

STATE OF NEW MEXICO
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED
BY THE OIL CONSERVATION DIVISION FOR
THE PURPOSE OF CONSIDERING:

Oil Conservation Division's
Application to revoke SPC Resources,
LLC's Application for Permit to Drill
Caveman 402H Well.

Case No. 22102

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

THURSDAY, SEPTEMBER 9, 2021

SANTA FE, NEW MEXICO

This matter came on for hearing before the New Mexico Oil Conservation Division, William Brancard, Hearing Examiner, Kurt Simmons, Technical Examiner, on Thursday, September 9, 2021, via the Webex Teleconferencing platform hosted by the New Mexico Energy, Minerals and Natural Resources Department.

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FOR TAP ROCK:

Adam G. Rankin, Esq.

FOR MEWBOURNE AND MATADOR:

James Bruce, Esq.

FOR ALPHA ENERGY PARTNERS:

Michael Rodriguez, Esq.

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1 (Time noted 1:15 p.m.)

2 EXAMINER BRANCARD: So here we are, September 9,
3 2021, 1:15 p.m. We are going to resume the Oil
4 Conservation Division hearings for today.

5 As I mentioned at the end of this morning
6 we're going to skip ahead a little bit to Item No. 52 on
7 the docket today under the worksheet that's provided on
8 our website. This is our last case.

9 The applicant is the New Mexico Oil
10 Conservation Division. After this case hopefully we will
11 get to finish up Cases 48, 49 and 50 from OXY USA, and
12 then Case No. 51 from Logos Operating -- if we get to them
13 today. But there's always tomorrow.

14 With that can we start with some
15 introduction of counsel.

16 Oil Conservation Division.

17 MR. TREMAINE: This is Jesse Tremaine, attorney
18 on behalf of the Oil Conservation Division.

19 EXAMINER BRANCARD: Okay. And I have here as a
20 party, SPC Resources.

21 MR. RANKIN: Good afternoon, Mr. Examiner. Adam
22 Rankin from the law firm of Holland and Hart appearing on
23 behalf of SPC Resources, as well as Tap Rock Operating,
24 LLC.

25 EXAMINER BRANCARD: Okay. I'm not quite sure

1 how you can represent two people in this matter, but we'll
2 find out.

3 I also have an Entry of Appearance from
4 Alpha Energy Partners.

5 MR. RODRIGUEZ: Good afternoon, Mr. Examiner.
6 This is Michael Rodriguez with Hinkle Shanor on behalf of
7 Alpha Energy Partners, LLC.

8 EXAMINER BRANCARD: All right. Some of the
9 pleadings seem to assume that there were entries from
10 maybe Mewbourne and Matador, although I did not see any in
11 the case file.

12 MR. BRUCE: Mr. Examiner, Jim Bruce.

13 Yeah, I did file entries of appearance; I
14 don't know why they are not in there, but I am
15 representing Mewbourne Oil Company and also Matador
16 Production Company and MRC Permian Oil Company.

17 MR. TREMAINE: Excuse me, Mr. Examiner. In
18 reviewing the pleadings before the hearing, I believe that
19 Mr. Bruce's filing transposed a portion of the case
20 number.

21 MR. BRUCE: Ah. Okay. Thank you.

22 MR. EXAMINER: Ah-hah.

23 MR. BRUCE: (Inaudible) wasn't showing up.
24 Okay.

25 EXAMINER BRANCARD: All right. So, Mr. Bruce,

1 you're representing Mewbourne and Matador; is that
2 correct?

3 MR. BRUCE: Yeah, Matador plus their sister
4 company MRC Permian Company.

5 EXAMINER BRANCARD: Okay. And Mewbourne.

6 MR. BRUCE: Correct.

7 EXAMINER BRANCARD: This is not our usual type
8 of case where there's lots of parties entitled to Notice
9 and therefore entitled to become a party upon an Entry of
10 Appearance, so I guess I'm wondering a little bit about
11 the status of these parties that have filed Entries of
12 Appearance here.

13 Mr. Bruce, are you attempting to title
14 yourself as a party in this proceeding?

15 MR. BRUCE: Mr. Examiner, Mewbourne and Matador,
16 et al., own interests in the area. We are interested
17 parties. We are not going to take part in the hearing. I
18 mean, we are not going to actively participate in the
19 hearing.

20 EXAMINER BRANCARD: Okay. That's helpful.

21 You could always file a Motion to Intervene
22 if you need to.

23 MR. BRUCE: Correct.

24 EXAMINER BRANCARD: Sorry to give you something
25 else to do.

1 MR. BRUCE: I will do so, but we are simply
2 interested in this application.

3 EXAMINER BRANCARD: Thank you.

4 Mr. Rodriguez, Alpha Energy Partners.

5 MR. RODRIGUEZ: Similar to what Mr. Bruce was
6 saying, Alpha Energy Partners is also an interested party
7 and owns interests in the surrounding acreage. And Alpha
8 does not intend to call any witnesses or present any
9 evidence. It's strictly (inaudible) in this case.

10 EXAMINER BRANCARD: Okay. Mr. Rankin, in your
11 other role as Tap Rock counsel?

12 MR. RANKIN: Same situation, Mr. Brancard. Tap
13 Rock is intending to just observe from the sidelines at
14 this point.

15 EXAMINER BRANCARD: All right. That's helpful.
16 Thank you very much.

17 Mr. Tremaine, what is your -- as the
18 Applicant here you would be going first. What is your
19 plan for today? Would you like an opening statement and
20 then tell us how many witnesses you have? You have
21 prefiled Direct Testimony, so tell us what your plan is
22 for today.

23 MR. TREMAINE: Absolutely, Mr. Examiner. I can
24 provide a brief opening statement and give you an outline
25 for witnesses and our expectation for timing today.

1 So as a brief background, the Oil
2 Conservation Division filed this application to revoke
3 Amended Order R-21096 and referenced APDs after the
4 expiration of an Emergency Order issued previously by the
5 Oil Conservation Division. That Order barred drilling and
6 completion of SPC'S planned Caveman 402H well.

7 OCD has spent over a decade and tens of
8 millions of dollars in attempts to stabilize a cavity in
9 place of the former Carlsbad brine well. Due to
10 conditions at the brine well, which our first witness Mr.
11 Jim Griswold will testify about, the area represented has
12 potential, previous potential for catastrophic failure,
13 which would impact critical infrastructure and water
14 resources in a developed area in and around Carlsbad, New
15 Mexico.

16 The OCD's review of the area and current
17 ongoing proposed oil and gas operations in the vicinity
18 has evolved over time due to substantial changes in the
19 understanding of the Carlsbad brine well project,
20 particularly since late 2019.

21 You will note as we move through the
22 exhibits and the testimony that we will demonstrate that
23 more recent information related to the cavity's known void
24 space, the settling of backfill material, and possible
25 impacts of acute and cumulative seismicity events create a

1 current context in which the cavity may not be capable of
2 tolerating impacts from the oil and gas activity, either
3 currently pending or proposed, which I previously
4 referenced.

5 So today the Oil Conservation Division
6 seeks an Order revoking the Amended Order and APDs to
7 allow -- the purpose of which is to allow sufficient time
8 for completion of the brine well stabilization project.

9 The parties were or are unable to resolve
10 this matter prior to hearing; however, I will note for the
11 parties' benefit, and Mr. Hearing Examiner your benefit,
12 that OCD does take note of SPCs Prefiled Testimony
13 outlining an alternative of suspension rather than
14 revocation, and amendment of existing conditions.

15 While we are not able to settle this case
16 without hearing, OCD has taken that recommendation or that
17 alternative proposal into consideration and may seek to
18 propose a Final Order following this hearing. That
19 remains to be seen after the hearing.

20 So lastly I just want to clarify that the
21 Oil Conservation today seeks an Order which makes clear
22 that both drilling and completion operations, whether
23 regarding horizontal wells, vertical wells, regardless of
24 the producing formation, are all prohibited until further
25 Notice or approval by the Oil Conservation Division.

1 So today the Oil Conservation Division
2 presents two witnesses. The first is Mr. Jim Griswold, a
3 Special Projects Manager for OCD. We will attempt to
4 complete his testimony in approximately half an hour. His
5 direct, at any rate.

6 The second witness is Mr. Mike Rucker, who
7 is a Senior Associate Engineer with Wood Environment
8 Infrastructure Solutions. Wood is the contractor managing
9 the remediation project for OCD at Carlsbad brine well.

10 Also we intend to complete his direct
11 testimony in approximately half an hour. The goal will be
12 to adopt and admit the Prefiled Written Testimony for both
13 witnesses and then move through Direct as efficiently as
14 possible, referencing and explaining the exhibits
15 primarily, and again attempt to complete those witnesses
16 combined in approximately an hour.

17 EXAMINER BRANCARD: Thank you. So will your
18 witnesses be responding to SPC's alternative, or do you
19 want to respond in some post-hearing fashion?

20 MR. TREMAINE: At this point, Mr. Hearing
21 Examiner, we would prefer to respond in some form of
22 Post-Hearing filing.

23 EXAMINER BRANCARD: All right. Thank you.

24 Mr. Rankin, what are we expecting from you
25 today?

1 MR. RANKIN: Mr. Brancard, we have one witness
2 who, has Prefiled Testimony and exhibits, and we intend to
3 provide a short summary of his testimony, which I expect
4 to take approximately 20 minutes, but no more than half an
5 hour.

6 EXAMINER BRANCARD: Thank you. Would you like
7 to summarize your position?

8 MR. RANKIN: Mr. Brancard, our position, I
9 think, is adequately summarized in our Prehearing
10 Statement, so rather than take up any time with that, I'll
11 just stand on the statement that we submitted Thursday in
12 our Prehearing Statement.

13 EXAMINER BRANCARD: All right. So can I get
14 both parties to agree that you will not object to each
15 other's Prefiled Testimony and then we can use those?

16 Tremaine EXAMINER BRANCARD: You will get the
17 opportunity to ask questions, but I'm just saying the
18 testimony itself.

19 MR. RANKIN: No objections to the Prefiled
20 Testimony of OCD's first two witnesses.

21 MR. TREMAINE: And no objection to SPC's
22 Prefiled Testimony.

23 EXAMINER BRANCARD: Okay. So noting that you
24 have Prefiled Testimony, then you don't have to repeat
25 everything in the Prefiled Testimony. That's why we ended

1 up going long this morning.

2 Please move ahead, Mr. Tremaine, with your
3 witnesses. Can we swear both of them at first together?

4 MR. TREMAINE: Yes. And both are here.

5 Jim Griswold and Mike Rucker, please
6 confirm that you are here and available.

7 MR. GRISWOLD: Can you hear me?

8 MR. TREMAINE: Yes.

9 EXAMINER BRANCARD: Mr. Rucker?

10 MR. RUCKER: I'm Mike Rucker.

11 EXAMINER BRANCARD: Good. Everybody sounded
12 clear. Let's try raising our right hands here.

13 Do you both solemnly wear the testimony
14 you're about to give is the truth and nothing but the
15 truth?

16 Mr. Griswold?

17 MR. GRISWOLD: I do.

18 EXAMINER BRANCARD: Mr. Rucker?

19 MR. RUCKER: I do.

20 EXAMINER BRANCARD: Excellent. Please proceed,
21 Mr. Tremaine.

22 MR. TREMAINE: Thank you.

23 JIM GRISWOLD,

24 duly sworn, testified as follows:

25 DIRECT EXAMINATION

1 BY MR. TREMAINE:

2 Q. Good morning, Jim. Could you please state and
3 spell your name for the record.

4 A. My name is Jim Griswold, spelled J-i-m, last
5 name G-r-i-s-w-o-l-d.

6 Q. And you are testifying on behalf of the OCD
7 today?

8 A. Yes, sir.

9 Q. And you filed Prefiled Written Testimony in this
10 case?

11 A. Yes, I did.

12 Q. And do you adopt that Prefiled Written Testimony
13 today?

14 A. Yes, I do.

15 Q. Would you please provide a summary of your
16 education and experience.

17 A. In terms of education, I attended both the
18 University of New Mexico and New Mexico Tech. I graduated
19 with a general studies degree, actually was studying
20 physics, had gotten a job in the oil patch, and had enough
21 hours so off I went.

22 In terms of experience, as I mentioned I
23 started in the oil and gas sector, OH, within the early
24 1980s as a geophysical logger, first in Hobbs, New Mexico,
25 and then over in Sonora, Texas. Did that for several

1 years.

2 A downturn in the industry led me back to
3 New Mexico, where for about seven years I was a principal
4 in an R&D company here in Albuquerque researching post
5 power techniques.

6 Thereafter is when I, in essence, kind of
7 began a career in environmental science. The first
8 project I actually did was a groundwater model of the
9 Jemez Basin out here in the northwest of Albuquerque, but
10 then gained a lot of experience over several decades with
11 the characterization and remediation of spills and such
12 around storage tanks for corner gas stations.

13 In 2008 I came to work for the OCD,
14 initially as a senior hydrologist. After probably about I
15 guess six years or so with the Division, I became
16 Environmental Bureau Chief, served in that role for five
17 or so years, and since 2020, I have been a special
18 projects manager for the Division.

19 And since 2009 I have been the principal
20 for the Department and the Division on the Carlsbad Brine
21 Well Project.

22 **Q. Let's clarify to make sure I heard that**
23 **correctly. Is that since 2004 you've been that principal**
24 **for the Carlsbad Brine Well Project?**

25 A. No, actually since 2009. I'm sorry. In terms

1 of the Carlsbad project.

2 Q. I didn't hear that. Thank you.

3 I draw your attention to what is labeled as
4 **Griswold Exhibit 1. Is that your Curriculum Vitae.**

5 A. Yes, it is.

6 Q. And you created this exhibit?

7 A. Yes, I did.

8 Q. And how many total years do you have in terms of
9 **experience dealing with the Carlsbad brine well?**

10 A. Twelve.

11 MR. TREMAINE: Okay. At this point, Mr. Hearing
12 Examiner, I would move admission of Griswold Exhibit 1 and
13 tender Mr. Griswold as an expert in the area of the
14 Carlsbad brine well.

15 MR. RANKIN: No objection from SPC.

16 EXAMINER BRANCARD: Thank you, Mr. Rankin. The
17 exhibit is admitted and Mr. Griswold is accepted as an
18 expert.

19 MR. TREMAINE: Mr. Hearing Examiner, I intend to
20 reference each of Mr. Griswold's remaining exhibits and
21 then move their admission after explanation of all of
22 them, to try to move through here.

23 Q. Mr. Griswold, I would draw your attention to
24 **what's been labeled Griswold Exhibit 2. Did you create or**
25 **compile this exhibit?**

1 A. Yes, I did.

2 **Q. And what is it?**

3 A. It's an application from SPC Resources for
4 compulsory pooling.

5 **Q. Okay. And is it fair to say that this exhibit**
6 **serves the purpose of providing background information on**
7 **the affected area and the affected acreage for the Caveman**
8 **project?**

9 A. Yes, it does.

10 **Q. Moving on to Griswold Exhibit 3, same questions.**

11 **Did you create or compile this exhibit?**

12 A. I compiled it.

13 **Q. What is it?**

14 A. It looks like it's an amended -- excuse me. It
15 is the Order following the Application that was Exhibit 2.

16 **Q. Okay. What's labeled as Griswold Exhibit 4, did**
17 **you also compile this exhibit?**

18 A. Yes, I did.

19 **Q. And is it accurate to say this is First Amended**
20 **Order, Amended Order of the previous Order?**

21 A. Yes, it is. And you can, tell that by the Order
22 number, as in the letter A appended to it.

23 **Q. Thank you. Same questions for Exhibit 5. Did**
24 **you compile this exhibit?**

25 A. Yes, sir, I did.

1 Q. And this is second Amended Order?

2 A. Yes, it is.

3 Q. And is it safe to say for Exhibits 3, 4 and 5
4 that the purpose of these exhibits is just to provide the
5 background information related to the affected acreage?

6 A. Yes, it is, sir.

7 Q. Thank you. I will draw your attention to what
8 is labeled Griswold Exhibit 6. Did you compile this
9 exhibit?

10 A. Yes, I did.

11 Q. What is this exhibit?

12 A. This is an application for permission to drill
13 for one of the wells associated with that compulsory unit
14 that we discussed in the prior exhibit.

15 Q. And this exhibit provides the information about
16 the surface hole location and laterals?

17 A. Yes, it does.

18 Q. Thank you. I'll draw your attention to Griswold
19 Exhibit 7. Did you compile this exhibit, as well?

20 A. Yes, I did.

21 Q. And what is it?

22 A. That's a Summary Notice from SPC changing the
23 name of that well.

24 Q. The purpose of this exhibit is to provide
25 clarification as to the wells in question?

1 A. Yes.

2 Q. Naming them. Thank you.

3 I will draw your attention to Griswold
4 Exhibit 8. Did you create this exhibit?

5 A. Yes, sir, I did.

6 Q. And what is it?

7 A. It's an aerial image of a portion of the
8 southern portion of Carlsbad it shows not only the
9 location of the brine cavern that we're trying to fix but
10 also generally speaking the approximate location of the
11 laterals for the two wells. As we see there's plenty of
12 drilling in the spacing unit.

13 MR. TREMAINE: And I guess I should have asked,
14 Mr. Hearing Examiner, if it's all right to share certain
15 of the exhibits, as I reference them.

16 EXAMINER BRANCARD: Okay. I didn't realize you
17 had the authority, but sure.

18 MR. TREMAINE: I can proceed by question, but I
19 thought for this one I might share it. It seems to have
20 let me.

21 EXAMINER BRANCARD: Please proceed.

22 MR. TREMAINE: Thank you.

23 Q. Mr. Griswold, can you please describe on
24 Griswold Exhibit 8 the location of the brine well relative
25 to the location of both the surface hole location of the

1 **two proposed wells and the laterals?**

2 A. Okay.

3 EXAMINER BRANCARD: Mr. Tremaine, I think we are
4 looking at Mr. Rucker's testimony right now.

5 MR. TREMAINE: Well, that doesn't work.

6 **Q. Is it visible now?**

7 A. Yes.

8 **Q. Okay. Thank you. I'll keep these on this**
9 **screen.**

10 So back to my question, Mr Griswold. Can
11 you please just orient us to the location of the brine
12 cavern, the surface hole locations for the referenced
13 wells, the laterals, and the relative distances between
14 those points.

15 A. Certainly. The brine cavern project itself is
16 in the lower-right-hand corner of the aerial image there,
17 and it's labled "Brine Cavern". That's the south-lying
18 Carlsbad, intersection of 62/180 and US 285.

19 The two red lines you see going laterally
20 across the diagram are the approximate locations of the
21 laterals associated with two proposed oil and gas wells.
22 The upper one labled Caveman 402H, the surface location
23 would be on the east end, which would be the right-hand
24 side, and then the final bottomhole location would be to
25 the west on the left-hand side.

1 So basically what I just did was
2 plotted those two points and connected the dots, so to
3 speak, and that's why you see that red line, which would
4 suggest where that lateral would be.

5 The same thing goes for the next red line
6 below it, the Caveman 7 12 WCD3H. So its surface location
7 is situated a little bit further east than the 402H but
8 extends about the same distance westward.

9 The distance closest approach to the brine
10 cavern for both those wells is approximately 1700 feet --
11 or excuse me, 17,000 feet.

12 **Q. Thank you. While we are on this slide could you**
13 **please, at a very high level, describe the development**
14 **that you see on this map, on this exhibit, which overlies**
15 **the brine cavern.**

16 A. This is within the City limits of Carlsbad, so
17 there's a mixed use across that area. There's
18 residential, there's commercial, there's the highways I
19 mentioned. You can kind of see it snake across the image
20 from the upper left to the lower right. It is the
21 Carlsbad Irrigation District main canal.

22 So it's basically like a developed portion
23 of Carlsbad.

24 **Q. All right. Thank you very much. Stop sharing.**

25 **And Mr. Griswold I would draw your**

1 attention to, looks like Griswold Exhibit 9. Did you
2 compile this exhibit?

3 A. Yes, I did.

4 Q. And what is it?

5 A. This is a letter from SPC to the Division
6 stating their intention to drill, proceed with the Caveman
7 402H.

8 Q. And while we are here, without getting into too
9 much detail, when did you -- on what date did you first
10 become aware of oil and gas activity of any kind which you
11 believed could pose a threat or an impact to the Carlsbad
12 brine well?

13 A. April 14th of this year, 2021.

14 Q. And is it accurate to state that the letter
15 which is Exhibit 9 represents the date on which you became
16 aware of the SPC wells which we referenced?

17 A. Yes, it did.

18 Q. I'm sorry. What was that?

19 A. Yes, it would represent the day that I became
20 aware. June 7th.

21 Q. Okay. I want to draw your attention to Griswold
22 Exhibit 10. Did you compile this exhibit?

23 A. Yes, sir, I did.

24 Q. What is it?

25 A. That's an Emergency Order from the Director of

1 the Division to SPC to suspend drilling of the Caveman
2 402H.

3 Q. And I want to draw your attention to the last
4 exhibit, Griswold Exhibit 11. Did you compile this
5 exhibit?

6 A. Yes, sir, I did.

7 Q. What is it?

8 A. It's the application or permit to drill for the
9 second well, the Caveman 7 12 WCD 3H.

10 Q. And the purpose of this exhibit is to provide
11 background information about the surface hole location
12 and lateral extent of the second proposed well?

13 A. Yes, it is.

14 MR. TREMAINE: Okay. Thank you.

15 Mr. Hearing Examiner, after moving through
16 those, I would move to admit Griswold Exhibits 1 through
17 11.

18 EXAMINER BRANCARD: Mr. Rankin?

19 MR. RANKIN: No objections.

20 EXAMINER BRANCARD: All right. Those exhibits
21 are admitted.

22 Q. Mr. Griswold I have a couple of general
23 questions for you related to the brine well and the
24 general history of it.

25 You had just referenced that you became

1 **aware of oil and gas activity that you felt could threaten**
2 **the integrity of the brine well remediation project in**
3 **April of this year. What was that activity that you**
4 **became aware of.**

5 A. I received a phone call, if I remember
6 correctly, from an inspector down in that part of the
7 state telling me that a well had recently been drilled and
8 completed in proximity to the brine cavern. It wasn't
9 either of the SPC wells we are talking about here, it was
10 another operator. And the surface location there was
11 probably about a mile southeast of the brine well
12 location.

13 Q. Did that notification trigger any follow-up or
14 review of other current or proposed activity in the area?

15 A. Yes, it did.

16 Q. And you had indicated that the June letter was
17 the first time in which you became aware of the particular
18 SPC wells which we are here about today?

19 A. Yes.

20 Q. Okay. All right. In looking at these exhibits
21 is it fair to say that you are generally familiar with the
22 acreage affected by the Caveman project?

23 A. Generally, yes, I am.

24 Q. Is it also fair to say that based on your
25 understanding of the brine well and within the affected

1 acreage, that you would have concerns for the stability of
2 the cavity regardless of the orientation of those wells
3 within the affected acreage?

4 A. Yes, I would have concerns.

5 Q. And same question: Would you still have
6 concerns if SPC accessed a different producing formation?

7 A. Yes, I still would.

8 Q. So if they changed those from horizontal wells
9 to vertical wells or they moved from Bone Spring to
10 Wolfcamp or vice versa, some other producing formation,
11 the same concerns as outlined in your Direct Testimony
12 would remain?

13 A. Yes, they would, because the proximity of that
14 activity would be the about the same as we see now.

15 Q. Could you please describe the -- briefly
16 describe the current state of the remediation project.

17 A. We paused backfilling operations on the project
18 in July, at the end of July of 2020, due to insufficient
19 funding. We recently, in the last legislative session
20 received additional funds to reinitiate backfilling
21 operations. We are in the process now of finalizing an
22 amendment to the contractor's contract, Wood. That
23 amendment has to be agreed to by the Carlsbad Brine Cavern
24 Mediation Authority. Our meeting is scheduled for the
25 21st of this month to do just that.

1 Anticipating their approval, we have begun
2 remobilization to the site, hope to get started this
3 month. If we can realize the sand injection rates going
4 ahead that we had seen in the prior operations, it is our
5 hope that we would be done backfilling probably in the
6 spring of 2022.

7 **Q. Just for clarity, I'm going to reference the**
8 **direct, the Prefiled Written Testimony.**

9 **The reason -- uhm, the reason that Wood is**
10 **currently undergoing a sand backfill is because in late**
11 **2019 you discovered a previously unknown void space; is**
12 **that correct?**

13 A. Yes, it is. If you would like me explain the
14 situation, I can.

15 **Q. Well, let me ask the question a different way.**

16 **When was that void space detected?**

17 A. December of 2019.

18 **Q. Okay. And that's at the north end of the brine**
19 **cavity?**

20 A. Yes, sir.

21 **Q. And that's directly under, approximately under**
22 **Highway 285?**

23 A. Yes, it is.

24 **Q. Okay. And that discovery precipitated a change**
25 **in the backfill approach?**

1 A. Yes, it did.

2 Q. Okay. Did you also -- in managing this project,
3 did you also later discover an unexpected rate of settling
4 of sand?

5 A. Yes, it did. It's going to require more sand to
6 backfill that void in this northern portion than we had
7 originally anticipated. That was the reason why we had
8 run out of funding in July of 2020. Prior to that we were
9 hoping to get it done, but we were wrong.

10 Q. So the previous change that you had mentioned,
11 this restarting, that's the recalibrated plan, to go back
12 and fill with additional sand, which required more
13 funding?

14 A. Yes, it is.

15 Q. And remind me again when that's expected to
16 start.

17 A. Hopefully here this month of September, 2021.
18 If not September then October.

19 Q. Okay. And then you had indicated a projected
20 completion date in the Spring of 2022. Did I hear that
21 correctly?

22 A. Yes, that's a projection on my part.

23 Q. Okay. Are there any other next steps in this
24 project that as the manager you believe are critical for
25 the hearing examiner?

1 A. Yes. The next field step is to run what is
2 known as a sonar log of that northern void. We ran a log
3 right after we paused injection operations back in July of
4 2020, so we had a good idea of what the void looked like
5 at that time. It's been better than almost a year and a
6 half, year and a couple of months, so the first step will
7 be to rerun a new log to see if mud -- if anything has
8 changed in the intervening time.

9 Q. Okay. And in terms of the -- you know, the
10 project completion, what does it look like to you when --
11 what does a completed remediation project look like?

12 A. I can't get any more sand into the cavern.

13 Q. And just to be clear, that point is the same
14 point as your currently projected completion date?

15 A. Yes.

16 Q. Okay. Is it -- based on your Prefiled Written
17 Testimony and our discussion of the -- and your knowledge
18 of the brine cavern, is it fair to say that your opinion
19 is that any proposed or potential drilling or completion
20 activities within the affected acreage could jeopardize
21 the integrity of the brine cavern?

22 A. Yes, that is my position. Or concern.

23 Q. And if and when -- I should say when the
24 remediation project is completed and you can't fit any
25 more sand into the cavity, do you believe that the

1 completion of that project, barring any other unforeseen
2 events, would alleviate concerns you have related to
3 drilling or completion activities in the area?

4 A. No promises, but that is the hope.

5 MR. TREMAINE: Okay. And I apologize, they are
6 drilling, doing construction in the office here, so please
7 let me know if that interferes.

8 Mr. Hearing Examiner, at this time no more
9 questions for Mr. Griswold.

10 EXAMINER BRANCARD: Thank you. Let's proceed
11 with Mr. Rankin.

12 MR. RANKIN: Thank you very much, Mr. Examiner.

13 Good afternoon, Jim. How are you today?

14 THE WITNESS: Just fine, Adam.

15 MR. RANKIN: Good. I just have a couple of
16 questions.

17 BY MR. RANKIN:

18 Q. I appreciate your review of the timeline for the
19 remediation work. It sounds like it hasn't yet started.
20 Is that right?

21 A. No, it's not yet started.

22 Q. And it won't start until this sonar log is
23 taken?

24 A. Well, nothing will really start in the field
25 until I get an amended contract in place, but, like I

1 said, once that amendment is in place the next step will
2 be to re-enter the well we used for injection of sand, and
3 run a sonar log in the cavern. Hopefully things will be
4 fairly much the same as we left them, and at that point we
5 would start re-injection of sand.

6 Q. So still waiting on an amended contract with
7 Wood to complete this phase of the project?

8 A. Yes. But it's -- I mean, it's on the verge of
9 having that contract agreed to.

10 Q. The next step would be, then, to conduct that
11 sonar study?

12 A. Yes.

13 Q. So that has not been scheduled yet, the sonar
14 itself hasn't been scheduled yet?

15 A. No, sir, it has not.

16 Q. And my understanding is, just so I'm clear, that
17 the Division, or your understanding of when remediation
18 work will be completed is when no more sand can be
19 feasibly injected into the void space. Is that correct?

20 A. Yes.

21 Q. Not that there's some process following that
22 point. The remediation is complete when it will no longer
23 accept sand, or when (inaudible) sand is injected.

24 A. Yeah. Given the way that the injection wells
25 are configured now, that would be the case.

1 Q. Is there something that might change or would
2 change that down the road in terms of when the remediation
3 work is complete?

4 A. Not likely, Adam.

5 Q. Sitting here today, can you think of anything
6 that might cause the remediation work to not be -- not be
7 complete when it's no longer able to receive additional
8 sand?

9 A. Well, assuming that the cavern is pretty much
10 how we left it, that would be the case.

11 Q. Okay. Now, on the resumption of oil and gas
12 activities, I think I understood your testimony that once
13 that remediation work is completed, once the cavern is no
14 longer able to feasibly receive additional sand, then the
15 concerns about impacts to the cavern from oil and gas
16 activity would be addressed. Is that right?

17 A. They would certainly be greatly diminished at
18 that point.

19 Q. But sitting here today you will say that the
20 Division at that point would be ready to approve the
21 resumption of oil and gas activities within the Caveman
22 Unit?

23 A. Well, that would be -- is kind of beyond my pay
24 grade. It would be a Division decision, and I would have
25 input into that decision.

1 Q. But sitting here today you can't say whether the
2 Division would be able to confirm that oil and gas
3 activities could resume at that point?

4 A. No, I can't. I can't guarantee it.

5 Q. And after having the sonar log results back,
6 would you have a better idea of some of the factors that
7 would -- might affect the Division's consideration of
8 whether remediation would be completed at the time the
9 cavity is filled with sand?

10 A. That would be reasonable to assume.

11 Q. In other words, is that a yes, then?

12 A. Yes. I'm sorry.

13 Q. That's all right. All right. Can you say, Jim,
14 whether or not -- you know, the Division's analysis for
15 when oil and gas activities can resume in the Caveman
16 Unit, would it be the same factors, that same analysis
17 that would apply to other oil and gas activities near the
18 brine well.

19 A. Yes, it would.

20 Q. So, in other words there wouldn't be much of a
21 difference in terms of how far away a well was within a
22 certain area. I mean, it's going to be the same factors
23 that are going to be considered by the Division whether
24 any oil and gas activities should be permitted to proceed
25 near the brine well?

1 A. Yeah. It's still that area of potential effect
2 that we are looking at currently.

3 **Q. Just so I'm clear, is there a specific area that**
4 **the Division is evaluating as an area of concern?**

5 A. Yes, there is, but I couldn't tell you the exact
6 extent of it, Adam. My role as project manager is trying
7 to get this brine cavern fixed. That discussion regarding
8 the potential area of concern is being handled by others
9 in the Division.

10 **Q. Okay. So you're not aware of exactly what that**
11 **is.**

12 A. No, I'm not.

13 **Q. Now, look at -- in your testimony you testified**
14 **about this, and I just want to just understand a little**
15 **bit.**

16 But from April 14th -- well, let me step
17 back.

18 Actually, in your testimony you talked
19 about SPC filed its APD and was approved by the Division
20 in November of 2020. Is that correct?

21 A. Looking back at the exhibit, I think you're
22 correct.

23 **Q. Okay.**

24 A. That would be Exhibit 3, and the date of the
25 Order is February 12th, 2020.

1 Q. Okay. And then you discovered through that
2 phone call with an inspector that there was some
3 horizontal wells in the vicinity of the brine well in
4 April of 2021.

5 A. Yes.

6 Q. And then following that you became aware of
7 SPC's proposed plans in June of 2021?

8 A. That's when I became aware of SPC's plan.

9 Q. Right. So what -- so something happened between
10 November of 2020 and, say, June of 2021 that caused the
11 Division, it appears, to take a different position or
12 stance with respect to oil and gas activities around the
13 brine well.

14 What happened? If you can explain, just
15 give us an idea what happened during the interim that
16 caused the Division to changes its position regarding oil
17 and gas activity around the brine well.

18 A. Well, in terms of actual permitting and
19 applications like compulsory pooling stuff, again that's
20 not my ball of wax, in essence, within the Division. But
21 as I was alluding to before, in the late winter of 2019
22 during the course of the backfilling project when we
23 discovered the void, that was actually an indication that
24 the cavern had previously failed catastrophically, it just
25 hadn't propagated itself all the way to surface.

1 So we knew at that point we had, in
2 essence, a more dangerous situation and more immediate
3 situation on our hands.

4 **Q. Okay. And that was the winter of 2019. Then**
5 **since that time was there more information that the**
6 **Division learned that caused increasing concern to cause**
7 **it to change its position with respect to oil and gas**
8 **activities around the brine well?**

9 A. Not increasing, Adam, no.

10 **Q. So from the winter of 2019, so when you learned**
11 **of the horizontal wells within the vicinity, there's**
12 **nothing that really changed in the world, fact-based or**
13 **information-based, that caused the Division to change its**
14 **position?**

15 A. No.

16 **Q. Okay.**

17 A. At least not from my point -- not that I'm aware
18 of.

19 **Q. Is it just you became aware that the wells, more**
20 **wells were being drilled in close proximity to the brine**
21 **well?**

22 A. It's not the SPC wells, but actually two of the
23 planned wells in this area, the laterals went right
24 underneath the cavern.

25 **Q. And what was the Division's response at that**

1 point?

2 A. I guess I'm not sure what the question is.

3 When we discovered that there was planned
4 drilling and completion activities in the proximity of the
5 well?

6 Q. Yeah. Yeah.

7 A. My understanding of it is that -- because within
8 the Division they began talking to those operators.

9 Q. Now we will move on to -- Mr. Griswold, have you
10 had a chance to review SPC's testimony that was submitted
11 in the case?

12 A. No, I have not.

13 Q. Are you familiar with the -- so you're not
14 familiar with any of the testimony that was offered by
15 SPC?

16 A. No, I am not.

17 Q. Okay. In the Division's Application -- do you
18 have that in front of you by any chance?

19 A. Yeah. The Application for this hearing?

20 Q. Yes. And I'll just (inaudible) the Amended
21 Application I'm referring to.

22 A. No, I don't have it, but if you have got it I
23 guess you could put it up on the screen.

24 Q. Okay. If I can get that real quick.

25 Let me know when you can see my screen.

1 A. I can see it now, Adam.

2 Q. Great. So there are a couple of places in the
3 Amended Application where, you know -- originally the
4 Division had proposed temporary suspension of SPC's
5 proposed drilling and completion activities. In,
6 particular, in paragraph 26, the Division does say that it
7 has requested and SPC refused voluntarily to temporarily
8 to suspend its drilling and completion activities.

9 Then in paragraph 28, again the Division
10 requested and SPC refused to temporarily suspend its
11 proposed grilling activities.

12 Then also in paragraph 33, with respect to
13 the second proposed well, the Division asked again whether
14 SPC would agree to temporarily suspend its plans to drill
15 and complete.

16 Do you see that in the Application, the
17 Amended Application?

18 A. Yes, I do.

19 Q. So from the Division's perspective, or from your
20 perspective, I would say, would a temporary suspension of
21 SPC's Pooling Order and its associated APDs -- it was
22 originally the Division's plan or proposal to temporarily
23 suspend those Orders and APDs. Wouldn't such a suspension
24 achieve the Division's goals at this point?

25 A. Yes, if that suspension was until we felt that

1 the cavern had been stabilized.

2 Q. So an order that would effectively suspend for a
3 period of time until the Division approves -- confirms
4 that the remediation work is complete and oil and gas
5 activities can resume would achieve the Division's goals
6 in this case?

7 A. It would be acceptable to me. As I said, I
8 can't speak for the Division as a whole on what other
9 factors may go into such a decision, but that's what's
10 driving me.

11 Q. But there is nothing, sitting here today, you
12 can think of that you would be able to distinguish between
13 a temporary suspension that prevents any drilling and
14 completion activities until the Division approves, such as
15 a revocation? Is there any distinguishing difference
16 between the two, at least in terms of the Division's goals
17 of preventing drilling and completions within the affected
18 area?

19 A. Not with the data set in front of me now, no.

20 MR. RANKIN: Okay. I think that's it, Mr.
21 Examiner. I have no further questions and appreciate Mr.
22 Griswold's time and willingness to sit here.

23 EXAMINER BRANCARD: Thank you. Mr. Simmons, any
24 questions?

25 EXAMINER SIMMONS: No, none at this time. Thank

1 you.

2 EXAMINER BRANCARD: Let me just ask one or two
3 questions.

4 CROSS EXAMINATION

5 BY EXAMINER BRANCARD:

6 Q. Mr. Griswold, knowing the status of your
7 proposed contract amendments in the proposal there,
8 starting on the beginning of operations where Wood would
9 be injecting fill into the void, how long is the estimate
10 that it would take to complete?

11 A. The intent right now, or the objective in front
12 of us, is to inject just over 76,000 cubic yards of sand.

13 We have achieved in the past a sustainable
14 injection rate of about 800 cubic feet a day. So if I
15 divide 76,000 by 800 -- I think it's 90, but let's make
16 sure. (Note: Pause.) It's 95 pumping days.

17 Q. Are they going five days a week or seven days a
18 week?

19 A. Presently we are built around a five-day a week
20 schedule due to Covid restrictions and some of our crews
21 travel from out of state and cause some problems.

22 But if we can effectively and efficiently
23 go back to a 24/7 schedule where we really originally
24 started, we will.

25 Q. Okay. So if I do my math correctly here, we're

1 **talking about 19 weeks on a five-day.**

2 A. Yes.

3 **Q. Okay. And your testimony about becoming aware**
4 **of a failure in the cavern in late 2019, is that the**
5 **reference in your Written Testimony to sonar logging that**
6 **showed a cavern failure perhaps as much as 20 years ago?**

7 A. Well, the sonar log actually confirmed it. When
8 we first became concerned is in the drilling program, uhm,
9 when we actually lost what we refer to as weight on bit.
10 We ran into an open void that we didn't expect. It was
11 pressurized with gases and water -- or brine, I should
12 say. And we drilled several holes, saw the same result,
13 decided to pull the sonar log and take a look, and that's
14 when we confirmed the extent and size of the void.

15 **Q. Okay. In other words, the drilling found a hole**
16 **where it wasn't supposed to find a hole.**

17 A. Correct. The assumption going in previously was
18 that cavern was kind of almost dominated by undissolved
19 materials that were unconsolidated. So there would be
20 insoluble materials and lot of it still being salt.

21 So initially what we were intending to do
22 was inject grout into those spaces to consolidate that
23 material and therein provide structural stability.

24 We started south to north in that project.
25 We began in September of 2019, and in those southern

1 portions it worked. We encountered material that we
2 expected, and the grouting procedure worked as
3 anticipated. We were progressing on, so we actually think
4 that the areas in the southern part of the site are
5 stabilized such that the irrigation canal, a trailer park
6 that exists beyond it, and a church property off and to
7 the immediate east are probably out of danger. However,
8 these areas further north, not the case.

9 EXAMINER BRANCARD: Thank you. Mr. Tremaine,
10 any redirect?

11 MR. TREMAINE: Yes, briefly.

12 REDIRECT EXAMINATION

13 BY MR. TREMAINE:

14 Q. Mr. Griswold, I want to clarify your answer to a
15 question of Mr. Rankin's about kind of how the Area of
16 Review, how that's changed.

17 Are you generally aware that your
18 supervisors in OCD leadership are reaching out and
19 communicating with operators in the area?

20 A. Yep.

21 Q. But you are not personally taking part in those
22 communications?

23 A. No, I'm not.

24 Q. So you don't have firsthand knowledge of the
25 content of those communications, but you're generally

1 **aware?**

2 A. I do not have any firsthand knowledge.

3 **Q. Are you generally aware that those discussions**
4 **involve a current three-mile radius of concern?**

5 A. I can't say a three-mile is exactly what they
6 are talking about, but it seems reasonable. In the very
7 earliest portions of this I think we initially just said:
8 Okay. Tell me every well, planned or existing, within
9 five miles of the brine cavern.

10 **Q. Okay. So that when you -- as you were first**
11 **working on the response to the realization there was**
12 **ongoing activity in the area, you first looked at or**
13 **started to look at an area of five miles?**

14 A. Yes.

15 **Q. Okay. I also want to clarify your response to**
16 **anything that's changed since December, 2019.**

17 **The two sonar logs that have taken place,**
18 **am I correct that they both occurred in 2020?**

19 A. Yes. Actually, there were three in 2020.

20 **Q. Could you describe the dates that those sonar**
21 **logs occurred?**

22 A. The first one, if I'm remembering correctly,
23 Jesse, was in January of 2020, and that was the one
24 confirming that we had a void, and where it was and how
25 big it was.

1 I want to say a second set of logs was run
2 in March of that year as a check. We had already started
3 backfilling the sand. It was a progress check on the
4 cavern, and that's when we became aware that we were
5 losing a fair bit of the sand that we were injecting
6 into -- it was infiltrating into a rubble pile at the
7 bottom of it.

8 Then the third sonar log -- actually it
9 wasn't March, it was May.

10 The third and final sonar log was in July
11 after we stopped injection operations to get a photograph
12 of what the status of the brine cavern was when we were
13 pausing operations.

14 **Q. So based on your response it sounds like there**
15 **actually was additional information related to the**
16 **progress of the backfill project relative to what you had**
17 **anticipated. Is that correct?**

18 A. Yes.

19 **Q. The sand was settling much faster and to a**
20 **greater extent than you had anticipated?**

21 A. Yeah, a significant percentage of the sand we
22 were introducing.

23 **Q. Do you recall the percentage of sand lost to**
24 **settling?**

25 A. I want to say it was in the order of about 60

1 percent. But that will decrease over time, and our hope
2 is that we kind of may have met that criteria at the time
3 we stopped pumping in July. So things will hopefully go a
4 lot quicker and we will see more progress, hopefully.

5 **Q. So is it then fair to say there was also**
6 **substantial and significant new information that related**
7 **to the remediation project's progress that you acquired**
8 **throughout 2020?**

9 A. From early 2020 to July when we paused
10 operations, yes.

11 MR. TREMAINE: Okay. Thank you. No further
12 questions.

13 EXAMINER BRANCARD: Thank you. I think we can
14 move then -- do you have another witness, Mr. Tremaine?

15 MR. TREMAINE: Yes, sir. The second witness is
16 Mr. Mike Rucker.

17 MICHAEL RUCKER, PE,
18 duly sworn, testified as follows:

19 DIRECT EXAMINATION

20 BY MR. TREMAINE:

21 **Q. Good afternoon. Switched to afternoon.**

22 **Could you please state your name and spell**
23 **your name for the record.**

24 A. My name is Michael Rucker, M-i-c-h-a-e-l,
25 Rucker, R-u-c-k-e-r, and I go by Mike.

1 Q. Are you testifying on behalf of the Oil
2 Conservation Division today?

3 A. Yes.

4 Q. Did you submit Prefiled Written Testimony for
5 this matter?

6 A. Yes, I did.

7 Q. And do you adopt your Written Testimony today as
8 your sworn testimony?

9 A. Yes.

10 Q. Could you please provide a summary of your
11 education and experience.

12 A. My education -- well, my Bachelor's degree in
13 civil engineering from MIT, Massachusetts Institute of
14 Technology. I got my Bachelor's degree in '76 and then I
15 went back and got my Master's degree from MIT in 1980.

16 Upon completion of my Master's I started
17 work with Searching (phonetic), Hoskins and Beckwith
18 Engineering, which have been acquired by other companies,
19 until I am now -- I now work for Wood, even though the
20 last time I filled out a job application was Christmas
21 break of 1979.

22 So I've been a practicing geotechnical
23 engineer with what is now Wood for 41 years.

24 My focus as a civil engineer has included a
25 lot of engineering geophysics, and in my early days

1 actually I did a lot of vibration monitoring work, also.
2 Now decades later I'm suddenly finding that experience to
3 be useful.

4 Q. Great. Thank you.

5 Could I direct your attention to what's
6 labeled as Rucker Exhibit 1.

7 A. Yes.

8 Q. Is this your Curriculum Vitae?

9 A. Yes, it is.

10 Q. Or I guess you may have labeled it -- okay.

11 And so just overall you have a total of 41
12 years of experience in geotechnical engineering, correct?

13 A. In geotechnical engineering. And that's once I
14 had my Master's. I had a couple of years of experience in
15 between including a mercifully short time with
16 Schlumberger in Monahans in 1976, a little time in the
17 subway tunnels of Washington DC when that was under
18 construction.

19 And then as a student intern with the
20 Arizona Department of Transportation when I was an
21 undergraduate.

22 Q. Okay. Thank you.

23 Remind me what is your current position
24 title with Wood, and please describe how it relates to the
25 Carlsbad brine well.

1 A. I'm a Senior Associate Geotechnical Engineer,
2 and currently for the Carlsbad brine well probably I'm the
3 instrumentation manager, although I've been associated
4 with this project -- I believe I had my first phone
5 conversation with Jim Griswold in 2009 on this, and 2010
6 working for the New Mexico DOT we did surface seismic
7 around the perimeter of the site, checking to make sure
8 that there was not incipient ground cracking which could
9 be a precursor to collapse, which would have impacted
10 Highway 285.

11 When what was then AMEK (phonetic) were
12 awarded the work for -- we were retained to do the
13 feasibility study in 2012 for the remediation of the
14 facility, and I was central to the interpretation and
15 analysis and synthesis of the geophysics, primarily the
16 surface geophysics that had been done to try to
17 characterize the site, and then upon completion of that
18 feasibility study continued on participating in the
19 instrumentation monitoring, microseismic -- an initial
20 microseismic system had been installed and operational by
21 2014. I've been involved with that since the beginning.

22 As we came into being retained to do the
23 remediation, I've been intimately involved with that work.
24 I've seen every foot of core that's come out of the core
25 holes to the enhanced microseismic system.

1 I personally oversaw the geophysical
2 logging that was done for those wells to increase our
3 knowledge, in that every hole drilled, it may have been an
4 instrumentation hole, it may have been a production hole, but
5 it still was an exploration hole. And that goes for the
6 whole GW 4 that hit the 84-foot of open void that early
7 morning. I think it was the early morning of December 4th
8 of 2019. I got the first call from the site at 2:30 in
9 the morning on that. And then I have done the detailed
10 analysis.

11 We had an initial -- the initial sonar
12 survey was done in early January, and we had two holes
13 drilled. We had additional holes drilled in early
14 February, so we could get a better view, and that was the
15 first big, really complete sonar survey.

16 Then the end of May we had a sonar survey
17 and then the final conditions the last week of July.

18 I've been the one who's synthesizing on all
19 of those.

20 **Q. Can I ask -- so it sounds like by my quick math**
21 **that you've been involved in the Carlsbad brine well**
22 **project for approximately 12 years.**

23 **A. Yes.**

24 **Q. Okay. And just to clarify: Is the Carlsbad**
25 **brine well mediation project, over time is it a**

1 **substantial portion of your work portfolio at Wood?**

2 A. Yes, it is. When we were in the active, that
3 really active phase of the feasibility study between
4 2012/2014, it was probably half of my time, and then over
5 the course of the remediation it's about half of my time,
6 also.

7 Other projects I'm deeply involved in,
8 subsidence, land-subsidence work, and then other
9 engineering geophysics.

10 But yes, when this project calls, I'm
11 always there.

12 MR. TREMAINE: Thank you. Mr. Hearing Examiner,
13 at this time I would move for admission of Exhibit 1 and
14 tender Mr. Rucker as an expert in the areas of
15 geotechnical engineering in the Carlsbad brine well.

16 MR. RANKIN: Mr. Examiner, no objection to the
17 admission of Exhibit 1 nor to Mr. Rucker's status as an
18 expert.

19 EXAMINER BRANCARD: Thank you. The exhibit will
20 be admitted, and Mr. Rucker customer is qualified as an
21 expert.

22 MR. TREMAINE: All right. Mr. Hearing Examiner,
23 we intend to move through Mr. Rucker's remaining exhibits
24 as I did with Mr. Griswold, and describe them. These will
25 be in somewhat more detail than many of the prior

1 exhibits. And then I intend to move admission at the end
2 of that process, if that works.

3 We will look to share these slides as we
4 move through, if that is acceptable.

5 EXAMINER BRANCARD: That sounds good.

6 MR. TREMAINE: Thank you.

7 Q. All right. Mr. Rucker, let me see if this works
8 on this screen this time.

9 Do you see on your screen what is labeled
10 Rucker Exhibit 2?

11 A. Yes, I do.

12 Q. Thank you. Did you create this slide?

13 A. Yes, I did.

14 Q. And at a very high level please describe the
15 information relayed in this slide in just a little more
16 detail.

17 A. Without going into great detail, to the right is
18 a plane view of the site. This includes our original, the
19 outline of our original geophysically interpreted affected
20 area, and then also as we have gathered more information
21 on actual known voids, on that map are also locations of
22 microseismic wells. Those are red dots.

23 Borehole tilt meters, ETMs. These are
24 ultrasensitive devices that measure ground tilt. A
25 tremendous amount of information obtained from these

1 devices.

2 The left is the results from the
3 microgravity survey that was done by Sandia Labs. It has
4 always been a very complex and provocative part of the
5 geophysical characterization of this site. And it -- it
6 indicates, without being able to answer, that we are
7 dealing potentially with a very complicated geology.
8 Well, especially for the Delaware Basin.

9 There are aspects of the gravity results
10 that indicate that there has been variable dissolution of
11 the salt formation, possibility of faulting. Just a lot
12 of unknowns on this site.

13 I probably should leave it at that.

14 **Q. Okay. And is my understanding correct that the**
15 **gravity anomaly referenced is overlaid on the half of the**
16 **slide on the right?**

17 A. Yes. Yes. Yes.

18 **Q. And that corresponds roughly with the unexpected**
19 **void space discovered in December of 2019?**

20 A. Yes. What -- yes. What happened was basically
21 there were three data sets that gave us really credible
22 information. There was a two-dimensional, set of
23 two-dimensional seismic reflection profiles; there was --
24 there were high-resolution magnetotelluric surveys; and
25 then there was the microgravity survey.

1 That shape of the -- the original shape
2 that we were working from was basically a compendium of
3 the seismic reflection and the magnetotelluric results.
4 The gravity result was inconsistent with those. The
5 gravity is in the peak on the right, and it always also
6 pointed to the north.

7 When we began to get -- once the original
8 microseismic network was operational, there was more
9 seismic or microseismic activity to the north.

10 So we were suspicious that something was
11 happening in that area. We thought it was down in the
12 salt but we had no way of knowing until we actually got
13 holes in the ground.

14 **Q. Okay. And just to connect some dots and clarify**
15 **here.**

16 **So the gravity anomaly referenced in the**
17 **void space, these overlap, those are on the north end of**
18 **the cavity.**

19 A. Yes. Yes. Yes.

20 **Q. Is it also correct to state that the north end**
21 **of the cavity is the primary focus of the backfill**
22 **operation currently?**

23 A. Absolutely. Yes, absolutely. Even the
24 gravity -- the gravity we surveyed did not put anomaly
25 underneath the highway, so when we first got a sonar

1 survey that said we had void under the highway, that was a
2 very unpleasant surprise.

3 Q. And so --

4 A. We didn't know that until January of 2020.

5 Q. Thank you. I didn't mean to cut you off. Did
6 you have anything else to add?

7 A. No. No, no. That's it.

8 Q. And so if I'm understanding you correctly, the
9 primary focus of filling the unexpected more recently
10 discovered void space discovered probably a year and a
11 half ago, overlaps significantly with this area where you
12 have indications of an unknown but very complex geology.
13 Is that correct?

14 A. Yes. It does. It does.

15 Q. And before we move on -- I think we will touch
16 on this in more detail later but I just want to clarify.
17 What is the primary concern related to any failure or
18 issues with further degradation of the northern void
19 space?

20 A. Okay. Our initial concern on the project, of
21 course, was catastrophic collapse. Uhm, a sink hole, a
22 large sink hole developing on the surface.

23 With the work we've completed so far it
24 looks like we've gotten beyond that being a problem;
25 however, we still have a situation where this void, being

1 in a condition of partial collapse and on small scale
2 continuing to collapse, we are concerned still that the
3 roof may basically work itself up into the fresh water
4 aquifer which overlies -- which overlies the cavity in the
5 site.

6 That could be a very significant problem.
7 The brine is under pressure, and we could have a very
8 significant ground water contamination problem, even if we
9 had no issues in the ground surface.

10 **Q. Thank you. Is it fair to say that while**
11 **contamination of ground water is the primary concern,**
12 **there is also the possible concern of surface subsidence?**

13 A. Oh, yes. Yes. I mean, we're -- we -- we are in
14 a situation now where it would be -- if we had a problem
15 with the surface subsidence, you know it may be on the
16 order of inches as opposed to the initial concern where
17 it may have been tens of feet. But that could still cause
18 issues with varied utility -- that could still be a pretty
19 catastrophic set of problems.

20 Our strategy and the reason that we need to
21 fill this thing up with sand as much as we can is because
22 as the roof continues to collapse, the material bulks.
23 When the rock falls out of the roof and lands on the rock,
24 the rock rubble pile, which is the floor of this thing,
25 the volume that it occupies is larger. And so our goal

1 here is to put enough sand in so that as the roof
2 finally -- continues to collapse and bulk, is that it
3 bulks and naturally fills the rest of the void and becomes
4 stable before we hit that ground water table.

5 That is your goal. When Jim was talking
6 about losing a lot of sand, we were losing -- that was
7 because we were putting the sand on a pile of rock rubble,
8 and a lot of that sand was going into the spaces between
9 the rock particles. That's where we lost so much sand.

10 It was -- my recollection is we put 100,000
11 yards of sand in and had seen 30,000 yards of volume
12 reduction. So about 70 percent of the sand we put in so
13 far has gone into these spaces, but what we have
14 accomplished is we filled those spaces up. So the more
15 sand going in will be on top of already filled space, and
16 that's why we're anticipating the next operation to be
17 more effective.

18 Q. Okay. Thank you.

19 Before I move on to another slide, is there
20 any other geologic significance to this slide that we need
21 to cover?

22 A. I think this is -- this is the primary aspect of
23 it geologically. As you can see, the southern end of
24 this, as Jim had said, it was as we had anticipated, and
25 that has been pretty well remediated so we are not

1 concerned with the loss at the canal.

2 Q. Okay. Thank you. I'm going to move on to what
3 is Rucker Exhibit 3.

4 Did you create this exhibit?

5 A. Yes, I did.

6 Q. And again to start us out, before we get into
7 any greater detail can you just give us a very big-picture
8 explanation of what this exhibit contains?

9 A. What I'm trying to show with this exhibit is
10 that the microseismicity network we've installed onsite
11 is -- it is designed to locate and characterize
12 microseismic events, if you think about magnitude -2 to
13 magnitude 0, maybe upwards to magnitude Doppler 1.

14 It's designed for very small events inside
15 the array of the core hole wells. It is not designed to
16 be able to accurately characterize seismicity that occurs
17 far removed from this site.

18 And so what I have done here is I've
19 found -- well, there is a whole network of seismographs
20 which are designed for regular seismicity. And its Texnet
21 is one part of the consortium. So I went to one of the
22 nearby seismographs that I could download brine history
23 data for a seismic event and could actually analyze it, to
24 be able to demonstrate what we can and cannot see with
25 your system.

1 And specifically there was the magnitude 5
2 earthquake that occurred 75 kilometers south of Carlsbad
3 on March 26th of 2020. Seismicity is a rapidly increasing
4 phenomenon in the area. The fracking and disposing of the
5 waste fluids is -- has increased the seismicity massively.

6 So what I wanted to show in this slide is
7 basically the blue traces are the seismic traces from a
8 nearby seismograph that has the proper frequency range to
9 capture standard seismicity, Magnitude 1.5 up to, I don't
10 know, Magnitude 7 or 8 or so.

11 That's these blue traces, and we're looking
12 at the blue traces at different times here.

13 The orange traces that I have superimposed
14 on that are what our microseismicity system can see, and
15 that's just a high-frequency target of this much larger
16 signal.

17 And on the lower-right corner where I -- I
18 point out that the microsystem cannot see the most
19 significant ground motion. This is to visually show that
20 the largest ground motion that would have been seen on the
21 site, which is a ground motion particle velocity of .023
22 inches per second, was essentially blind to our local, to
23 our microseismic system.

24 What our system could see, and this is the
25 upper-left corner, is unlocated triggers. And a trigger

1 basically is looking at a one-second slice of time, and on
2 March 26th that's the largest of the black -- of the black
3 traces going up. For 117 seconds the system was
4 triggering but it couldn't make sense of it.

5 That's what our system can see, and that's
6 the essence or what this slide is about.

7 Q. Okay. So when you say that your system is
8 intended to pick up these smaller magnitude events within
9 the network, I just wanted to clarify that.

10 Are you looking for -- specifically in
11 terms of this design, what type of events within the
12 cavity are you looking for when you use this system?

13 A. Ah. Thank you.

14 We're looking for rock fracturing. As
15 stresses and strains occur, local rock failures happen.
16 What we're looking for is analogous to -- go back to old
17 movies in the underground mine with the timber supports.
18 The miners are in there, and when the timbers start
19 groaning and creaking and cracking, that's telling them
20 it's time to get out of the mine. It's the rock version
21 of that groaning and creaking and cracking that the system
22 is designed to pick up and monitor.

23 Q. Okay. And one more clarifying question here.

24 So these events that, uh -- larger
25 magnitude events and events occurring outside of the

1 network, so not within the brine well cavity, as I
2 understand your explanation here, and correct me if I'm
3 wrong, you can see those to some extent but you can't
4 accurately measure where they are or the full extent of
5 those events.

6 A. That's correct. What we see are -- we see an
7 excess number of triggers. We know something has
8 happened. So what we then do, is we go to the U.S.
9 Geologic Survey website, Earthquakes Today, and we look
10 and we see what has happened.

11 Also our bore hole tilt meters are so
12 sensitive that they pick up the ground tilt that results
13 from these earthquakes, and so when we do our morning bore
14 hole tilt meter check, we look in: Oh, okay. We had some
15 seismic event. And then that also tells us to go and look
16 at the standard roof of the cavity.

17 Q. Thank you. Is there any other information on
18 this slide that you believe is important to point out to
19 the hearing examiners and to SPC?

20 A. I think I've covered the essence of it.

21 Q. Thank you. I'm going to move on to what's
22 labeled as Rucker Exhibit 4. You created this slide?

23 A. Yes. Yes, I did.

24 Q. Okay. And same question: Please describe in
25 high-level detail what the information indicates on this

1 **slide.**

2 A. Yes. Basically on the left is the initial
3 monitoring, microseismic monitoring system that was
4 installed and operational in 2014. It's the four push
5 pins, the IWMS 1, 2, 3 and 4, and those are the stations
6 that were used for monitoring microseismic (inaudible).

7 (Note: Reporter interruption.)

8 EXAMINER BRANCARD: Mr. Rucker, you're audio is
9 really breaking up.

10 THE WITNESS: Let me turn my video off. Thank
11 you.

12 (Note: The record was read.)

13 A. (Continued) Stations 1, 2, 3 and 4 were the
14 original microseismic network that was operational in
15 2014. Wells -- the sensors in Wells 1, 2 and 3, those
16 wells are as deep as 400 feet, and we had a set of sensors
17 in those wells. Well 4 was 700 feet deep, and so we had a
18 deeper sensor array in Well 4. That's what we used for
19 the initial work.

20 And then in 2019 we installed the enhanced
21 microseismic system that's on the right, and that's the
22 core holes which are the dark, the dark circles, and
23 that's 6, 7, 8, 9 and 10. And those were installed close
24 to our brine cavity footprint, and so they are able to
25 respond -- they are much more sensitive to microseismic

1 events immediately around the cavity. They can locate
2 these events to a much higher degree of accuracy, and they
3 can get down below magnitude -2 in their work.

4 That's really all I wanted to show in this
5 slide.

6 Q. Okay. Thank you. While you're stopped, I just
7 wanted to address...

8 Mr. Hearing Examiner, I'm fine with moving
9 forward without Mr. Rucker's video. I just wanted to make
10 sure that's okay for the proceeding.

11 EXAMINER BRANCARD: That's fine. Thank you.

12 MR. TREMAINE: Thank you.

13 Q. All right. I will move on to Rucker Exhibit 5.

14 Mr. Rucker, did you create this slide?

15 A. Yes, I did.

16 Q. Okay. The same question: Please describe the
17 information contained in the slide.

18 A. Yes. What I've -- this slide was to visualize
19 changes in the geometry of the brine cavity between the
20 early February sonar survey and the late May sonar survey.
21 It's -- on the right is a change in the floor, in the
22 floor of the cavity.

23 I have other slides that I did not include
24 in this, which included the roof.

25 But the essence of what I wanted to show is

1 there were changes to the geometry of the cavity floor
2 between February and May. The areas in red -- and on the
3 left you can see a north/south profile of this space. The
4 areas in red are areas where sand -- where sand had been
5 deposited and we could tell that it had been deposited.

6 The B areas, which are in white, are areas
7 where the floor of the cavity was essentially unchanged.

8 The D areas in purple are areas where the
9 floor of the cavity had measurably collapsed.

10 And if you look at the profile, on the
11 north end of the profile, right part of the profile, some
12 of that ground had dropped as much as -- the floor of that
13 cavity had dropped as much as 20 feet, and the most likely
14 sourced reason for this was that Magnitude 5 earth that
15 happened on March 26th. That's the largest event that we
16 have seen. And it's entirely possible that more, perhaps
17 much more of the void floor had collapsed but was later
18 covered over by sand. So we don't know if that was the
19 case.

20 But this is -- this is -- this is clear
21 evidence of likely effect of seismic activity, and that's
22 the essence of what I wanted this slide to say.

23 **Q. Okay. And just to clarify. Your thinking and**
24 **your describing this in this manner is based on the**
25 **occurrence in time of the two sonar surveys and the**

1 **Magnitude 5 earthquake which happened in between?**

2 A. Yes.

3 **Q. And am I understanding correctly that you do not**
4 **have information to suggest any other cause?**

5 A. Uhm, that would be the most likely. That would
6 be -- that would be the most likely cause. That was a
7 significant amount of energy.

8 Uhm, at this -- you know, the fact I'm
9 unable to see or inspect really limits what we can
10 understand, but a Magnitude 5 earthquake was certainly a
11 likely cause.

12 **Q. Okay. Thank you.**

13 **And the clarification on your previous**
14 **statement about the amount of floor movement and the sand,**
15 **am I understanding correctly that after whatever the**
16 **combined floor movement was and the sand, that's -- and**
17 **the sand bringing up the floor, that is how you got to the**
18 **estimates that you have for the floor movement. Correct?**

19 A. Yes. Yes.

20 **Q. So absent -- what I'm getting at is: Absent the**
21 **sand, the floor moved at least as much as you have**
22 **measured here.**

23 A. Yeah. Yes. There are areas where the floor may
24 have moved, but we could not see it because it's been
25 covered over.

1 **Q. Okay. Thank you.**

2 **Anything else of geologic significance here**
3 **before I move on?**

4 A. I could mention quickly the purple D at the
5 bottom. That was a portion of floor that subsided between
6 January 8th -- the January 8th survey and the early
7 February survey, and that likely was due to initially we
8 were using GW-7, which is a well nearby, as a brine source
9 for our operations, and it's possible that pulling brine
10 out of that well could cause some of the floor material to
11 be sucked and moved. So that caused us to change where we
12 pulled our brine from for our slurry operations to avoid
13 that kind of problem.

14 But that does indicate that the floor --
15 that the floor could be very sensitive.

16 **Q. Okay. Thank you. I will move on to what has**
17 **been labeled Rucker Exhibit 6.**

18 **Did you create this slide?**

19 A. Yes, I did.

20 **Q. Okay. And please describe generally the**
21 **information contained in the exhibit.**

22 A. What I'm trying to do is I'm trying to put
23 together events at the brine cavity with regional
24 seismicity. And so the regional seismic- -- and this is
25 from 1989 to 2013. There's another exhibit, Exhibit 10,

1 which covers 2014 to the present.

2 There were five seismic events of
3 Magnitude 4 or larger to the northwest of Carlsbad between
4 1999 and 2013, and there were a few other seismic events
5 in the Magnitude 3 range, but not very many. So in the
6 end of 1999 Eugenie 2 was discovered to be leaking. Then
7 it was abandoned. Operators restarted single-well
8 operations.

9 We've had -- we had at least two fairly
10 substantial Magnitude 4-plus earthquakes before the I&W
11 well was shut in and abandoned in 2008.

12 Then in 2009 we started monitoring,
13 monitoring again with tilt meters in 2010. After the 2010
14 survey we had pressure monitoring. So by 2010 we had at
15 least some degree of monitoring on the system. And then
16 our surface surveys occurred in that time range.

17 This basically lays out a timeline of
18 different events that sort of gives us a window of when
19 the major partial collapse may have occurred. We don't
20 know when it occurred.

21 **Q. Could I just stop you to clarify?**

22 A. Yes.

23 **Q. Could I just interject to clarify what would you**
24 **currently identify as that window for the first major**
25 **collapse.**

1 A. Somewhere between 2000 and 2010.

2 **Q. Okay. And just to clarify the timeline**
3 **somewhat, Woods and your involvement in this project began**
4 **in 2009?**

5 A. Well, we first were talking about it in 2009 but
6 my first participation was in 2010.

7 **Q. Okay. Thank you.**

8 A. By 2010 we had pressure monitoring, and a major
9 collapse should have -- should result in a large signature
10 of pressure change. We haven't had one, so that is the
11 basis for thinking that the major collapse occurred, or
12 partial failure really happened before 2010.

13 **Q. Is there any significance to the cementing**
14 **operation referenced in the exhibits?**

15 A. The Eugenie 2 cementing operations, the records
16 of those operations indicated that cementing occurred at
17 depths that are currently void, so the void probably
18 wasn't there when Eugenie 2 was cemented in. So that's
19 sort of in the starting to time to brand when -- well, the
20 starting time for the collapse.

21 **Q. Okay.**

22 A. That was the major -- that's the major.
23 Operations at Eugenie 1, which is where the
24 focus of operations were because you could get to
25 Eugenie 1, really had nothing to do with the void. We

1 weren't looking into -- that was not in the void area.

2 Q. Okay. Thank you. I just want to, you know,
3 clarify the intent of this slide. Am I correct in stating
4 that this is meant for informational purposes but is
5 not -- it's not a statement that you can attribute any
6 particular causality to that major partial collapse?

7 A. That is correct. That is correct. It also
8 gives us an indication of how sparse seismic activity was
9 at that time. When we look at the recent seismic you see
10 how things have really changed in the region.

11 Q. Okay. Thank you.

12 I'm going to move to Rucker Exhibit 7.

13 Did you create this slide?

14 A. Yes, I did.

15 Q. Please describe the information contained in the
16 slide.

17 A. The primary information that I wanted to show in
18 this slide was again to tie seismographs, seismograph
19 results that are designed to measure regional seismicity
20 down, because again we can't get that kind of information
21 from the site.

22 This exhibit actually ties in with
23 Exhibit 11, but we had -- there were two earthquakes that
24 day. Earlier in the morning there was a Magnitude 3.8
25 event. The measured ground motion that that seismograph

1 NM03's location, you can see that relative to Carlsbad and
2 to the seismic event. You know a Magnitude 3.8 event
3 ended up with .0035 inches per second of ground motion
4 velocity, and the Magnitude 5 event .023 inches per
5 second, more than a factor of 10 higher, and you can also
6 see the ground motion shaking lasted for a much longer
7 period of time.

8 Q. Okay. Is the purpose of this exhibit primarily
9 to demonstrate the difference in ground movement between
10 the relative magnitude of these two events?

11 A. Yes.

12 Q. Okay. In terms of the ground motion, ground
13 displacement, can you provide any more insider detail into
14 the degree of ground motion or ground displacement that in
15 your opinion poses a threat to the stability of the
16 cavity?

17 A. Well, the ground -- ground motion velocity
18 relates to the ground strain, and strain is -- strain and
19 stress are related. The ground motion velocity does
20 relate to strain, so the higher the ground motion velocity
21 the higher the ground strain is occurring, and obviously
22 the more strain the ground encounters the more likely you
23 are to have a problem.

24 I anticipate with the brine cavity what
25 we're looking at here is an accumulation of strains on the

1 rock mass supporting this cavity, and eventually you can
2 end up with the straw that breaks the camel's back. It
3 doesn't have to be the largest event, it just has to be
4 the event that happens at a critical time that -- well,
5 that something may be ready to fail.

6 **Q. Thank you. Any other significance to this slide**
7 **before you move on?**

8 A. I think these are the primary, these are the
9 primary issues. You'll see at the end where this data
10 fits in with the predict -- with the predictive formulas
11 for particle velocity as a function of magnitude and
12 distance.

13 **Q. Thank you. I'm going to move on to Rucker**
14 **Exhibit 8. Did you create this slide?**

15 A. Yes, I did.

16 **Q. And please describe what you did to create this**
17 **slide and what you're depicting in the slide.**

18 A. Okay. This slide -- these are part of our daily
19 reports from our daily instrumentation, daily
20 instrumentation monitoring reports. Those are borehole
21 tilt meter traces. Borehole tilt meters, they're
22 installed about 20 feet below the ground and they measure
23 ground tilt. These are ultrasensitive instruments. The
24 full scale, the full vertical scale on these plots is what
25 we would call 10 microradians where a microradian is the

1 equivalent of going a distance of 1,000 feet, and then
2 dropping vertically 1,000th of a foot or .012 inches.
3 These instruments are phenomenally sensitive.

4 But they do show the response of the
5 instruments to different earthquakes. As it happens
6 between March 24 and March 28, 2020, there was a Magnitude
7 7.5 earthquake in the Kuril Islands, that's north of Japan
8 and Russia, and the Magnitude 7.5 earthquake was clearly
9 picked up by these borehole tilt meters.

10 Then on the 26th of March you can see the
11 Magnitude 3.8 earthquake, and then also the Magnitude 5.0.

12 Now, the 3.8 earthquake did not go off
13 scale for those tilt meters. The Magnitude 5 event, uhm
14 where full scale on this plot is 10 microradian, full
15 scale with -- or the magnitude of that Magnitude 5 event
16 was as much as 191 microradian that the ground tilted. It
17 really shook the ground.

18 Also, these tilt meters show very small
19 permanent ground displacements. Those are circles, and
20 some of them may be delayed responses to earthquake
21 shaking. Because it doesn't have to happen at the same
22 time. You can have the shaking first. That builds up the
23 stress and strain in the ground, and then have that strain
24 relieved later, maybe a few hours later. But I've got
25 some of those shown here.

1 And this is to show that these seismic
2 events do cause measurable tilt if you have a
3 sensitive-enough instrument. The ground does respond to
4 it both dynamically, and then at times you can have
5 permanent displacement.

6 **Q. I apologize if I just missed this in the**
7 **beginning of your response, but I want to ask you if**
8 **there's anything you need to explain -- basically what is**
9 **the difference between blue and green?**

10 A. Oh, I'm sorry.

11 The blue trace is the tilt in the east/west
12 direction; the green trace is tilt in the north/south
13 direction. That's what that is. So these are
14 measuring -- these are measuring basically two axes of
15 tilt. This blue is for the east/west, green to the
16 north/south.

17 Also the daily oscillation, the variation
18 that you see in some of these instruments, uhm, that's
19 most likely due to loading effects of the daily earth and
20 atmospheric tides on the ground, on the ground loading.

21 These instruments are sensitive enough to
22 see earth and atmospheric tides.

23 **Q. Okay. And is there any significance related to**
24 **elastic movement, as opposed to permanent displacement?**

25 A. Yes. The elastic movement, and you can see

1 that, that's basically after the earthquake vibration
2 comes back to its original position. The dynamic -- well,
3 you may end up with some energy built up in the system
4 that can cause a permanent displacement later, but the
5 permanent displacements are maybe -- that's where the
6 ground has moved. In these cases it has moved on a
7 microscopic scale, but as you continue, as those very
8 small movements continue to build, eventually you get to a
9 macro condition and a failure, a rock failure.

10 **Q. Is there any association between, uh -- related**
11 **to when you see elastic versus -- you know, elastic**
12 **movement versus permanent displacement?**

13 A. Well, you would see -- if the permanent
14 displacement is related to elastic movement, elastic
15 loading, the elastic loading has to happen first. And so
16 if we look on the leftmost of these traces, we have -- we
17 have on the blue trace, I have a circle they "likely
18 related." Shortly after, shortly after the Magnitude 5
19 event we had a fair amount of permanent displacement. On
20 the green trace below we had a little bit of permanent
21 displacement occurred during that earthquake, and then a
22 little more delayed by maybe a couple of hours. Where I
23 have circled "less likely related," either that's a
24 permanent ground motion due to something else, or a more
25 delayed response from that Kuril Islands earthquake.

1 You can see similarly in the middle traces,
2 you can see a permanent displacement that happened a few
3 hours after the magnitude 3.8 event, and then in the
4 rightmost trace you can see another displacement in the
5 green trace that happened well after the Magnitude 5
6 event.

7 But again it may be accumulated strain
8 that's now been released.

9 **Q. Is there any kind of relationship between what**
10 **type of movement you would expect, and as opposed to the**
11 **magnitude of the event, rather associated with the**
12 **proximity of the event?**

13 A. Well, that gets to scaling. In --

14 **Q. Is that something that --**

15 A. Yeah, that Exhibit 11. You can see that the
16 Magnitude 7.5 halfway around the world does show up, and
17 it may be comparable in size to a Magnitude 3.8 75
18 kilometers away.

19 **Q. Thank you. In that case I'll move on to keep us**
20 **on track here.**

21 A. Yeah.

22 **Q. So Exhibit No. 9, did you create this exhibit?**

23 A. Yes, I did.

24 **Q. All right. Please give us a brief outline of**
25 **the information contained in this exhibit.**

1 A. Okay. Well, let's start on the right side,
2 because this is closure on the relation of seismicity and
3 permanent displacement. Just I wanted to show an
4 example -- this is in July of this year -- where we did
5 have a permanent displacement that was -- that did
6 correlate in time with the Magnitude 3.4 event. Again,
7 this is 75 kilometers south of Carlsbad, and 65 kilometers
8 south of White City.

9 There is an example or where we do have a
10 have a direct correlation.

11 And then also it is very useful to say:
12 Oh, and we had a Magnitude 6 earthquake, and that was in
13 California, and that's also a similar magnitudes to the
14 Magnitude 3.4 that's obviously much closer.

15 That's closure on the borehole tilt meter.

16 On the left I have plotted the pressure
17 history of the annulus pressure sensor at Eugenie 1. This
18 has been our primary brine pressure monitoring point
19 for wells since 2010, and so it's very important to keep a
20 an eye on this.

21 And I just wanted to show different aspects
22 of variations in brine pressure, because brine pressure,
23 brine being part of the mechanism that's holding this
24 cavity open. Changes in the brine pressure also induces
25 changes in stresses and strains on the cavity.

1 And, as it happened, we had a change in
2 trend of what was happening with the pressure between the
3 26th of March of this year and the end of April.
4 Apparently there was drilling in the vicinity of the well
5 during that time, and during that time we had a pressure
6 drop of almost .7 psi, as measured at the Eugenie well,
7 and after that drilling activity ceased we had some
8 recovery.

9 **Q. And did --**

10 A. This is related to --

11 **Q. Can I interject with a question here?**

12 **So, first of all, do I adequately**
13 **understand your testimony that in addition to seismicity,**
14 **pressure changes in the brine well could pose threats to**
15 **the stability of the cavity?**

16 A. Oh, yes. Absolutely. Yes.

17 **Q. Okay. And that --**

18 A. It's changing the stress and strain. It's
19 changing the stress reading.

20 **Q. Thank you. And in this particular case you**
21 **noted drilling in the vicinity. Do you know which wells**
22 **were being drilled?**

23 A. I do not. I was -- I was asked by Jim to check
24 and see what our pressures -- what happened to the Eugenie
25 pressure between March 26th and the end of April, and so I

1 first looked at that time period, and: Well okay,
2 pressure dropped some. Then I looked at a larger time
3 interval, and it's like: Okay. Pressure sort of came
4 back up after that.

5 Q. So I just want to clarify --

6 A. I don't want to --

7 Q. Sorry. I just wanted to clarify that in my
8 understanding that your -- your understanding that there
9 was drilling taking place was based on information that
10 you received in your request from Mr. Griswold?

11 A. Yes.

12 Q. Okay. And you didn't actually look into,
13 personally look into which particular wells were being
14 drilled or their proximity?

15 A. No.

16 Q. Okay.

17 A. No, I did not.

18 Q. I just wanted to clarify that.

19 Okay. I think we've covered this slide.
20 Anything you need to add?

21 A. Uh, well, let me add: When you go further left
22 there are other reasons that pressure can change, and I'm
23 showing that some of that -- some of those reasons.
24 There's certainly many possible causes.

25 (Note: Reporter inquiry.)

1 MR. TREMAINE: Thank you. Understood.

2 I'm going over with the second witness. I
3 apologize. I'm trying to move this along efficiently
4 here. I underestimated the time a little bit for this
5 one. I'm agreeable to a break, but we have two more
6 exhibits, and then about five general questions, which I
7 think will go faster.

8 EXAMINER BRANCARD: Why don't we take a
9 10-minute break here. 3:30. Thank you.

10 (Note: In recess from 3:20 p.m. to 3:30 p.m.)

11 EXAMINER BRANCARD: Mr. Tremaine, are you ready?
12 We seem to have two more exhibits. I hope we're coming to
13 some of conclusion here.

14 MR. TREMAINE: Yes, we can move on pretty
15 quickly here.

16 Thank you for everyone's attention. The
17 second half did go longer.

18 All right. You should be seeing what is
19 labeled as Rucker's Exhibit 10.

20 **Q. Mr. Rucker, did you create this exhibit?**

21 A. Yes, I did.

22 **Q. All right. And please briefly describe the**
23 **information contained in the exhibit.**

24 A. This exhibit shows the microseismic history that
25 we've recorded at the site. Those are the small blue dots

1 starting in 2014, continuing to the present. It also
2 shows the regional seismicity, which are the larger yellow
3 dots. And essentially we have a massive increase in
4 regional seismicity that really didn't get started until
5 2020. This plot actually goes through May 22nd. It has
6 four events that were Magnitude 4 or higher.

7 I just checked today on the USGS site.
8 Since May 22nd we've had five more seismic events of
9 Magnitude 4 or greater that have happened.

10 So the seismicity is increasing rapidly in
11 this region.

12 **Q. Is the --**

13 **A. At the -- sorry. Go ahead.**

14 **Q. That's quite all right.**

15 **Is the increase in seismicity a concern for**
16 **the brine well because of potential cumulative impacts of**
17 **different seismic events?**

18 **A. Oh, yes. Oh, yes.**

19 **Q. Is there an issue -- can you articulate an issue**
20 **related to accumulation of these regional seismic events**
21 **in combination with more-local, smaller seismic events,**
22 **such as would be created by fracking, or completing, or**
23 **for that matter, drilling an oil and gas well?**

24 **A. Well, as we -- as these events continue and as**
25 **the cavity continues to -- the rock mass continues to**

1 creep and develop, at some point more roof failures can be
2 anticipated, could be expected. And the more that that
3 roof condition in its very delicate state gets shaken and
4 stressed and strained before we get this void filled, the
5 more likely we are to have more roof failures and we
6 lose -- we lose roof that we really want up there to
7 protect the ground water.

8 Q. Thank you. And have you documented or noted any
9 shifting or creep in the roof structure over the void
10 space?

11 Yes. Yes. We've had, when I compared the sonar
12 surveys, somewhere around 1,000 cubic yards of material in
13 a period of six months is my estimate of how much material
14 has fallen, which if you extrapolate that forward, about
15 2000 cubic yards a year that --

16 Q. In addition to -- Sorry.

17 A. No, go ahead.

18 Q. Let me ask a follow-up question.

19 In addition to rockfall, have you observed
20 any creeping or buckling of the roof?

21 A. What we've observed is in our access wells that
22 apparently -- and this is at a depth of about 315 feet, a
23 clay (inaudible) horizon -- our access wells, our GW wells
24 need to be reamed out. Actually, before we can do --
25 before we can do this survey, this next sonar survey,

1 these holes will probably have to be reamed out first,
2 because basically there's a horizontal, apparently a
3 horizontal movement occurring across -- probably at that
4 depth. We've observed this between the May and the July
5 surveys.

6 **Q. Okay.**

7 A. That's another indication. And also the
8 borehole tilt meters are showing a gradual tilt in the
9 whole regional rock.

10 **Q. Thank you. Back more specifically to this**
11 **slide, is it fair to say this slide represents, one, the**
12 **rapid, significant increase in regional seismic events?**

13 A. Yes.

14 **Q. And that increase in regional seismic events**
15 **correlates in time to observed changes in the roof**
16 **structure or the floor structure and rockfall events?**

17 A. It does correlate to them, but we don't have
18 any -- we have no sonar surveys to compare with before
19 this seismic activity really got started. We don't have a
20 pre-seismic increase in seismic activity based on it.

21 **Q. Thank you. I'm going to move on to Rucker**
22 **Exhibit 11. Did you create this slide?**

23 A. Yes, I did.

24 **Q. And before we get started you will note down**
25 **here under the measured PGV there's a reference to**

1 **Exhibit C. Does that represent a clerical error in the**
2 **slide?**

3 A. That represents an error. That should be
4 Exhibit 7.

5 **Q. Okay. Thank you. Could you give us a very**
6 **high-level description of the information presented on**
7 **this slide.**

8 A. Yes. What I'm demonstrating is the relative
9 equivalent of peak particle velocity or peak ground
10 velocity as a function of moment magnitude, magnitude of
11 an earthquake or a seismic event and it's distance. And
12 that's essentially what we are doing. If you look in the
13 lower-left corner you can see that at a distance of 75
14 kilometers, which is the distance to the field where we
15 have so much activity occurring, Magnitude 5, 4 and 3, we
16 have estimated the particle velocity based on -- based on
17 that. And if you go to a much closer, which is our
18 fracking-type distance, 3.3 kilometers, Magnitude 3, 2, 1,
19 we are really in the same ballpark. A Magnitude 3 event
20 at 3.3 kilometers is more than half of the ground motion
21 of a Magnitude 5 event at 75 kilometers.

22 **Q. So can I clarify that this slide stands for the**
23 **proposition that smaller events closer in proximity to the**
24 **brine well could have a same or similar effect to more**
25 **significant events such as the regional seismic events of**

1 **larger magnitude farther away?**

2 A. Yes, that's possible.

3 **Q. Is it true that the red representation in the**
4 **upper right represents your kind of ground truthing of the**
5 **model?**

6 A. Yes. I was ground truthing that model against a
7 2020 paper, which this whole thing, this whole thing of
8 induced seismicity is very new, and so there is relatively
9 little technical, scientific and published information on
10 it, and I wanted to make sure that we were in the ballpark
11 and consistent with what the literature that's out there
12 is saying.

13 **Q. Thank you. Is it also true that the literature**
14 **related to seismic events caused by drilling and**
15 **completion activities is relatively new?**

16 A. Oh, yes.

17 **Q. Does the technical literature indicate that**
18 **fracking events can cause as much as a 3.0 magnitude**
19 **event?**

20 A. That seems to be an upper limit. The Alberta,
21 one set of regulations actually, which -- ah, okay. Okay.
22 Yeah, Alberta Energy Regulator Subsurface Order No. 7
23 basically says if you have induces a seismic event that is
24 greater than -- half or greater than 3.0 local magnitude,
25 you've got to shut down.

1 Q. Okay.

2 A. They have set that as a red line.

3 Q. So in your professional opinion they may not
4 rise to the level of 3s but you could see possible events
5 up to about that range. Is that fair to say?

6 A. Yes. What you expect is you expect many more
7 events at lower magnitude and relatively fewer events at
8 higher magnitude. That gets back to the old Richter
9 earthquake.

10 A. Understood. Thank you.

11 I want to ask you some follow-up questions
12 away from the slides.

13 Actually, strike that.

14 Mr. Hearing Examiner, I move to admit
15 Rucker Exhibits 2 through 11.

16 EXAMINER BRANCARD: Thank you.

17 Mr. Rankin, any objection?

18 MR. RANKIN: No objections.

19 EXAMINER BRANCARD: The exhibits are so
20 admitted. MR. TREMAINE: Thank you.

21 Q. Mr. Rucker, I just want to ask a couple of
22 clarifying questions.

23 As we've talked through this in detail now,
24 it is possible, in your opinion, that impacts through
25 pressure changes in the cavity could impact the stability

1 of the cavern, correct?

2 A. Yes.

3 Q. And it is reasonably possible, in your opinion,
4 that drilling and completion events for oil and gas
5 activities in proximity to the cavern could cause changes
6 in the pressure within the cavern.

7 A. From the data that I have seen, that is a
8 possibility, yes.

9 Q. Okay. I have the same questions about seismic
10 activity.

11 Is it your testimony that in your
12 professional opinion seismic events related to oil and gas
13 drilling could potentially impact the integrity/stability
14 of the brine cavern?

15 A. Yes.

16 Q. Is it also true that the cumulative impacts of
17 oil-and-gas-activity-caused induced seismicity, along with
18 regional seismic activity could impact the stability of
19 the cavern?

20 A. It's possible.

21 Q. Okay. And from the discussions today and your
22 review of the materials, are you generally familiar with
23 the affected acreage of the Caveman project and its
24 proximity to the cavern?

25 A. I am now familiar with its proximity, yes.

1 Q. Is it fair to say that based on your
2 understanding of the brine well, induced seismicity, and
3 pressure concerns, that any drilling or completion
4 activities within the affected acreage could cause issues
5 for the stability of the brine cavern?

6 A. I have a specific concern. The location of
7 those wells, at least as shown in Jim's exhibit, appears
8 to be very, very close to the edge of the Capitan Aquifer,
9 and that is a region which may have complex geology,
10 possibility of weak horizons, of faulting, dissolution
11 zones, which may --

12 Q. Can I ask a --

13 A. -- result in a possibly unusual event.

14 Q. Okay. Thank you. I didn't mean to interrupt.
15 I want to clarify.

16 I understand your testimony to indicate
17 that the affected acreage possibly has even
18 further-complicated geology.

19 A. Yes. Yes.

20 Q. Okay. And I guess my question is: It sounds
21 like your testimony is essentially that the distance or
22 proximity to the brine cavern is one of the controlling
23 variables when we're talking about pressure changes or
24 induced seismicity. Is that correct?

25 A. Yes.

1 Q. So it's then fair to say that regardless of the
2 orientation of the wells, based on their proximity and the
3 location of that affected acreage it doesn't matter if
4 they drill a horizontal well or a vertical well. Correct?

5 A. The vertical well would be more of a pressure
6 issue.

7 Q. Okay. But it still represents a concern.

8 A. Yeah. Yeah.

9 Q. Okay. And same for -- uh, strike that.

10 Actually, the same would be true if they
11 moved from one producing formation to another nonproducing
12 formation; is that correct?

13 A. Yes. Yeah, again that's a minimal change in
14 distance.

15 Q. Okay. You heard the testimony earlier from Mr.
16 Griswold about the next STEPS in the project. Do you
17 agree with Mr. Griswold's characterizations of where the
18 project is at and the projected completion date?

19 A. Yes.

20 Q. Okay. And just overall -- uhm, so I want to
21 highlight that there have been since late 2019 a number of
22 significant changes in the information related to the
23 brine well cavity, so I want to confirm my understanding
24 with you.

25 There's been significant changes in your

1 understanding of the void space, correct.

2 A. Oh, yes.

3 Q. And the same is true with the process of the
4 backfill operation, mainly the settling of the sand?

5 A. Yes.

6 Q. Okay. And the last concerns would be that
7 increase in the potential cumulative extra seismicity
8 related to increase in regional seismicity, and whether
9 induced or otherwise.

10 A. Yes.

11 MR. TREMAINE: Thank you, everyone. That is all
12 the questions I have for Mr. Rucker.

13 EXAMINER BRANCARD: Thank you.

14 Mr. Rankin, do you have any questions?

15 MR. RANKIN: Thanks, Mr. Examiner. Just a
16 couple of questions real quick.

17 Thank you, Mr. Rucker.

18 CROSS-EXAMINATION

19 BY MR. RANKIN:

20 Q. Looking at your Exhibit 10, you identified some
21 of the regional seismic events in the area and identified
22 that some of those occurred at approximately 75 kilometers
23 from the brine well cavity.

24 A. Yes.

25 Q. And what is the approximate range in distance

1 from the brine well cavity of those regional seismic
2 events? Can you give me a range, like the closest events
3 to the farthest events?

4 A. The closest events seem to be around 40
5 kilometers. Uhm, the farther events -- once you're out
6 150 kilometers the induced seismicity really doesn't --
7 does not have much effect.

8 The unlocated triggers from the
9 microseismic system are a good indicator of these events
10 that are typically at 75 kilometers. Most of this
11 activity is from a region, uhm, sort of west of Mentone,
12 and south of White City.

13 Q. Okay.

14 A. So -- sorry. Go on.

15 Q. I was going to say, so in terms of proximity
16 approximately 40 kilometers would be the closest events.

17 A. Yeah. I think we've had a Magnitude 4 event, a
18 4-plus event down east of the Mag-da-la -- Magdala?
19 I'm not local.

20 Q. No problem it's easy I to get tripped up on.

21 In your Exhibit 11 you have identified some
22 literature that you referred to, but was there -- I might
23 have missed it. Was there other literature that you
24 referenced during your testimony when you were discussing
25 Exhibit 11 besides the one that's shown on the exhibit?

1 A. I mentioned the Alberta Energy Regulatory
2 Subsurface Order No. 7, December 9, 2009.

3 Q. Okay. Then I understood you to say that you did
4 hear Mr. Griswold's testimony about the status, his
5 understanding of what the next steps are with respect to
6 the project in remediation.

7 A. Yes.

8 Q. Did you also hear him talk about how the
9 contract with Wood hasn't been finalized yet, the amended
10 contract?

11 A. Yes.

12 Q. Are you familiar with the status of that at this
13 point?

14 A. Uhm, that's above my pay grade.

15 Q. So you don't know how close it is to being
16 finalized or executed at this point?

17 A. No. No.

18 Q. And you don't know what the delay is in getting
19 that amended contract finalized?

20 A. No.

21 Q. No? Okay.

22 A. No.

23 Q. But as soon as that's signed and ready, the work
24 is ready to commence?

25 A. Yes. Yes. I mean, I'm continuing monitoring

1 the work now.

2 MR. RANKIN: Okay. No further questions from
3 me, Mr. Examiner. I appreciate Mr. Rucker's time.

4 EXAMINER BRANCARD: Thank you.

5 Mr. Simmons, any questions?

6 EXAMINER SIMMONS: No. In the interests of
7 saving time, I'll pass. Thank you.

8 EXAMINER BRANCARD: Okay. I just had a few
9 clarifying questions, Mr. Rucker.

10 CROSS EXAMINATION

11 BY EXAMINER BRANCARD:

12 Q. In your Exhibit, I think No. 11, you refer to
13 peak ground velocity.

14 A. Yes.

15 Q. But then in your Written Testimony you refer to
16 something called ground motion particle velocity.

17 Are these the same things?

18 A. They are very -- they are the same things. They
19 are -- it's inexact terminology, and I -- as a
20 geotechnical engineer, vibrations lasting, uhm, I think in
21 terms of controlling blasting by peak parcel velocity.
22 But the earthquake people, which this information is
23 coming from, they have their own vocabulary.

24 Q. Thank you.

25 A. Essentially we are talking about the ground

1 velocity.

2 Q. Thank you. On Exhibit 11 some of the numbers
3 refer to 3.3 kilometers. I assume that's not an arbitrary
4 number. Is that the distance from the brine well cavity
5 to the proposed Caveman well?

6 A. It's -- uhm, I didn't know -- I did not know
7 that, but if we're looking at a mile, 5,000 feet, and
8 we're going down 8,000 feet -- I'd have to run the
9 calculator.

10 Q. Okay. So you didn't pick the 3.3 kilometers?
11 Somebody gave you that number?

12 A. I'm trying to think where that came from. I may
13 have actually done -- I may have picked that, but I wanted
14 to -- I wanted to account by my calcul... (Note: Pause.)

15 Q. Don't worry. That's okay.

16 A. 10,000 feet. We're talking hypocentral
17 distance, so you have to take into account both the
18 horizontal ground distance and the depth.

19 Q. Okay. Okay. That's good to know. Thank you.

20 Just quickly -- it's okay, Mr. Rucker. We
21 can figure this out.

22 In your testimony you refer -- Mr. Rankin
23 already asked some of my questions about the regional
24 seismicity. You do say in your testimony that these are
25 largely caused by waste fluid injection, correct?

1 A. Yes. Yes, at those distances. The technical
2 literature has been focused on that because that's easier
3 to -- it's easier to pull out of the seismic records. In
4 reading some of the papers, they are actually -- the
5 researchers are actually talking about using machine
6 learning to try to pull out the much smaller fracking
7 data. The issue here is, is that we're talking about the
8 waste-induced events at a 75-kilometer range and then the
9 fracking at a much closer range, so that the actual --
10 getting a handle on the actual range of magnitudes due to
11 actual fracking operations is still a work in progress in
12 scientific literature.

13 **Q. Okay. Well, that leads to my final question**
14 **which is: You have a statement in your Written Testimony**
15 **that says, "Recent technical literature indicates that**
16 **fracking activity may cause induced seismicity events up**
17 **to approximately Magnitude 3.0," but then there is no**
18 **citation for that, and so I was wondering if there was any**
19 **support that you could provide, any articles or anything**
20 **backs that up, other than just that assertion.**

21 A. Well, I have the reference on Exhibit 11,
22 Subsurface Order No. 7.

23 I could organize -- I mean, I could -- I
24 could organize that information.

25 EXAMINER BRANCARD: Okay. Thank you. That's

1 all the questions I have.

2 Mr. Tremaine, is that -- are you done with
3 your witnesses?

4 MR. TREMAINE: I'm sorry. I was muted. Yes, we
5 are completed.

6 EXAMINER BRANCARD: Thank you. All right. Mr.
7 Rankin, what do you have for us?

8 MR. RANKIN: I'd like to introduce our first and
9 only witness of the day, Mr. Hanson Yates, and ask that he
10 be sworn in and give a brief summary of his testimony.

11 HANSON YATES,
12 having been duly sworn testified as follows:

13 EXAMINER BRANCARD: Thank you. All right. I
14 guess, Mr. Rankin, you're up.

15 MR. RANKIN: Thank you, Mr. Examiner.

16 DIRECT EXAMINATION

17 BY MR. RANKIN:

18 Q. Mr. Yates, will you state your name for the
19 record.

20 A. Yes. It's Hanson Yates. H-a-n-s-o-n,
21 Y-a-t-e-s.

22 Q. By whom are you employed and in what capacity?

23 A. I'm employed by Santo Petroleum, and I serve as
24 president.

25 Q. Can you explain for the record what the

1 relationship is between Santo and SPC, the company that is
2 the subject of the application today.

3 A. Yes. They are both wholly owned subsidiaries of
4 a common parent company.

5 Q. And in what capacity do you serve under SPC?

6 A. I also serve as president for SPC.

7 Q. Have you previously testified before the
8 Division?

9 A. No, it's my first time.

10 Q. Are you testifying today as a fact witness?

11 A. Yes, I am.

12 Q. And are you also familiar with the amended
13 application that was filed by the Division?

14 A. Very much so, yes.

15 Q. Did you prepare a Written Self-Affirmed
16 Statement that was filed last week in this case marked as
17 Exhibit A?

18 A. Yes, I did.

19 Q. Do you adopt that written statement as your
20 testimony today in this case?

21 A. Yes.

22 Q. Did you also prepare exhibits in support of your
23 statement that are marked as Exhibits A-1 through A-8?

24 A. Yes.

25 Q. And were those exhibits prepared by you or

1 compiled under your direction or supervision, or do they
2 constitute company business records or the records of the
3 OCD?

4 A. Yes.

5 MR. RANKIN: Mr. Examiner, at this time I would
6 move the admission of SPC Exhibits A, and A-1 through A-8.

7 EXAMINER BRANCARD: Thank you. Any objection,
8 Mr. Tremaine?

9 MR. TREMAINE: No objections.

10 EXAMINER BRANCARD: So admitted.

11 MR. RANKIN: Ms. Salvidrez, At this point I
12 would request that I have the authority to share my
13 screen.

14 Thank you. Oops. Sharing the wrong
15 screen. All right.

16 Q. Mr. Yates, are you able to see my screen now?

17 A. Yes, I am.

18 Q. Does this, marked as Exhibit A-1, does it
19 identify the areas that make up the Caveman project area
20 and the Caveman unit area, and wells that are the subject
21 of the hearing?

22 A. Yes, it does.

23 Q. Does it also identify the relative location of
24 the brine well cavity that has also been the subject of
25 the Division's testimony today?

1 A. Yes.

2 Q. Does it also identify other wells that have
3 either been approved or drilled or -- and the status of
4 wells in the surrounding areas?

5 A. Yes, it does.

6 Q. And on the next page it identifies the specific
7 well names, the dates of approval, dates the casing was
8 set, and dates of first production where there has been
9 production?

10 A. Yes.

11 Q. Now, with reference to this exhibit, if you
12 would just explain briefly to the examiners what is the
13 relative importance to the company of the Caveman project,
14 which is highlighted here in yellow, and the proposed
15 Caveman unit, spacing unit, which is highlighted here in
16 red for the company.

17 A. Yeah. You know, the importance to the company
18 really cannot be understated.

19 We are a small company. We've extended the
20 vast majority of new capital investment and our human
21 resources on this project over the last four years, and so
22 the importance to the company is tantamount; it's really
23 sort of one and the same with the company. So the
24 Division's decision in this case and its determination on
25 what it allows with respect to oil and gas activity around

1 the brine well facility could very well make or break the
2 success or failure of our company. So it's very important
3 to us.

4 Q. And relative to that importance, explain, if you
5 would, the importance of a clear, fair Order.

6 A. Well, it needs to be equitable and one that
7 certainly is not punitive of SPC, given all of our efforts
8 to date. You know, that would cause unjust damage to SPC
9 if it were to set us back from all the work that we've
10 done so far.

11 Q. Okay. We will touch on that shortly in the rest
12 of the summary.

13 Does SPC have approximately 4,600 leases
14 that are still in their primary term in the Caveman
15 project area and about 300 leases in their primary term in
16 the Caveman unit?

17 A. Yes, it does.

18 Q. In order to hold those leases, to perpetuate
19 them, is it true that SPC must drill wells capable of
20 producing before the primary terms expire?

21 A. Yes, that is true.

22 Q. And the proposed wells in the spacing unit at
23 issue here, the Caveman Unit, that are the subject of the
24 OCD's Amended Application would have held some of SPC'S
25 leases that are currently in their primary term to join in

1 **production?**

2 A. Yes, it would have held some of our largest and
3 most significant leases. One of the largest leases we had
4 expires on November 1st of 2021, and then hundreds of
5 additional leases that would have been held by production
6 from that unit begin to expire in the spring of 2022.

7 **Q. The majority of SPC leases that we're talking**
8 **about here, they have primary terms that are either three,**
9 **four, or five years; is that right?**

10 A. That's correct, yes.

11 **Q. And what is your understanding now, based on the**
12 **Division's testimony and your discussions with the**
13 **Division, what the Division's goals are by filing its**
14 **Amended Application?**

15 A. Well, taking a step back, I do recognize, we
16 recognize in discussions with the OCD, in fact we know
17 that their primary goal is to maintain the health and
18 safety of the people, the environment around the area of
19 our operations. So we have also shared, and I know that
20 they understand this, that that is our primary goal.

21 So it's something we are very much on the
22 same page with the OCD.

23 My further understanding about their
24 immediate goals with this hearing is that they really want
25 to, and I think both Jim and Mr. Rucker explain and agree

1 with this, is that the intent is to temporarily delay any
2 drilling within a certain radius. I'm still unsure what
3 that might be, but temporarily delay any drilling within a
4 certain radius from the brine well facility until they
5 have successfully completed the remediation project.

6 Q. And your understanding is not that the Division
7 is proposing or seeking a permanent prohibition of
8 drilling of any kind, right?

9 A. That is my understanding, and most definitely
10 also certainly my hope.

11 Q. And just to be clear, your understanding is that
12 the Division is seeking a temporary prohibition of
13 drilling and completion -- I think this came through very
14 clear in their testimony -- of any well, whether it's
15 vertical or horizontal in any formation within that
16 Caveman Unit acreage until the Division confirms that the
17 brine well facility has been remediated.

18 A. That was my understanding before today, and both
19 witnesses certainly confirmed that.

20 Q. Now, having discussed your understanding of the
21 Division's goals, what are SPC's goals in terms of
22 immediate goals and then long-term goals?

23 A. Well, I think I'll start with one of the
24 longer-term or near-term goals, that we really want to be
25 able to maintain an ongoing dialogue with the Division.

1 We want to work with them on a basis that shares technical
2 information, shares technical analyses, very forthcoming
3 in helping us both arrive at a common solution and
4 understanding of a data-driven, decision-making process
5 that can help us determine what can and cannot be done
6 around the brine well.

7 We want to take analysis out of the
8 theoretical and move it into more of trying to quantify
9 the potential risk and potential impact.

10 We certainly hope that the OCD would be
11 open to considering lessening either the radius or the
12 duration of any delay that it may impose on drilling in
13 the area.

14 Then with respect to the immediate goals we
15 have that you mentioned, you know, first we came here
16 today to listen, and not necessarily debate but listen to
17 the technical explanation of the OCD for this very sudden
18 shift in policy that we had not foreseen, and so we wanted
19 to get a better understanding of where they were coming
20 from a technical basis. But then more urgently what we
21 really need is regulatory clarity. We have been really
22 sort of groping in the dark here for a while, as I know we
23 will continue to talk through some of the timeline. We've
24 been -- you know, great uncertainly for us, and as we
25 talked about in the very beginning of my testimony this

1 decision is very important not only for this project but
2 for our company.

3 So we need a defined radius, we need a
4 defined duration, we need to understand what we can and
5 cannot do. And be applied in a manner that's equitable,
6 and certainly not one that would be punitive to an
7 operator that's otherwise been in very good standing with
8 the OCD.

9 **Q. And at the time SPC was formed as a company in
10 2017 and started acquiring leases around the Carlsbad
11 area, was SPC aware of the existence of the Carlsbad brine
12 well and the cavity?**

13 A. Yes, we were very aware of it.

14 **Q. Going into SPC's acquisition of its leases
15 within this highlighted Caveman project area, what was the
16 basis of the company's understanding of the Division
17 policy regarding oil and gas development around that
18 facility in the cavity?**

19 A. The basis of our understanding is a 2009
20 internal policy that was publicly published that was a
21 brine well Area of Review. That is on the map. You can
22 see it with the green circle. It's essentially a 1/2 mile
23 radius that was established around the brine well
24 facility.

25 And essentially our understanding of the

1 AOR is that -- not that it would necessarily prevent
2 drilling anywhere within it but that it would just -- if
3 you had a surface hole location in that AOR it would come
4 under extra scrutiny from the Division.

5 **Q. And how does that policy guide the Company's**
6 **decisions and planning in terms of acquisition of leases**
7 **and proposing to develop wells?**

8 A. We very much took it into account. We defined
9 our project boundaries in part based on that.

10 You can see on the map the green circle
11 goes into four sections. The brine cavity is located -- I
12 know these sections by heart, because we've been doing the
13 project for so long. The brine cavity is in Section 17 of
14 22 South, 27 East, but that circle extends into the
15 neighboring three sections of 18, 19 and 20, and given all
16 the tracts of land in Southeast New Mexico, luckily for
17 landmen, are all rectangles, and our intent was to form
18 units, as we have done, that are inclusive of an entire
19 section of land, we decided we would just stay out of
20 those entire four sections, because we wanted to not run
21 the risk of having the OCD say, "Hey, you know what? We
22 don't want to include any of the lands that are covered by
23 the AOR in this unit." And so we just decided, You know
24 what? We are not going to lease anything in those
25 sections with the intent of developing it.

1 So we defined the southern border of our
2 project based off of that AOR, which again is the only
3 known public policy that we've ever seen with respect to
4 operations around the brine well facility.

5 **Q. And then based on SPC's plans, did it present**
6 **the Caveman Unit specifically, and its proposed wells**
7 **associated, through this pooling application and APDs to**
8 **the Division on five different occasions between September**
9 **2019 and May 2021?**

10 A. Yes, we did.

11 Before we go into that, Adam, I would add
12 that we stayed out of those four sections of land that the
13 AOR covered in spite of a very positive assessment of the
14 geology of both the Wolfcamp and the Bone Spring, which
15 were the formations we were pursuing with this project.

16 But to answer your question, yes, we
17 presented as early as September 19th of 2019, and that was
18 the first of five applications with respect to this unit
19 that weren't before the OCD.

20 **Q. And at the time during any of those**
21 **presentations or any of the time that the plans were**
22 **raised with the Division, did the Division raise any**
23 **concerns about the location of proximity to the cavity**
24 **with SPC?**

25 A. No, not once. We actually brought up the brine

1 well in research we have conducted on it in our
2 September 19, 2019 testimony from our internal technical
3 expert, technical witness, and still there was no mention
4 from the OCD of the brine well or the remediation methods.

5 **Q. Approximately how far away is the company's**
6 **first planned well from the brine well cavity?**

7 A. Well, I think this will answer Mr. Brancard's
8 question as to the 3.3 kilometers.

9 The first well that we proposed, that we
10 were contracting a rig and were moving it in before all
11 this occurred in early July, is the Caveman 402 well,
12 which is on the map. It's the northernmost of the two
13 green horizontal wells that's shown on the map. It's in
14 the Wolfcamp Formation, almost 9,000 feet TBD.

15 The well surface hole location is 1.4 miles
16 north of the brine well facility, which would put it .9
17 miles outside of the AOR.

18 And then if you look at the depth of the
19 lateral, the closest point from a subsurface standpoint is
20 shown on Exhibit A-4. That is 2.2 miles away, which I
21 believe is 3.3 kilometers. So, Mr. Brancard, that might
22 be the answer as to -- we had shared that number with the
23 OCD in my June 17th letter, so that's probably why Mr.
24 Rucker had that hydrocenter distance.

25 And then our furthest point away from the

1 brine well cavity is three miles at the toe of our well to
2 the west.

3 **Q. Did SPC learn at some point from another company**
4 **operating in the area that the Division had concerns about**
5 **drilling and completing wells in the vicinity of the brine**
6 **well cavity?**

7 A. Yes. That wasn't until May 4th. I had coffee
8 with somebody who asked me was I aware that he had been
9 asked to delay the completion of four wells in the
10 vicinity. I was not aware of that. I confirmed that
11 verbally with Mewbourne the following week on May 13th.

12 **Q. Was it a surprise at that point for SPC to learn**
13 **that the Division might have concerns about wells more**
14 **than half a mile away from the brine well cavity?**

15 A. That would be an understatement. Yes, it was a
16 big surprise to us. The first we had heard of that.

17 **Q. And tell me, if you would just briefly, why?**
18 **Why was it a surprise at that point, given the background**
19 **that had come before?**

20 A. Sure. Well, like we had talked about, we had
21 been in front of OCD September of 2019. In fact, we --
22 not only was there not a mention of that during the
23 hearing, we actually had our work -- it's a very complex
24 project, a number of tracts involved, and very, very
25 complex. We got a compliment from one of the examiners on

1 the diligence we had taken, you know, to identify owners.

2 So, again, no mention from 2019. All the
3 way up until May of this year we had had consistent
4 approvals from OCD. In fact, our latest approval of the
5 name change that Jim referenced, the Caveman 402 well,
6 that was approved after we had heard this news through the
7 grapevine that they would be asked to delay the completion
8 of their wells.

9 That's one reason we were very surprised.

10 And then if you look at just, you know,
11 following through the public record, if you look at APDs
12 and allowed drilling and completion activity, there was no
13 sign that the OCD had had any shift in policy.

14 Jim mentioned this. There were wells that
15 were approved, the heavyweights' wells which I reference
16 in my testimony, that were directly underneath the brine
17 well facility and underneath the AOR, and those were
18 actually re-approved, just almost rubber stamped in June
19 of this year.

20 So even after all this had occurred, there
21 was still no sign publicly of a shift in policy with
22 respect to the OCD approvals.

23 **Q. Did you prepare a map and timeline laying out**
24 **the sequence of events on which you based your**
25 **understanding that the policy had remained consistent?**

1 A. Yes. And that's the -- sorry. Go ahead.

2 Q. I was going to say those are Exhibit A-1, which
3 is the map that has some timeframes on the second page,
4 and then A-3, which is your timeline showing a series of
5 events going back to 2008?

6 A. Yes.

7 Q. During any of that time prior to the end of
8 June, did the Division ever reach out to SPC?

9 A. No. We never heard from them once.

10 Q. Now, SPC had plans, when you heard from
11 Mewbourne, to drill and complete its first Caveman Unit
12 well, the 402H, in the June/July 2021 timeframe and then
13 complete that well in the September/October, 2021
14 timeframe.

15 A. Yes. Again, the importance of this well -- the
16 importance of our project has been stated. The importance
17 of this well to that project is basically parallel. You
18 know, it's the first well, we chose the best geologic
19 location within the new project, and so many years in the
20 making. So yes, we had had plans to drill and complete as
21 you outlined.

22 Q. And did SPC then have concerns about proceeding
23 to commit capital to undertake that drilling in light of
24 what you learned from Mewbourne?

25 A. Most definitely. We did not want to get caught

1 in the same situation that we felt they were caught in.

2 We were left to guess, because we had not
3 been contacted by the OCD as to whether or not perhaps
4 they had established a different radius. There were a
5 couple of the wells are a little bit closer from a
6 subsurface perspective than is our well, and so -- a
7 couple of the Mewbourne wells are closer than our well.
8 And so we were wondering: Well, maybe they had
9 established a radius and we're outside it. Who knows?
10 But just to err on the side of caution, we decided to
11 contact the OCD.

12 **Q. And that's the letter that's marked as Exhibit**
13 **A-7? I'm sorry.**

14 A. I was just going to say investing 40 percent of
15 our capital and then not being able to complete that well
16 until the remediation project would be done -- which is
17 the position Mewbourne is currently, is apparently
18 potentially in -- it's not an enviable position.

19 **Q. So because of those concerns, that's when you**
20 **sent that letter to the Division on June 17th that's**
21 **marked as Exhibit A-7?**

22 A. Yes.

23 **Q. And that letter notified the Division of your**
24 **plans to drill and complete that 402H well?**

25 A. Yes.

1 Q. And then in response the Division requested that
2 SPC voluntarily delay drilling and completing its planned
3 well for six months to one year?

4 A. Yes.

5 Q. At that point you informed the Division that SPC
6 could not voluntarily agree to that delay?

7 A. Yes, that was our response. And the reason for
8 that, Adam, is, you know, we talked about some of the
9 contractual obligations with respect to the primary term
10 of the leases that will be expiring in the event we do not
11 drill and complete a well and have production and
12 quantities. So our first lease we referenced earlier,
13 November 1st is subject to expiration, and to the extent
14 we don't establish production or begin operations and
15 continue those across the expiration of that lease. And
16 then we have hundreds of other leases, as I stated
17 earlier, that would expire in the spring. So a
18 6-to-12-month delay threatens the existence of all of
19 those leases, and not to mention we have a Joint Venture
20 Agreement with a nonoperating working interest partner
21 that's threatened with termination to the extent we don't
22 start any well, begin drilling a well by the end of this
23 year.

24 We also lost the negotiation of a second
25 Joint Venture Agreement once this Emergency Order you're

1 about to reference, I'm sure, occurred. So many
2 contractual obligations that just put us -- I believe the
3 OCD understood this. We had a call on June 30th. I think
4 the OCD understood the damages were just far too great to
5 SPC that we were not in a position at all to be able to
6 voluntarily delay our operations.

7 Q. So then as a result of that communication with
8 the Division and inability to voluntarily agree, that's
9 when the Division issued its Emergency Order that's marked
10 as Exhibit A-8?

11 A. Yes.

12 Q. Then as a result of those discussions and the
13 Emergency Order, you understood that the Division would
14 act to prohibit SPC from drilling any well within any
15 formation within the Caveman acreage?

16 A. Yes.

17 Q. Then following that Order, then the Division
18 filed this Application and its Amended Application to
19 revoke SPC's Pooling Order for that unit, and the APDs
20 associated?

21 A. Yes.

22 Q. Without going into detail, does your Written
23 Testimony outline the time, effort, expense, costs
24 incurred by SPC to acquire all those leases and obtaining
25 the regulatory approvals that were necessary to drill and

1 **produce the Caveman Unit well?**

2 A. Yes. Yes, it does. Those efforts were very
3 extensive in terms of both time and money.

4 **Q. In fact SPC has already expended in the order of**
5 **tens of millions of dollars of investment capital to**
6 **prepare its drilling program in the Caveman project in the**
7 **specific unit?**

8 A. Yes.

9 **Q. And would those investments and effort that**
10 **you've expended be lost and have to be redone if SPC's**
11 **Pooling Order and APDs are revoked, in your opinion?**

12 A. Yes, they absolutely would be. We would have to
13 start from scratch, potentially from a legal perspective,
14 and definitely from a regulatory perspective it would cost
15 us, again, both time and money.

16 **Q. And do you agree that revocation is appropriate**
17 **and serves the goals of the Division as you understand**
18 **them?**

19 A. No. In fact, I would say I would wholeheartedly
20 disagree that it is either equitable or serves the goals
21 of the Division or SPC, or that it's at all applicable in
22 this scenario.

23 **Q. And your Written Testimony provides an**
24 **explanation why you believe that to be the case?**

25 A. Yes.

1 **Q. Does it also suggest a potential alternative the**
2 **Division may pursue?**

3 A. Yes. And I'm happy to hear that the Division is
4 taking that under consideration, and certainly hope that
5 that will be the route it takes.

6 Essentially the alternative that we've
7 outlined is using authorities the OCD already has to place
8 conditions on existing Orders, rather than revoking the
9 Order or revoking the APDs and undoing all that hard work
10 that is extremely time-consuming. The OCD can essentially
11 add a condition that SPC will be prohibited from
12 developing the acreage and drilling the wells until such
13 time as the OCD has deemed the remediation effort
14 complete. This would put the control in the OCD's hands,
15 considering they would be the ones that would be
16 determining whether or not the condition has been met.

17 **Q. And the time frame in terms of when that**
18 **suspension should take effect, essentially is it your**
19 **proposal that it would toll the remaining time on your**
20 **Pooling Order and APDs from the effective date of the**
21 **Emergency Order? Is that correct?**

22 A. We think that's most equitable. Effectively we
23 have not been able to move the rig in We were, by the
24 way, hours away from taking possession of a rig on July
25 2nd, so we were very close to moving a rig in when the

1 Emergency Order was issued.

2 We obviously had not been capable of
3 actually moving a rig in. If we were to do so, obviously
4 the OCD would have the authority to issue another
5 Emergency Order, and that's a game of chicken neither one
6 of us were going to play.

7 And so it made a lot of sense -- well, it
8 makes a lot of sense to me that should the OCD issue a
9 condition now that it would be retroactive to that July
10 2nd date, because that's effectively when we have been
11 unable to do anything, not only on the Caveman Unit but
12 anything within our project. We've been somewhat
13 paralyzed since July 2nd.

14 So we think that's the most fair.

15 Like you were saying, we think that the
16 time remaining on our unit and our APDs should be tolled,
17 so stop at July 2nd so whatever remaining time we have on
18 it, once the OCD says, "Okay Green light. Go ahead and
19 drill," that's when we should start to then go back into
20 that primary term, so to speak, of our Order.

21 **Q. And how would -- in your opinion, would a**
22 **Suspension Order or Conditional Approval and the timing**
23 **required, would that, in your view, achieve the goal of**
24 **the Division to prevent having a company from completing**
25 **its wells until remediation is deemed complete.**

1 A. Absolutely. We couldn't go out and drill, and
2 like Jim had mentioned, you know it would make sense. We
3 wouldn't be able to drill during that time period. It
4 would achieve the same objective but much more cleanly and
5 gently.

6 **Q. Without having to require you to, essentially,**
7 **do all that regulatory work and lease work.**

8 A. Yeah, work that has already been approved in
9 every other aspect by the OCD as properly done.

10 **Q. What about future APDs that SPC may plan to**
11 **submit in areas that are a little farther away from the**
12 **brine well cavity?**

13 I'll refer back to Exhibit A-1 where you
14 have got three existing compulsory pooled units just to
15 the north here in green noted as B, C and D.

16 What about those units and the associated
17 wells proposed for that area?

18 A. You know, I think any condition and any process
19 that is established by an Order subsequent to this case
20 that adds this conditional approval to it could and should
21 be applied not only to existing units, so you have those
22 three units that we've gone through the same process with
23 the OCD, had approval -- again no mention of the brine
24 well as a risk in that (inaudible). They are further
25 north and further away from the MCD (phonetic). Or excuse

1 me. Further away from the MCD? They are actually closer
2 to the MCD but they are further away from the brine
3 cavity.

4 And to the extent the OCD -- if those fall
5 outside an area of concern that the OCD hopefully clearly
6 establishes on the heels of this, we would love the
7 opportunity to be able to develop that acreage now. But
8 if it is within an area of concern that they clearly
9 define, then we think it would be most fair that this
10 condition is applied to those, as well; therefore, the
11 tolling process would begin ideally effective July 2nd.
12 Again, that would be most fair, to me, but at least as of
13 the date of Order that those can be applied.

14 In addition to that, we were in the
15 process, are in the process still of beginning to apply
16 for two additional units that cover acreage in that
17 yellow. I don't know if the OCD -- again will it fall
18 inside the radius that's yet to be defined? I don't know.
19 If it does, I would like the OCD, rather than telling us,
20 "No, you can't form that unit while this delay is going
21 on," I would think it would most fair if the OCD receives
22 those applications, and if they are fit to be approved,
23 they approve them, and then again do they the same
24 process: Place the condition on them, and say you can't
25 drill those until the brine cavity is remediated, and then

1 only at that point would a timeline on those new Orders
2 begin to run.

3 Again, I think that's most fair. It would
4 put all the acreage in that same area under the same
5 conditions. There are other operators in the exact same
6 position. I know there are people trying to form units
7 that we're seeing south, operators who have a (inaudible)

8 Some clearing from the OCD would be much
9 appreciated there, and I think that would be -- at least
10 with respect to us, I can't speak for other operators, but
11 with respect to us we think that would be the most fair
12 application of the OCD's authority that would help give us
13 some clarity on what we can or can't do.

14 **Q. So to summarize, what you're hoping comes out of**
15 **all of this with the Division, what are SPC's requests**
16 **with the Division going forward?**

17 A. Well, like I said earlier, you know we have
18 these near-term sort of post-hearing goals.

19 Maintaining a real dialogue with the OCD.
20 And what I really beg of the OCD is that they are open to
21 new technical analysis, and that to the extent -- you
22 know, they use the word non-negligible but unquantifiable.
23 To the extent we can begin to pull out of that, I'd say
24 their nebulous definition into something more quantifiable
25 that we can start to understand the real potential of risk

1 that operations pose, using hard data, and we have an open
2 discussion, I would just like the OCD to be receptive to
3 that. Because the implications are very large for us and
4 other operators in the area to delay, curtail, forever
5 prohibit drilling and completion in the area.

6 And so I would really like them to be
7 open-minded in being able to receive technical analysis
8 that could help lessen either the radius or the duration
9 of time, and even be open to allowing drilling completion
10 activity prior to completion of the remediation project
11 should the technical evidence support it.

12 We are not here -- we don't have all the
13 data in front of us to be able to analyze, and so we
14 aren't here to present a technical case. We're here to
15 hear a technical case. But what I would like is an open
16 dialogue going forward, and I hope that they are willing
17 to do that.

18 **Q. So --**

19 **A. Sorry. Go ahead, Adam.**

20 **Q. No, no. Go ahead.**

21 **A. The biggest thing we need is just some clarity.**

22 I think it's really obvious from our
23 record, and it's obvious from testimony from the OCD
24 today, there has been a lot of back and forth, a lot of
25 confusion. And when you're trying to have a project

1 that's a very complex, commercial project to carry out --
2 we have tens of different variables, probably hundreds of
3 different variables that we have in trying to plan a
4 project of this magnitude. And we had worked off of all
5 publicly available information with respect to OCD policy
6 around this brine well. We thought we had understood that
7 four years ago, and so the fact that's there was a sudden
8 shift in policy, we would like it to be thoroughly
9 explained, but we also -- we need clarity: What can and
10 can we not do? Is the OCD willing to continue to
11 communicate evenly, fairly, clearly about what its stance
12 is, and then be open to, like I said on my first point,
13 technical evidence that could help even shape its stance
14 on that?

15 So I think regulatory clarity and ongoing
16 open dialogue are the two things we need. That's it in a
17 long-winded way. Sorry. I'm going to run to my soccer
18 game.

19 **Q. So on the topic about data information and**
20 **discussions, is your request that the Division continue to**
21 **share information and data that it has obtained and**
22 **continues to receive regarding the brine well and the**
23 **brine well cavity?**

24 A. Yeah. We submitted an IPRA request that was
25 lengthy, but that was submitted, I believe, almost two

1 months ago, if not to the day two months ago. And we
2 appreciate the information that the OCD has shared to
3 date. You, know it was not a short request. We wanted to
4 be able to really get the raw data and analyze it
5 ourselves. But still I would say the most important
6 pieces of data we do not have yet.

7 And so I would hope the OCD continues to be
8 willing to share information with us so that we can
9 conduct our own independent analysis that would simply be
10 for their consideration.

11 **Q. In fact we just got some additional information**
12 **last night, and we are continuing that process; is that**
13 **correct?**

14 A. Yes. And we appreciate that.

15 **Q. Why is the information that you're asking for**
16 **still so important for SPC?**

17 A. Well, again, you know, I think Mr. Rucker had
18 some rather lengthy and detailed explanations of a lot of
19 good work that he has done in his exhibits. We would like
20 to be able to take some of the raw data that's available
21 from the monitoring stations, and make sure that we could
22 go a step further. This is that important to us that we
23 would like to be able to engage our own seismology experts
24 to be able to try to help quantify the risks of our
25 operation and not, then, risks of some operations from

1 neighboring operators, and put that before the OCD, again
2 simply for their consideration, and to the extent we can
3 make them comfortable with our proceeding earlier, or
4 proceeding -- just to be able to ensure that we can
5 proceed immediately upon the completion of remediation
6 would be our potential benefit of having that data.

7 So that's why we want it. That's why we
8 asked for it in the first place, and I think the OCD has
9 always -- I hope always understood that, because that's
10 how we communicated from the beginning.

11 MR. RANKIN: Thanks very much, Mr. Yates.

12 With that, Mr. Examiner, I have no further
13 questions and pass the witness for examination by others.

14 EXAMINER BRANCARD: Thank you. Mr. Tremaine any
15 questions?

16 MR. TREMAINE: No, I thank Mr. Yates for his
17 time, and good luck with his game. No questions.

18 THE WITNESS: I'll let you know how it turns
19 out.

20 EXAMINER BRANCARD: Just quickly, Mr. Yates, I
21 assume what you're talking about, your proposal, is in
22 paragraph 46 of your testimony?

23 THE WITNESS: Oh, boy. I'm going to have to ask
24 Adam to confirm that, and if he says yes, I'll agree. I
25 didn't memorize all the paragraphs, don't have it in front

1 of me. But let me see, somebody is pulling it up.

2 Are you talking with respect to the
3 conditional approval process?

4 EXAMINER BRANCARD: Yes.

5 THE WITNESS: The answer I'm being old is yes,
6 so I believe that yes.

7 EXAMINER BRANCARD: Thank you.

8 THE WITNESS: Thank you. For the record,
9 ideally we would be allowed to work with the OCD to move
10 forward in our operations, but in the immediate sense,
11 just from a regulatory standpoint, to give us a proper
12 pause, that is our preferred mechanism for doing so, that
13 over the revocation.

14 EXAMINER BRANCARD: Mr. Rankin is that all you
15 have for today?

16 MR. RANKIN: That's all I have for -- well, in
17 this case. Yes.

18 EXAMINER BRANCARD: Mr. Simmons, any questions?
19 Are you still there?

20 EXAMINER SIMMONS: I'm here. And, yeah, I did
21 have a question or two.

22 CROSS-EXAMINATION

23 BY EXAMINER SIMMONS:

24 Q. Mr. Yates, is my understanding correct that you
25 have leases that are going to expire beginning November

1 20th of this year, 2021, and then hundreds of leases that
2 will expire spring of 2022 if you are not able to bring on
3 one of these initial wells in the pink quantities?

4 A. Yes, sir.

5 Q. And then is there a force majeure that will
6 prevent those leases from expiring if an Order is given
7 that, uhm, like you proposed, a COA is attached? Will
8 that then save those leases?

9 A. You know, I'm not a legal expert, but yes, in my
10 opinion we do have force majeure provisions that I would
11 argue this is the reason for a force majeure provision.
12 And so, yes, sir, that would be our intention, is that we
13 would trigger the force majeure provision to help extend
14 and toll the term of those leases.

15 One thing I would add: The importance of
16 having it retroactive to July 2nd, that's when we were
17 going to get out to drill a well, November 1st being that
18 first expiration, if we didn't receive an Order until,
19 say, October 1st, and the Order says: Well, the Order is
20 effective today that you can't drill, not July 2nd, when
21 we come out on the other end that would only give us a
22 month to find a rig, move it in, and start drilling. So
23 that's why I asked for that retroactive date to July 2nd.

24 I hope that makes sense, sir. I'm getting
25 a little nuanced on lease terminology here, but...

1 Q. That's fine. How would a COA differ in terms of
2 the force majeure versus just flat-out revocation of the
3 spacing units and the APDs? Will the force majeure come
4 into play in either of them?

5 A. Could you define COA for me? I'm sorry.

6 Q. Condition of Approval. You proposed that OCD
7 attach conditions to the spacing units and the APDs
8 preventing you from drilling until the remediation is
9 done. Will the force majeure be invoked in either case,
10 the revocation or condition?

11 A. To us it was actually -- I think, for one, just
12 to go back, my main argument against revocation is that I
13 felt it was unnecessarily punitive of us, because once the
14 Division determined it was safe to drill in the vicinity,
15 then we would have to start all over again, and our lease
16 term would be running again and we would be up against now
17 new deadlines, and having to wait, you know, oftentimes 9
18 to 12 months from application to approval on the Order.

19 So it's mainly that punitive component that
20 I felt was justification for a COA versus revocation.

21 However, there was some nuance on
22 revocation where we felt if you revoke our ability to
23 drill within a certain area, it doesn't necessarily -- it
24 may not necessarily clearly prohibit our ability to
25 reapply within other formations. So it becomes a little

1 bit of a regulatory "do" loop of do we have to go and be
2 denied an application for an Order on every single horizon
3 before we technically got into force majeure?

4 So it just -- to us it was much clearer,
5 and more importantly much more fair application with a COA
6 versus using revocation.

7 Q. Sure. But if OCD does attach conditions to
8 existing Orders that you cannot drill until the
9 remediation occurs, then the force majeure should allow
10 you to hold your leases? That's your belief or argument
11 at this time?

12 A. I would argue that it would. Yes, I think that
13 would be the case.

14 EXAMINER SIMMONS: Okay. No more questions.
15 Thank you.

16 EXAMINER BRANCARD: Thank you. We may be done
17 with you, Mr. Yates.

18 THE WITNESS: Okay. Thank you very much for
19 your time, everybody.

20 EXAMINER BRANCARD: Sure.

21 So where are we, folks? We're getting near
22 the end of the day here. Time to go to soccer games.

23 So Mr. Tremaine.

24 MR. TREMAINE: Nothing further.

25 EXAMINER BRANCARD: Okay. I think what we need

1 is what you had sort of discussed at the beginning of the
2 day, or the afternoon, which is a response from the
3 Division to the proposal made by SPC. And I think it's
4 helpful that that paragraph I pointed to is really
5 specific about what they are willing to agree to.

6 I would assume that Mr. Rankin -- you know,
7 I guess you're willing to work it out directly with the
8 Division but do you prefer to have an Order after a
9 hearing on this?

10 MR. RANKIN: Mr. Examiner, I think in light of
11 the circumstances and the nature of the issues here an
12 Order would be imperative. And so I appreciate your and
13 the Division's willingness to take note of the equitable
14 issues that we raised in testimony with their Proposal to
15 Revoke.

16 I believe that there are potentially
17 alternative Orders that could be issued that could refer
18 to, incorporate by reference future Conditions of Approval
19 that would substantiate the conditions.

20 So I think an Order would be of the most
21 importance as a result of this hearing.

22 EXAMINER BRANCARD: Thank you.

23 So Mr. Tremaine, how much time do you need
24 to respond to the proposal?

25 MR. TREMAINE: I would envision that the OCD

1 would submit for your review a Proposed Order, and in
2 order to do that and incorporate the provisions and after
3 internal deliberations, could we have two weeks?

4 MR. TREMAINE: I don't know. Mr. Rankin?

5 Do you want to work on this Order by
6 yourself or do you want to work with SPC? From my
7 perspective I just want to see your position on this
8 issue. If it comes in the form of a Proposed Order,
9 that's terrific, but that would really make our job here
10 with the examiners really a little easier.

11 Yes?

12 MR. TREMAINE: Well, there are a number of
13 moving pieces, so I don't want to, as I optimistically
14 estimated our time for testimony today, I don't want to
15 optimistically estimate our time for those internal
16 deliberations. It is a new point in the discussions
17 between the parties, and as alluded to there is a
18 development policy related to the perimeter area of
19 concern around the brine well.

20 So that's more complex than we need to get
21 into here, but I worry about less than two weeks, if that
22 is agreeable for Mr. Rankin.

23 MR. RANKIN: That would work for us. I think
24 timewise that's a reasonable amount of time. So we
25 appreciate the Division's willingness to try to get a

1 Proposed Order to the Division in a relatively quick
2 turnaround.

3 EXAMINER BRANCARD: All right. So Mr. Tremaine
4 has offered to draft a Proposed Order. I don't know feel
5 the need to prepare your own proposal, Mr. Rankin.

6 MR. RANKIN: I guess I'll wait and see what the
7 Division has to propose.

8 EXAMINER BRANCARD: I mean, I guess I think Mr.
9 Yates' testimony is pretty clear about what you're
10 offering here, so...

11 All right. Do we have any other matters on
12 this? Are we understanding where we are going with this?
13 I don't want leave things hanging in the air here.

14 Mr. Tremaine, two weeks from today can you
15 come up with a Proposed Order?

16 MR. TREMAINE: Yes. Understood.

17 EXAMINER BRANCARD: All right.

18 So that is Case 22102 for those of you who
19 have been listening, just tuned in.

20 (Time noted 5:02 p.m.)

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1 STATE OF NEW MEXICO) .

2 : ss

3 COUNTY OF TAOS)

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5 REPORTER'S CERTIFICATE

6 I, MARY THERESE MACFARLANE, New Mexico Reporter
7 CCR No. 122, DO HEREBY CERTIFY that on Thursday, September
8 9, 2021, the proceedings in the above-captioned matter
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13 I FURTHER CERTIFY that I am neither employed by
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