OFFICER: All right.

Pilot, same question.

MR. SUAZO: Pilot would like to review this evening, but I don't expect that we would have any objections either.

THE HEARING OFFICER: All right. So we'll do that. We'll take that up as a preliminary matter tomorrow morning, and I'm assuming, then, that tomorrow morning we'll move directly into your respective closing arguments. Is that what you anticipate? Mr. Wehmeyer, you first.

MR. WEHMEYER: Yes. That's the intention of Empire.

THE HEARING OFFICER: Mr. Rankin, that's not a surprise to you, I imagine?

MR. RANKIN: No, it's not. We had a chance to discuss briefly yesterday, and given the uncertainty of how today would turn out, it's reasonable to pick all this up on the morning.

THE HEARING OFFICER: Do you guys each have an estimate of about how long you think your closings might take?

MR. WEHMEYER: I thought we'd agreed to one hour at some point, which is still good with Empire. But you got us onto schedule, and this might be the first time we have a little bit of time to spare.

THE HEARING OFFICER: Mr. Rankin --

MR. RANKIN: Agree. I'm planning to keep it to an hour. I think -- my understanding is

that's what we agreed to, so I'm happy to keep it to that timeframe.

THE HEARING OFFICER: Okay. It's been too far in the past for me to remember if there was an actual agreement or not. But how about we hold you both to that in spirit? And we'll give Rice and Pilot a few minutes if they want to add something in closing. Does that sound reasonable?

MR. RANKIN: I think Rice can probably get it done in an hour.

THE HEARING OFFICER: Oh, you want an hour as well? Are you --

MR. BECK: No.

THE HEARING OFFICER: Am I seeing a smile on your face there?

MR. BECK: You are, yes. Yeah. I don't expect we'll be long.

MR. WEHMEYER: And, Mr. Harwood, as a procedural matter, with us making the first opening statement and having the case in chief presented first, we would hold back 15 of our hour in rebuttal.

THE HEARING OFFICER: Okay. Perfect. That works. It's fair.

All right. You guys talk over that exhibit, and we'll take that up first thing in the

morning.

Sorry, Mr. Razatos. Now back to you.

MR. RAZATOS: I just wanted to make sure. Did we actually release Mr. McGuire? Is he officially excused?

THE HEARING OFFICER: I think he is. He persists in hearing. I guess it's a habit by now.

MR. RAZATOS: I just wanted to make sure, because I wasn't sure I heard it, so that's fine.

THE WITNESS: Yeah. I didn't hear the excusal, so just wanted to make sure.

THE HEARING OFFICER: All right.

MR. RAZATOS: I think you're excused, Mr. McGuire. Thank you.

THE WITNESS: Thank you, everybody.

THE HEARING OFFICER: Okay. So we'll adjourn till tomorrow morning and be back here at nine o'clock for what I hope is a brief discussion of this exhibit and then everyone's closing arguments.

MR. RAZATOS: Excellent. Thank you, everybody. Have a good night.

MR. WEHMEYER: Thank you.

THE HEARING OFFICER: Thanks, all. Bye for now.

(Whereupon, at 4:21 p.m. MDT/ 5:21 p.m. CDT, the proceeding was concluded.)

CERTIFICATE

I, JOHN SHAVERS, the officer before whom the foregoing proceedings were taken, do hereby certify that any witness(es) in the foregoing proceedings, prior to testifying, were duly sworn; that the proceedings were recorded by me and thereafter reduced to typewriting by a qualified transcriptionist; that said digital audio recording of said proceedings are a true and accurate record to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

JOHN SHAVERS
Notary Public in and for the
State of Texas

CERTIFICATE OF TRANSCRIBER

I, JACOB MYERS, do hereby certify that this transcript was prepared from the digital audio recording of the foregoing proceeding, that said transcript is a true and accurate record of the proceedings to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

JACOB MYERS

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