

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:

APPLICATION OF PERMIAN OILFIELD
PARTNERS, LLC FOR APPROVAL OF A
SALTWATER DISPOSAL WELL IN LEA
COUNTY, NEW MEXICO.

CASE NO. 20585

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

July 11, 2019

Santa Fe, New Mexico

BEFORE: WILLIAM V. JONES, CHIEF EXAMINER
DAVID K. BROOKS, LEGAL EXAMINER

This matter came on for hearing before the
New Mexico Oil Conservation Division, William V. Jones,
Chief Examiner, and David K. Brooks, Legal Examiner, on
Thursday, July 11, 2019, at the New Mexico Energy,
Minerals and Natural Resources Department, Wendell Chino
Building, 1220 South St. Francis Drive, Porter Hall,
Room 102, Santa Fe, New Mexico.

REPORTED BY: Mary C. Hankins, CCR, RPR
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1 APPEARANCES

2 FOR APPLICANT PERMIAN OILFIELD PARTNERS, LLC:

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1 (8:31 a.m.)

2 EXAMINER JONES: Call Case 20585,
3 application of Permian Oilfield Partners for a saltwater
4 disposal well in Lea County, New Mexico.

5 Call for appearances.

6 MS. BENNETT: Good morning.

7 EXAMINER JONES: Good morning.

8 MS. BENNETT: Thank you for your patience.
9 I apologize for being outside.

10 EXAMINER JONES: No problem.

11 MS. BENNETT: My name is Deana Bennett with
12 Modrall, Sperling in Albuquerque, and I'm here on behalf
13 of Permian Oilfield Partners in Case Number 20585.

14 EXAMINER JONES: Any other appearances?

15 MS. BENNETT: Mr. Examiners, at the moment
16 I am in communication with Marathon Oil Permian to
17 discuss a potential request for a continuance of this
18 case. However, Marathon has agreed for the moment to
19 allow me to put this case on this morning, and hopefully
20 by the time I will have put the case on, we will have
21 some resolution about the next steps. But I was
22 literally contacted by Marathon approximately one minute
23 ago. But they have agreed to let me put the case on.

24 EXAMINER JONES: Are they expressing a
25 contest -- this is going to be a contest?

1 MS. BENNETT: No.

2 EXAMINER JONES: Do we have an appearance
3 for Marathon?

4 MS. BENNETT: No, we don't.

5 EXAMINER JONES: I don't suppose you're
6 able to enter an appearance for another party.

7 MS. BENNETT: Not an opposing party that I
8 represent or -- right.

9 EXAMINER JONES: I do have an appearance
10 here from the State Land Office.

11 MS. BENNETT: Yes. They withdrew their
12 appearance, and there is an email in the file stating
13 that the State Land Office withdrew their appearance in
14 this case.

15 EXAMINER JONES: Okay.

16 MS. BENNETT: And I would note that
17 Marathon did file a protest of the administrative
18 application that Permian Oilfield Partners filed and
19 then withdrew that administrative protest.

20 EXAMINER JONES: Okay.

21 MS. BENNETT: And so it was our
22 understanding that that protest had been resolved, and
23 so that's what I'm working out with counsel -- in-house
24 counsel for Marathon right now.

25 EXAMINER JONES: Okay. But it was set for

1 a hearing for what reason? Just because they were
2 protesting?

3 MS. BENNETT: Yes, because it was
4 protested. Actually, Delaware Energy had protested the
5 administrative application. Delaware Energy has not,
6 though, filed an entry of appearance in this case. So
7 at this point, in our view, this case is uncontested and
8 could actually be remanded to the administrative
9 process, but we have the witnesses here and we're ready
10 to put this case on for hearing and proceed as planned
11 in hopes that whatever process is faster, either the
12 administrative process or the hearing process, that
13 we'll be able to work through this in a way that's the
14 most expeditious.

15 EXAMINER JONES: Okay. That sounds like --
16 Is Delaware considered a party to this
17 case, Mr. Brooks?

18 EXAMINER BROOKS: Well -- you mean
19 Marathon?

20 EXAMINER JONES: Delaware Energy originally
21 protested the admin order -- the admin application and
22 they didn't withdraw it.

23 MS. BENNETT: They didn't withdraw the
24 admin protest, but they haven't entered an appearance in
25 this case. So under my reading, they're not a party to

1 this case, which we filed a brand-new application for
2 this case.

3 EXAMINER BROOKS: Well, that's in the rule,
4 and I would have to read it. My instinct would be to
5 think they remain a party even though they have not
6 appeared at the hearing. But were they -- they were a
7 party served pursuant -- under the notice rule; were
8 they not?

9 MS. BENNETT: I believe they were. I'd
10 have to double-check my notice list, but --

11 EXAMINER BROOKS: Well, any party that's
12 entitled to notice of a hearing is a party whether they
13 appear or not. But if they -- if the party doesn't
14 appear at the hearing, that would be noted in the
15 record, if they didn't appear at the hearing, and that
16 would probably mean that their objection would not be
17 given much consideration.

18 MS. BENNETT: That's right. And I actually
19 didn't provide them notice of the hearing because they
20 are not entitled to notice under the regulations.

21 EXAMINER BROOKS: Okay. Well, if they're
22 not entitled to notice under the rules and they have not
23 appeared in the case, then they are not a party.

24 MS. BENNETT: And, frankly, I don't want to
25 belabor this point because they're not here, and they're

1 not objecting. So that's the most important thing to
2 Permian Oilfield Partners, is they're not here, they're
3 not objecting. Apart from this last-minute notice from
4 Marathon, this is an uncontested case.

5 EXAMINER JONES: But two witnesses?

6 MS. BENNETT: Yes. We have two witnesses,
7 which I'd like to introduce and call at this time.

8 EXAMINER JONES: Okay. Will the court
9 reporter please --

10 Will the witnesses please stand?

11 Will court reporter please swear the
12 witnesses?

13 (Mr. Puryear and Mr. Fisher sworn.)

14 MS. BENNETT: At this time I'd like to call
15 my first witness, Mr. Sean Puryear.

16 SEAN PURYEAR,
17 after having been first duly sworn under oath, was
18 questioned and testified as follows:

19 DIRECT EXAMINATION

20 BY MS. BENNETT:

21 Q. Good morning, Mr. Puryear.

22 State your name for the record.

23 A. My name is Sean Puryear.

24 Q. And with whom do you work?

25 A. I work for Permian Oilfield Partners.

1 Q. And we're going to abbreviate Permian Oilfield
2 Partners as POP today.

3 A. Sounds great.

4 Q. What are your responsibilities with POP?

5 A. I'm the CEO of POP.

6 Q. And what do you do as the CEO?

7 A. I manage the development and build-out of
8 produced water and construction of saltwater disposal
9 wells.

10 Q. And do you also manage the design elements
11 and construction of --

12 A. I do.

13 Q. -- infrastructure?

14 Do your responsibilities include the area
15 of southeastern New Mexico?

16 A. They do.

17 Q. Are you familiar with the saltwater disposal
18 well that is the subject of this application?

19 A. Yes, ma'am.

20 Q. And are you familiar with the application that
21 POP filed in this matter?

22 A. I am.

23 Q. Have you previously testified before the Oil
24 Conservation Division?

25 A. I have.

1 Q. And that was just a couple of weeks ago, right?

2 A. It was.

3 Q. And at that hearing, we went through your
4 background and education?

5 A. We did.

6 Q. And your credentials were accepted as a matter
7 of record; is that right?

8 A. They were.

9 MS. BENNETT: At this time I'd like to
10 tender Mr. Puryear as an expert in operations and
11 engineering matters.

12 EXAMINER JONES: He's so qualified.

13 MS. BENNETT: Thank you.

14 Q. (BY MS. BENNETT) Before we start looking at the
15 exhibits, I just wanted to go through some of what I
16 just discussed with the hearing examiners. You
17 originally filed this application for the Super Siphon 2
18 as an administrative application; is that right?

19 A. We did.

20 Q. And what happened?

21 A. Delaware Energy objected to the application,
22 protested the application.

23 Q. And were there any other protests?

24 A. There was. There was a Marathon protest
25 initially, and they -- we worked a deal out with those

1 guys, and they agreed to drop the protest.

2 Q. And you actually spoke with Marathon?

3 A. We did.

4 Q. And Marathon emailed the Division, to
5 Mr. Goetze, and dropped the protest after speaking
6 with --

7 A. No. Mr. McMillan, but yes.

8 Q. Mr. McMillan.

9 A. Yes.

10 Q. And we just talked about how Delaware Energy
11 hasn't entered an appearance in this case, to your
12 knowledge, right?

13 A. Correct.

14 Q. Did you know that the State Land Office entered
15 an appearance in this case?

16 A. I found out yesterday.

17 Q. And how about that they withdrew their entry of
18 appearance?

19 A. Found that out at the same time.

20 Q. Okay. All right. So in your opinion, then,
21 this application is uncontested?

22 A. In my opinion, it is uncontested.

23 Q. That reminds me. Did Solaris file an entry of
24 appearance or --

25 A. They did.

1 Q. And what happened with that?

2 A. They withdrew that as well.

3 Q. Okay. Great.

4 Let's start with Exhibit A then. Exhibit A
5 is the Super Siphon application; is that right?

6 A. That's correct.

7 Q. And can you explain what POP seeks under this
8 application?

9 A. POP seeks the authority to utilize the Super
10 Siphon No. 2 to inject produced water into
11 Silurian-Devonian Formation to a depth between 17,292
12 feet and 19,026 feet, utilizing 7-inch-by-5-1/2
13 injection tubing at a rate of approximately 50,000
14 barrels per day and a maximum pressure of 3,458 psi.

15 Q. Great.

16 Let's go ahead, then, and turn to pages 7
17 and 8 of Tab A. Are pages 7 and 8 the well
18 construction data that POP is proposing to use for the
19 well?

20 A. Yes, they are.

21 Q. And can you run through, especially on page 8,
22 the properties of the casing and the properties of your
23 wellbore schematic that you think are important for the
24 hearing examiners to understand in terms of protecting
25 freshwater resources, underground sources of drinking

1 **water and mineral rights, to the extent there are any**
2 **mineral interests, that could be impacted?**

3 A. Sure. It's important to note that the surface
4 casing covers all known fresh water within the area.
5 There are three casing strings that are cemented to
6 surface. All three of those strings are circulated --
7 cemented and circulated. The 7-5/8 liner will cover the
8 potentially productive zones directly above the
9 injection interval. That liner cement is also
10 circulated off the liner top to surface, so in total,
11 there are four strings protecting the correlative rights
12 of the mineral owners and the potentially fresh water in
13 the area.

14 **Q. Now, is the casing that POP is proposing for**
15 **each step consistent with industry standards?**

16 A. It is.

17 **Q. When you testified last time before the**
18 **Division, you mentioned that you had worked on SWD**
19 **projects for other companies; is that right?**

20 A. That is correct.

21 **Q. And those were deep Devonian SWDs?**

22 A. Yes, ma'am.

23 **Q. Is the wellbore schematic and the wellbore**
24 **design that POP is proposing consistent with what you**
25 **experienced at your prior employment?**

1 A. It is.

2 Q. Is it consistent with what you understand other
3 operators to be proposing for similar high-volume SWDs
4 with similar tubing size?

5 A. It is.

6 Q. Is the casing designed to protect freshwater
7 resources?

8 A. It is.

9 Q. What type of tubing are you using?

10 A. We are using a composite insert line,
11 7-inch-by-5-1/2-inch, P110 and L80 injection tubing.
12 This is an ultraflush joint connection, which is proven
13 to be superior to your typical long thread or buttress
14 thread in that it is a gas pack connection. This
15 particular string is designed to last much longer and
16 exceeds industry standards.

17 Q. Great.

18 Anything else you'd like to mention about
19 this wellbore design before we move on to the next set
20 of questions?

21 A. No, ma'am.

22 Q. Great.

23 Okay. Let's turn to page 9. At the top of
24 page 9, your application discusses whether there are any
25 wells that penetrate the Devonian Formation. And are

1 **there any?**

2 A. No, ma'am.

3 **Q. How about freshwater wells? Let's look at page**
4 **11.**

5 A. I believe there is one freshwater well within
6 the well's one-mile area of review.

7 **Q. And that's discussed in paragraph two on page**
8 **11, right?**

9 A. That's correct.

10 **Q. And then is that also identified on the map on**
11 **page 17?**

12 A. It is.

13 **Q. Did you include any information from the**
14 **New Mexico Office of State Engineer about water depths**
15 **or any information about a water analysis report?**

16 A. We did. We included all the water wells within
17 Township 24 South, Range 34 East indicating the deepest
18 depth to fresh water to be 610 feet. It's important to
19 note that our surface casing string covers that depth,
20 and we also included a water analysis of that well,
21 C04310, on page 21.

22 **Q. So that's the analysis of the very well you**
23 **identified within the one-mile area of review?**

24 A. That is correct.

25 **Q. Thanks.**

1 Now, let's look at page 13 of this packet.

2 Page 13 has the one-mile and two-mile area of review for
3 the Super Siphon State SWD No. 2; is that right?

4 A. That's correct.

5 Q. And did you use that map to identify wells
6 within a one-mile radius?

7 A. We did.

8 Q. And are those wells listed on the next page, on
9 page 14?

10 A. They are.

11 Q. And on page 15, is that your list of affected
12 persons within the one-mile area of review?

13 A. It is.

14 Q. Let's look at page 33 of the materials. On
15 page 33, do you see right below that screenshot a
16 discussion of where the closest permitted or active
17 Devonian disposal well is to your well?

18 A. Yes, ma'am. It's 1.54 miles away, and that was
19 the Delaware Energy well that was in question.

20 Q. Is that a proposed well?

21 A. That is an active well.

22 Q. It's an active well.

23 When you filed the application
24 administratively, did you send a notice letter to the
25 affected parties?

1 A. We did.

2 Q. And how did you determine to whom to send
3 notice?

4 A. We followed the administrative code for the
5 definition of an affected person, which is the
6 designated operator within that well's one-mile area of
7 review. In the event there is not a designated
8 operator, that would be the leaseholder. In the event
9 there is not a leaseholder, that would be the mineral
10 owner. We also sent letters out to the surface owners.

11 Q. And you sent a letter to the State Land Office
12 then?

13 A. That is correct.

14 Q. And I believe you also sent a letter to the
15 BLM?

16 A. We did.

17 Q. And those parties are all listed on page 15?

18 A. They are.

19 Q. Did you publish notice of your administrative
20 application? Is that on page 16?

21 A. It is.

22 Q. Did you consider the ability to conduct fishing
23 if necessary in this well?

24 A. We did. We spoke with a local fisherman, with
25 Nave Oil and Gas. We had him review our fishing and

1 plugging procedure, and then he signed off that it was
2 very easily done with standard off-the-shelf equipment.

3 **Q. Did you prepare a plugging risk assessment?**

4 A. We did.

5 **Q. And is that plugging risk assessment included**
6 **in this packet of materials?**

7 A. It is.

8 **Q. And did you include the risk assessment with**
9 **your administrative application?**

10 A. We did.

11 **Q. And on pages 34 to 42, is that the risk**
12 **assessment?**

13 A. It is.

14 **Q. Is it revised slightly in these materials as**
15 **compared to what was put in your administrative**
16 **application?**

17 A. It is. There was a typo in the size of
18 overshot to fish the 7-inch tubing. It was revised to
19 be an 8-1/8-inch [sic] OD overshot as proposed to -- I
20 believe it was 6-3/8.

21 **Q. And that was the only change?**

22 A. That was the only change.

23 **Q. And it was just a typo?**

24 A. Correct.

25 **Q. I wanted to ask you a couple more general**

1 **questions. Why did you choose this particular location**
2 **for this SWD -- for this well?**

3 A. There were -- for spacing. We were trying to
4 adhere to the 1.5-mile wellbore-to-wellbore spacing that
5 the OCD has recommended. And, secondly, this is in an
6 area that we believe to be a developing area in which we
7 will have sufficient water to put downhole.

8 **Q. You just mentioned that you think there is**
9 **sufficient demand. So you intend to drill this well?**

10 A. We absolutely intend to drill this well. Yes,
11 ma'am.

12 **Q. And operate it?**

13 A. Yes, ma'am.

14 **Q. Given your experience with other operators in**
15 **the past in your prior work experience, you're familiar**
16 **with the regulatory requirements for operating and**
17 **maintaining an SWD like this?**

18 A. Yes, ma'am, we are.

19 **Q. In your opinion, does POP have the technical**
20 **and operational and other experience to comply with**
21 **those regulatory requirements?**

22 A. We do.

23 **Q. And you intend to comply with those regulatory**
24 **requirements?**

25 A. Yes, we do.

1 Q. Can you please turn to what's marked as Exhibit
2 B? Do you see Exhibit B there?

3 A. I do.

4 Q. Is Exhibit B an affidavit that I prepared
5 identifying the parties to whom notice was sent for this
6 hearing?

7 A. Yes, it is.

8 Q. And are those parties listed on pages 44 and
9 45?

10 A. Yes, they are.

11 Q. And is page 46 a spreadsheet showing the status
12 of those mailings?

13 A. Yes, it is.

14 Q. And it shows that almost all of them were
15 delivered?

16 A. That is correct.

17 Q. And then is page 47 an Affidavit of Publication
18 showing that notice of this hearing was published on
19 June 26th, 2019?

20 A. It is.

21 Q. Thank you.

22 Did you help prepare the C-108?

23 A. I did.

24 Q. And so this application and C-108 were created
25 by you or prepared under your supervision or direction?

1 A. That is correct.

2 Q. And was Exhibit B compiled from company
3 business records?

4 A. It was.

5 Q. Thank you.

6 MS. BENNETT: I have no further questions
7 of Mr. Puryear at this time.

8 CROSS-EXAMINATION

9 BY EXAMINER JONES:

10 Q. Was the well moved from the time it was
11 proposed administratively till now?

12 A. No, it was not. There was a Super Siphon No. 1
13 and a Super Siphon No. 2.

14 Q. Okay.

15 A. The No. 2 was submitted as a totally separate
16 application.

17 Q. Okay. This is the No. 2, though, isn't it?

18 A. That is correct.

19 Q. Totally separate. Okay.

20 And you noticed all the surface owners, not
21 just the owner of the well site?

22 A. We noticed the BLM and the -- and the State
23 Land Office.

24 Q. State Land Office.

25 A. Correct.

1 Q. And the State Land Office is the owner of the
2 well site?

3 A. Correct.

4 Q. And are you applying for a certain volume -- or
5 certain rate, I should say?

6 A. 50,000 barrels per day.

7 Q. You want that actually specified as a
8 maximum --

9 A. We prefer to have the surface pressure
10 specified, with rate being limited only by surface
11 pressure. But in the event that the OCD requests a
12 volume, we would request 50,000.

13 Q. Okay. And have you done any kind of -- on
14 these Silurian-Devonians, have you done any reservoir
15 injectivity simulation or testing to see if you could
16 get 50,000 under .2 psi?

17 A. We have. That's a question for Mr. Fisher who
18 will be the next witness. But empirically -- with the
19 other operator that I've worked for in the past, we've
20 drilled wells very similar to this and have done
21 empirical testing, and it does indicate that the rock is
22 there and the injectivity is there.

23 Q. Okay. Can you describe the surface equipment
24 that you would have out there?

25 A. Certainly. We'll have, obviously, two to three

1 different 1,500-horsepower H pumps. But specifically I
2 think you're asking what type of monitoring we will
3 have?

4 **Q. No. I'm really interested in the tanks and the**
5 **pumps and the type of pumps.**

6 A. Okay. Sure. This is a -- this is a three
7 gun-bar- -- or let me back up a little bit. This is a
8 fully automated, three gun-barrel system that will feed
9 into 14 suction tanks, six of which will be dedicated
10 suction tanks -- I'm sorry -- dedicated saline tanks,
11 four of which will be dedicated suction tanks and four
12 of which will be overflow tanks. They will be charged
13 through an automatic filter system, self-cleaning filter
14 system, which then goes through three different
15 1,500-horsepower H pumps. From there, it will go
16 downhole utilization of three different flowlines.

17 This particular wellhead is a frac stack
18 rather than a typical single-line wellhead. We will
19 monitor the backside, as well as the injection tubing,
20 through a continuous SCADA monitoring system that has
21 all the bells and whistles to notify us in the event
22 there is any type of failure or pressure concern, in
23 which case it will shut the system down.

24 **Q. So those 14 tanks, are those 500-barrel tanks?**

25 A. These are 750s.

1 **Q. So does your SCADA system include like**
2 **monitoring of the tanks for overflow?**

3 A. It does. It does. It's got a designated level
4 of alarm. There's a high alarm, which is basically a
5 notification that's sent out. Then there's a high,
6 high, which is to shut the system down. There are
7 throttle valves at the end of the facility. In the case
8 that we do hit a high, high alarm, it'll shut all three
9 throttles down.

10 **Q. So all that water coming in and you have to**
11 **shut things down, is it going to be diverted?**

12 A. It can. Not included in this application,
13 there are multiple different SWDs on this particular
14 trunk line. These wells, in the event that one of them
15 shuts, the other ones will remain open. In the event
16 that there is a massive failure, say a power failure
17 across the whole grid, the entire system will shut down.
18 This is a globally operated system.

19 **Q. The flowlines, are they 200-psi capacity or --**

20 A. The trunk line?

21 **Q. Trunk line.**

22 A. They're 333-pound working pressure. We plan to
23 operate this trunk line 200 psi.

24 **Q. Okay. Wow. Okay. That's -- I think that's**
25 **really important to know, if you can divert things if**

1 your well goes down. And that filter being
2 automatically a cleaning filter, I've never heard of
3 that. Nobody has to be out there changing the filters
4 out?

5 A. That is correct. Yeah. It filters itself and
6 diverts the sludge into one of four overflow tanks, in
7 which case that is dewatered. And the sludge is -- can
8 either be turned back into a slurry and gone downhole
9 with or it can go off to a landfill of sorts.

10 Q. Your reporting of skim oil to disposition, you
11 have somebody on staff to do the C-115?

12 A. We do.

13 Q. Okay. Now, the -- so 600 feet to deepest depth
14 to the fresh water. What is the maximum depth to the
15 water sands?

16 A. That's indicated by the New Mexico Office of
17 the State Engineer to be 625 feet, I do believe --
18 correction -- 610 feet.

19 Q. Okay. The fresh water doesn't appear to be
20 that good out here. It's 1,100 TDS or something like
21 that, I believe I saw in your centerfold.

22 A. I believe.

23 Q. As far as from the surface pipe to the 5,500
24 feet, what formations are you going through there?

25 A. Sure. The surface is just the quaternary fill,

1 along with the -- basically the top of the Rustler, and
2 then we will be covering the Salado and the Castile.
3 And basically the second string will cover all the salt
4 section.

5 Q. So it's saltwater, mud through that --

6 A. Correct.

7 Q. -- zone?

8 Okay. All the way to 5,500 feet or
9 whatever it shows here?

10 A. Correct. Yes, sir. 5,333 is what we're going.

11 Q. Okay. So the wellhead, you said, got some kind
12 of a higher-pressure wellhead or a wellhead that can
13 be -- you can measure some of the annular pressures
14 or -- in other words, you can plumb it for bradenhead
15 testing?

16 A. Yes, sir. It's preplumbed for bradenhead
17 testing.

18 Q. Okay. Okay. And the only issue that I see is
19 the notice issue to Delaware for the hearing here,
20 but --

21 A. Being that Delaware is not considered an
22 affected party within the one-mile area of review, we
23 did not feel the need to notify Delaware Energy.

24 Q. But they did file an administrative protest to
25 your administrative application.

1 A. Off of the public notice.

2 **Q. Okay. Off the public notice.**

3 MS. BENNETT: And we did publish again.

4 EXAMINER JONES: I saw you did publish
5 again here, which is nice.

6 MS. BENNETT: Yeah. So to the extent
7 Delaware Energy had notice of the administrative
8 application, they would have had the same notice.

9 EXAMINER JONES: I'm sure they're aware of
10 this, but it's just --

11 MS. BENNETT: Yes, they are.

12 THE WITNESS: It's interesting to note that
13 Delaware Energy told me directly that they were
14 notified -- or that they became aware of this well
15 through talking with the OCD.

16 CROSS-EXAMINATION

17 BY EXAMINER BROOKS:

18 **Q. So did you reach the conclusion that Delaware**
19 **is not an affected person?**

20 A. They're not within the one-mile area of review.

21 **Q. They don't own any interest within the one-mile**
22 **area of review or just --**

23 A. The nearest Delaware Energy well is 1.54 miles
24 away.

25 **Q. So they do not have a well?**

1 A. No, they do not.

2 Q. Have you identified where their interest is
3 located?

4 A. We have.

5 Q. And it is beyond the one-mile area?

6 A. It is.

7 Q. Not just the well but the land that they have
8 an interest in? Is any part of the -- is any part of
9 their lease that they have an interest in within the
10 one-mile area?

11 A. Well, that is a -- they only have SWD wells in
12 that particular area.

13 Q. Okay. They don't have any oil and gas wells?

14 A. Correct.

15 Q. Okay. I think that's -- what about their oil
16 and gas leases, though? That's what I'm concerned
17 about.

18 A. To my knowledge, there is not an oil and gas
19 lease that Delaware Energy is involved in within a
20 one-mile area of review of this well.

21 Q. Okay. To your knowledge. Do you know, or are
22 you just speculating?

23 A. We did the -- I was involved in the search --

24 Q. Okay.

25 A. -- and that did not turn up at the time we did

1 the administrative application. Something may have
2 changed since then, but to my knowledge, it has not.

3 Q. Thank you.

4 EXAMINER BROOKS: I'll postpone any further
5 questioning until the examiner's through.

6 EXAMINER JONES: No. I'm through. Thank
7 you very much.

8 THE WITNESS: Thank you.

9 Q. (BY EXAMINER BROOKS) Okay. I'm concerned about
10 the existence of several different -- several different
11 possible interpretations of the one-mile area -- not the
12 one-mile area -- that's pretty well set -- but of the
13 affected persons definition. What I understood you said
14 you did is, with regard to mineral owners, owners of any
15 interest in the mineral estate, you notified only the
16 operator of each tract, all a part of which was within
17 the area of review; is that correct?

18 A. We notified every wellbore owner within the
19 area of review as well.

20 Q. Every wellbore owner?

21 A. Correct.

22 Q. That would include nonoperators?

23 A. We notified the wellbore operator. Correction.

24 Q. Okay. You're talking about saltwater disposal?

25 A. I'm talking about every wellbore within the

1 one-mile area of review, the designated operator of that
2 wellbore was notified. In the event there was not a
3 wellbore in that one-mile area of review but there was a
4 designated operator, that operator was notified as well.

5 Q. Okay. Thank you.

6 REDIRECT EXAMINATION

7 BY MS. BENNETT:

8 Q. And if there wasn't an operator, then you would
9 notify the --

10 A. Leaseholder. And then in the event that there
11 is not a leaseholder, it would have gone to the mineral
12 owner.

13 CONTINUED CROSS-EXAMINATION

14 BY EXAMINER BROOKS:

15 Q. Well, I think you -- and that was -- so that
16 would include all persons who operate wells within that
17 area regardless of whether or not -- regardless of what
18 formation --

19 A. That's correct.

20 Q. -- that the wells are completed?

21 A. That is correct.

22 Q. Okay. Thank you.

23 EXAMINER JONES: Thanks very much.

24 MS. BENNETT: At this time I'd like to call
25 my next witness, Mr. Gary Fisher.

1 GARY FISHER,
2 after having been previously sworn under oath, was
3 questioned and testified as follows:

4 DIRECT EXAMINATION

5 BY MS. BENNETT:

6 Q. Good morning, Mr. Fisher.

7 A. Good morning.

8 Q. Will you please state your name for the record?

9 A. Gary Fisher.

10 Q. For whom do you work?

11 A. Permian Oilfield Partners.

12 Q. How long have you worked for POP?

13 A. Since November of '18.

14 Q. And what are your responsibilities for POP?

15 A. Saltwater disposal well operations. I'm
16 officially president, so many hats: procurement,
17 handling vendors, doing geology, handling our subject
18 studies, taking care of applications and permits.

19 Q. And so your responsibilities include management
20 and oversight of drilling saltwater disposal wells in
21 particular?

22 A. Yes.

23 Q. And does your area of responsibility include
24 the areas of southeastern New Mexico?

25 A. Yes, it does.

1 Q. Are you familiar with the application that POP
2 filed in this matter?

3 A. Yes, I am.

4 Q. Are you familiar with the well which is the
5 subject of this application?

6 A. Yes, I am.

7 Q. Now, you previously testified before the
8 Division a couple of weeks ago, too, didn't you?

9 A. Yes, I did.

10 Q. And I don't believe that Mr. Jones was at that
11 hearing. At that hearing you went through some of your
12 background to talk about your familiarity and expertise
13 in geology, fault slip analysis, log analysis. Would
14 you mind just repeating a little bit of that for
15 Mr. Jones' benefit?

16 A. Sure. I have a degree in mechanical
17 engineering from the University of Southern California.
18 That was 1991. So I've been in the oil and gas
19 industry, mainly through the well logging, log analysis
20 side, for 28 years now. So throughout that whole time,
21 I've been doing geology, log analysis interpretation
22 customers, that kind of thing.

23 I've done -- been involved in the Oklahoma
24 Corporation Commission, their induced-seismicity
25 studies, through a previous employer. I was part of a

1 working group there, so we did a pretty extensive study
2 on that. I actually came up with the logging -- the
3 logging procedures in place in Oklahoma are the ones
4 that basically I introduced.

5 I've been a member of SPWLA and SPE for
6 20-plus years in both of them and have quite a bit of
7 experience in fracture propagation analysis at a
8 previous employer as well.

9 **Q. Thank you.**

10 **And at the last hearing, your credentials**
11 **were accepted as a matter of record; is that right?**

12 A. Yes, ma'am.

13 MS. BENNETT: At this time I'd like to
14 tender Mr. Fisher as an expert in geology, log analysis
15 and fault slip analysis by virtue of his experience with
16 fracture propagation.

17 EXAMINER JONES: He is so qualified.

18 MS. BENNETT: Thank you.

19 **Q. (BY MS. BENNETT) Before turning to the**
20 **exhibits, I wanted to ask you a couple of general**
21 **questions.**

22 A. Yes.

23 **Q. A moment ago you testified that you're familiar**
24 **with the area where POP proposes to drill the Super**
25 **Siphon No. 2 well; is that right?**

1 A. Yes, ma'am.

2 Q. Did you review the geology for this area?

3 A. Yes, I did.

4 Q. What's the proposed injection interval for this
5 well?

6 A. The Silurian-Devonian.

7 Q. What's your conclusion about the injection
8 zone? Is it well suited for SWD purposes?

9 A. Yes, it is.

10 Q. And why is that, based on your experience?

11 A. Well, number one, you can look -- empirically,
12 you can look at all the other wells in the area. Just
13 historically, it's been a very good zone for saltwater
14 disposal. It's relatively thick, on the order of 1,500,
15 2,000 feet, depending where you are, fairly contiguous,
16 you know, throughout the entire basin. It does have
17 fairly good permeability -- zones of fairly good
18 permeability and decent enough porosity to be able to
19 accept the quantities of water we want to put into it,
20 and also it has very good barriers above and below.
21 You've got the Woodford up above and then the Montoya
22 down below and then also the Simpson down below that
23 before you get into the Cambrian basement rocks.

24 Q. Great.

25 And you prepared a geology prognosis for

1 the C-108 application; is that right?

2 A. Yes, I did.

3 Q. Is that found on pages 10 to 11?

4 A. Yes.

5 Q. And a moment ago, you noted that this area --
6 or the Silurian-Devonian is a good injection zone
7 because of its thickness and its permeability. What is
8 the thickness of the injection zone as far as your study
9 that you've included?

10 A. From the geology prognosis, the Devonian is
11 showing a little over 1,000 feet, the Fusselman about
12 700 feet, so all in about 1,700, 1,800 feet thick. We
13 would not inject into the Montoya.

14 Q. And so you're not even injecting into the first
15 100 feet of the Montoya?

16 A. No, not at all. The wellbore would stop short
17 of the Montoya.

18 Q. Okay. And a moment ago, you discussed that
19 there are permeability barriers above and below the
20 injection zones?

21 A. That's correct.

22 Q. Go ahead.

23 A. You can see the -- the Woodford up above -- a
24 little over 200 foot of Woodford up above before you
25 even get into the Mississippian. And then down below,

1 you have --

2 (Cell phone ringing.)

3 THE WITNESS: -- almost 400 foot of
4 Montoya, which is a really, really tight lime. You've
5 got the Simpson down below that, which is a pretty high
6 percentage of shale; 50 percent is shale. Below that is
7 Ellenburger, which is not really a barrier, but you've
8 got more distance, vertical separation through the
9 Ellenburger before you get down into the basement rocks.

10 (Examiner Brooks exits the room, 9:08
11 a.m.)

12 EXAMINER JONES: Okay. Go ahead.

13 **Q. (BY MS. BENNETT) So you have about 1,100 --**
14 **no -- yeah. About 1,100 or 1,200 feet of permeability**
15 **barrier below?**

16 A. That's correct.

17 **Q. Based on your review of the geologic materials,**
18 **including your study here, do you think that there is a**
19 **risk to freshwater resources if this well is drilled?**

20 A. No.

21 **Q. And why is that?**

22 A. Number one, we have very good barriers above
23 and below the zone, and also you have to look at
24 vertical separation. There's 15,000 feet of vertical
25 separation before any the known freshwater zones, and

1 the wellbore -- the well design has multiple strings of
2 casing and cement circulated to surface on all those to
3 help keep that from happening.

4 Q. Great.

5 Are you aware of any productive shales in
6 the injection interval?

7 A. No, ma'am.

8 Q. How about -- do you think there is any risk to
9 hydrocarbons above the injection interval, like in the
10 Bone Spring or the Wolfcamp?

11 A. No, ma'am.

12 Q. And why is that?

13 A. Because the Wolfcamp design specifically takes
14 that into account, and it runs casing in and cement to
15 surface to protect those protected zones.

16 Q. And there is also that Woodford permeability
17 barrier between?

18 A. That's correct.

19 Q. And that permeability barrier would protect any
20 hydrocarbons above the injection interval?

21 A. Yes, it would.

22 Q. So in your opinion, will the drilling of this
23 well impact the correlative rights of mineral interest
24 owners?

25 A. No.

1 Q. You prepared a statement regarding seismicity
2 when you submitted the administrative application,
3 didn't you?

4 A. Yes, I did.

5 Q. Let's look at pages 23 to 33. This statement
6 that you prepared is actually dated July 6th, 2019,
7 right?

8 A. Yes, it is.

9 Q. Which is after the administrative application
10 was filed?

11 A. That's correct.

12 Q. And it says it's revised?

13 A. Yes.

14 Q. Why did you revise this statement regarding
15 seismicity?

16 A. At our -- couple weeks ago at our last hearing,
17 we had some feedback from Mr. Goetze that he would like
18 to see some time-based analysis. The one I had done
19 previously just kind of showed you at the end of 30
20 years, and he had asked to kind of show me at 10, 20 and
21 30 years, what the results were versus time. And so I
22 redid it. I redid this one to that same specification.

23 Q. He didn't have any concerns, though, about your
24 ultimate conclusion, though, right? He just wanted to
25 see more data?

1 A. That's correct.

2 Q. And so this revised statement doesn't revise
3 any of your ultimate conclusions; it just adds an
4 analysis over time; is that right?

5 A. That's correct.

6 Q. When you prepared your statement regarding
7 seismicity, did you look at publicly available
8 information?

9 A. Yes, I did.

10 Q. Did you first consider whether there has been
11 any history seismicity in the area?

12 A. Yes, I did.

13 Q. And what did you determine?

14 A. Very minimal. I consulted the USGS and the
15 TexNet databases looking for earthquakes in the area all
16 the way back to the '80s. And you can see there were --
17 within 30 miles, which is admittedly a very large area,
18 there were -- there were five of them. The closest one
19 was about ten miles away.

20 Q. And that was in 1984?

21 A. Yeah. That was in 1984. And the others were
22 over 20 miles away.

23 Q. And when you looked at the publicly available
24 data, did you find any information about where the
25 nearest fault is to your proposed well?

1 A. Yes, I did.

2 **Q. And where is that fault?**

3 A. It's approximately six kilometers away. If you
4 go to page 25, you can see -- excuse me -- not page 25.
5 On page 27, you can see -- it's the year-five fault slip
6 probability, but it shows a dot where the well is
7 relative to some of the known faults in the area.

8 **Q. Uh-huh. So this is the dot (indicating) you're**
9 **referring to, is the well?**

10 A. That's correct.

11 EXAMINER JONES: Okay. Thanks.

12 THE WITNESS: And those -- that fault data
13 comes from primarily that Snee and Zoback paper for the
14 fault slip probability. I also compared it to the US
15 GIS -- USGS GIS geological using a structural database.
16 That's Ron Broadhead's paper. It's correlated to that,
17 and then double-checked the USGS Quaternary Fault and
18 Fold Database as well.

19 **Q. (BY MS. BENNETT) And then you ran a fault slip**
20 **probability analysis using the publicly available**
21 **Stanford tool, right?**

22 A. That's correct.

23 **Q. When you ran the fault slip probability**
24 **analysis, did you do basically a worst-case scenario?**

25 A. Yes, I did.

1 **Q. And what is that worst-case scenario?**

2 A. Well, the -- all the faults, the faults that
3 were found, there are all Precambrian faults. They're
4 basement rock. So they're not shown to be in the
5 Devonian in this area. So we assumed, right, the
6 worst-case scenario would be that there is a
7 catastrophic failure where all of the fluid actually
8 goes straight down, goes through the Montoya, through
9 the Simpson, through the Ellenburger into the basement
10 faults.

11 **Q. And that's noted in your point five on page 23;**
12 **is that right?**

13 A. That's correct.

14 (Examiner Brooks enters the room, 9:14
15 a.m.)

16 EXAMINER BROOKS: For the record, I turned
17 it off.

18 **Q. (BY MS. BENNETT) Point six on page 24 also**
19 **includes the distance to the nearest basement fault,**
20 **right --**

21 A. That's correct.

22 **Q. -- six kilometers?**

23 A. That's correct.

24 **Q. Okay. And then you also summarize your**
25 **conclusions in point six?**

1 A. That's correct.

2 Q. And what are your conclusions of the
3 probability of an induced seismic event over time, five
4 ten, 20, 30 years?

5 A. Zero percent after all of them.

6 Q. And, again, you noted this assumes a
7 catastrophic failure?

8 A. That's correct.

9 Q. So are the next pages, 25 through 33, the
10 additional information that you were requested to
11 provide by Mr. Goetze?

12 A. That's correct.

13 Q. Could you walk us through those pages and just
14 sort of describe the screenshots on each of the pages?

15 A. Sure. On page 25, the top image is what's
16 going to be the result from the -- the FSP software.
17 This shows pore pressure to slip, shows the different
18 faults. Basically, that -- that structure there in that
19 part of the basin I modeled with ten different fault
20 segments. So this shows the pressure increase in psi to
21 force slip on that fault. Okay? It also shows the
22 direction of the fault. There is a little circle down
23 there with an arrow coming across it. It basically
24 shows the direction of the stress, right, and then the
25 amount of pressure on a fault.

1 The one down below, I did a probabilistic.
2 I call it geomechanics variability. If my -- let's say
3 if my friction were to change by a certain amount or if
4 the direction of the fault were to change by plus or
5 minus five degrees, the stress gradients were to change
6 by a certain amount, it kind of shows some variation in
7 it, so it's not just that it's got to hit a certain
8 number. It gives you a range -- a working range of
9 stresses. Okay?

10 The next page, this one is for year five,
11 but it shows just a straight hydrology calculation
12 basically using a modified -- modified Theis equation,
13 pressure versus distance. The one down below we'll call
14 probable -- probabilistic hydrology. It's -- it -- it
15 looks at a distribution of inputs -- hydrology, so what
16 kind of fluid is it, basic fluid weights and gives you a
17 plus or minus, right, on the fluid weights, and then
18 also compressibility -- compressibility of the fluid
19 variances. There are different factors you can put in
20 there to give you a range, right, of -- of -- of
21 pressures.

22 And it's -- on this year-five one, it's a
23 little hard to tell, but there is actually a blue line
24 running right along the very left edge.

25 EXAMINER JONES: Okay. I see it.

1 THE WITNESS: Yeah. And the blue line is
2 pressure. Okay? Pressure at year five, and then the
3 green lines are just the very, very tips of the fault
4 pressure lines on the previous page. So what you look
5 for is if -- probabilitywise, right, chancewise, if the
6 blue line starts crossing over the green line, then you
7 have a certain percentage probability of a slip. In
8 this case it's just showing that basically the pressure
9 is so low or the hydraulic pressure is so low, it's not
10 even anywhere close to crossing over even the lowest
11 edge of the -- of the rock slip pressures.

12 **Q. (BY MS. BENNETT) Great.**

13 A. Year five -- the next one is the year-five
14 fault slip probability. This is the big sum-up. All
15 the faults over on the left are in green. The picture
16 has all the faults in green, and it gives you a --
17 the -- the -- the fault -- the pressure on each fault.
18 You can see even -- the green line is year five. The
19 vertical green line is year five, and you can see it's
20 on the order of 2 psi, right --

21 **Q. Uh-huh.**

22 A. -- which is basically nothing.

23 **Q. And just to clarify, on the left where it says**
24 **"Fault Slip Potential" and "Fault Selector," you**
25 **identified the faults and you created different**

1 **segments for multiple --**

2 A. That's -- that's correct. And you can actually
3 see on the little map there where the dot is, I gave it
4 fault numbers and identifies -- excuse me -- identifying
5 the segments.

6 Q. And each of those segments on this slide on
7 page 27 shows zero percent fault slip probability?

8 A. That's correct.

9 Q. Okay. Zero percent fault slip probability?

10 A. That's correct.

11 Q. Okay.

12 A. If you go to the next page, it's got the -- the
13 year-ten hydrology and the probabilistic hydrology, and
14 then the next one after that is the year-ten fault slip
15 probability. You can see once again it just gives you
16 year-ten hydraulic pressure versus distance. On the
17 probabilistic hydrology slide, you can see where the
18 pressures are coming up slightly, but they still don't
19 come anywhere to crossing over the slip pressures.
20 Okay? And then the overall summation at the end still
21 showing zero percent fault slip probability on each.
22 The highest pressure you're seeing right there is 10 psi
23 on a fault, where the required numbers for fault slip
24 are much higher than that.

25 The next three slides were basically the

1 same data, year 20, also showing zero percent fault slip
2 probability.

3 And then we ran it all the way out to year
4 30 on the next three, pages 32 and 33. You can see
5 the -- the hydraulic pressure versus distance. The --
6 you can see -- now you can see the blue -- on the
7 probabilistic hydrology, you can see the blue water,
8 basically the hydraulic pressure lines starting to kick
9 out a little bit to the right. Basically, it's getting
10 large enough to actually be able to display it on the
11 map now. But it's still -- still not crossing over even
12 the lowest ends of the -- of the geomechanics -- of the
13 variability of the geomechanics.

14 And then the last one is the year 30, still
15 showing zero percent of the fault slip probability on
16 each of the faults, the maximum pressure, and the
17 closest one is on the order of about 40 psi.

18 **Q. That's still pretty low?**

19 A. Yeah. It's still very, very low.

20 **Q. So your conclusion from the modeling is that**
21 **there is a very low probability of fault slip?**

22 A. Yeah. Correct.

23 **Q. Even over time?**

24 A. Yes. Correct.

25 **Q. And that's true even at 30 years?**

1 A. Yes. That's assuming fault, 50,000-barrels-
2 per-day injection rate over that -- constant over that
3 full 30 years.

4 Q. Okay. Were Exhibits -- was Exhibit A, the
5 C-108 and the statement regarding seismicity and the
6 geology prognosis, prepared by you, under your
7 supervision or compiled from company business records?

8 A. Yes.

9 MS. BENNETT: At this time I'd like to move
10 Exhibits A and B to be admitted into the record.

11 EXAMINER JONES: Exhibits A and B are
12 admitted.

13 (Permian Oilfield Partners, LLC Exhibits A
14 and B are offered and admitted into
15 evidence.)

16 MS. BENNETT: Thank you.

17 At this time I don't have any further
18 questions for Mr. Fisher.

19 EXAMINER JONES: Okay. I'll make it brief.

20 CROSS-EXAMINATION

21 BY EXAMINER JONES:

22 Q. This is all pretty overwhelming, but it seems
23 to be the same. And this is kind of what I think we
24 were looking for at the hearing, was to add the fault
25 slip probability data or calculation.

1 But your pore pressure calculation out away
2 from the well --

3 First of all, you're just assuming this one
4 well; is that correct?

5 A. That's correct.

6 Q. And then what -- is it -- are you using -- the
7 equation you're using for drop-off in pressure as you
8 move away from the well, what is that?

9 A. Well, it's called a Theis equation --

10 Q. Yeah.

11 A. -- from the documentation back in the -- geez,
12 when did they come up with that? In the '60s, I think.
13 So --

14 Q. So it's a -- it's a single phase -- single
15 phase and then you put in your 3 percent porosity or
16 whatever it is?

17 A. That's correct. That's correct. There are
18 inputs -- actually, the nice thing about now is that the
19 fault slip has it built in -- has a version of it built
20 into theirs. So actually the year-ten hydrology is
21 using a modified version of the Theis equation that
22 allows for variable -- variable flow.

23 Q. You can actually add layers, you mean?

24 A. Yeah. Yeah. You can change -- the original
25 equation was based on constant flow.

1 Q. Yeah.

2 A. The modified version, which -- which the FSP
3 uses, I think came out in the '80s sometime, where it
4 allows for a certain amount of time at one flow rate and
5 then a different flow rate and a different amount of
6 time.

7 Q. Okay.

8 A. It's a fairly simple modification.

9 Q. Okay. Now, this Devonian out here, it's a --
10 it's a waterdrive reservoir; is that correct? It's
11 pretty much a waterdrive reservoir?

12 A. Yeah. Correct. Correct.

13 Q. Do you know the nearest Devonian pods or
14 producing areas to this -- this area? Do you have an
15 idea?

16 A. The closest -- the closest Devon production I
17 know of is fairly far north, probably ten miles, 15
18 miles to the north.

19 Q. Okay.

20 A. And even then, I'm not sure it's economic.

21 Q. Okay. But you're way down in the Delaware
22 Basin?

23 A. Yes. Correct. Correct.

24 Q. It's just -- and so the -- the native pressure
25 in the Devonian, is that normally pressured here at this

1 **spot?**

2 A. Yeah, normally pressured. You'll see the
3 overpressure in the -- in the Wolfcamp and Bone Spring
4 stuff up above, right, but there is nothing -- the
5 Devonian actually takes water pretty well. If anything,
6 once you put a little bit of load on it, it's going to
7 be -- it's going to act underpressure.

8 Q. Okay. Okay. Do you have to acidize it a
9 little bit every so often --

10 A. Yes.

11 Q. -- keep it going?

12 And so you think your whole 1,800 feet or
13 so is taking water -- going to take water?

14 A. The way I looked at it is there is
15 definitely -- there are porosity and permeability
16 streaks in there. Out of an 1,800-foot zone, there is
17 probably going to be 2- to 3- -- couple hundred foot of
18 it -- let's say 250 foot of it that's going to be
19 probably higher -- higher permeability and relatively
20 higher porosity in the 6 to 8 percent range.

21 Q. Oh. And as calculated how? With a crossplot
22 porosity or --

23 A. Yeah, crossplot porosity.

24 Q. Okay.

25 A. Right.

1 **Q. Not bars zeroing at -- in --**

2 A. No. No. I've just been looking at crossplot
3 porosities from -- from offset logs.

4 **Q. But no sonic logs, right?**

5 A. Yeah. I have been looking at some sonics as
6 well.

7 **Q. Okay. So you've got three cross -- you've got**
8 **lithology also then?**

9 A. Yes. Correct.

10 **Q. And it's a dolomite?**

11 A. It varies depending on where it is. There is
12 predominantly dolomite. In certain areas, we'll get
13 more limey streaks. Right? So is it a limey dolomite,
14 or is it dolomitic lime?

15 **Q. Okay. So what, do you input an RW into this --**
16 **into your --**

17 A. No. There is no RW that enters into it, but
18 it's all -- I do -- in some sense, I take that into
19 account, whether the salinear [sic] fluid will affect
20 the -- the viscosity at temperature.

21 **Q. What is the temperature down there?**

22 A. On the order of a couple hundred degrees.

23 **Q. Okay.**

24 A. Yeah.

25 **Q. So that's a normal gradient?**

1 A. Yeah. Yeah, just a normal gradient.

2 So -- so the salinity of the fluid will
3 affect -- number one, you have fluid density and the
4 effects of viscosity of the fluid and basically the
5 permeability of it relative to the -- to the fluid --
6 fluid viscosity.

7 **Q. Okay. So are you assuming the permeability is**
8 **any kind of relationship to the porosity here?**

9 A. Yeah. Strictly speaking, you know,
10 permeability and porosity aren't always related.

11 **Q. In the carbonates, right?**

12 A. Yeah. Yeah.

13 But empirically, when you look at -- when
14 you look at other logs -- not other logs -- other
15 injectivity in other wells in the basin, it does seem
16 that the -- that the zones of higher porosity, I guess,
17 tend to have higher permeability as well.

18 **Q. Okay. Okay.**

19 A. Now, the numbers that I used in the -- in
20 the -- for the calculations, I looked at the whole zone.
21 Right? I didn't think it was correct to just say water
22 is only going into, you know, 200 foot of 6 percent.
23 Right?

24 **Q. Uh-huh.**

25 A. So I used a weighted average on it. I didn't

1 assume it all the way down. I said, "Okay. I'm in an
2 1,800-foot zone. I've got a certain number of feet." I
3 can't remember off the top of my head what it was on
4 this one, but several hundred feet of basically very,
5 very low porosity. It was going to be 2 percent limes
6 with very, very low perms, and then -- and then there is
7 going to be -- a pretty good size portion of it is going
8 to be at your -- like a 3 percent-ish kind of porosity
9 cross plot, and that's going to have permeabilities up
10 around 10 millidarcies or so.

11 **Q. Okay.**

12 A. And then you're going to have a couple hundred
13 to 300 foot of it which is going to be a lot higher
14 permeability and considerably higher permeability.

15 **Q. Porosity.**

16 A. Porosity. Excuse me.

17 So I did a weighted average on it. I said,
18 "Okay. I've got, you know, so many feet at this
19 permeability and this porosity and then a certain number
20 of feet at this permeability and this porosity" and add
21 them all up and do a weighted average of it. And I used
22 the weighted average numbers over the 1,700, 1,800 foot
23 as the input to the model.

24 **Q. Okay. You're not planning on doing any**
25 **sidewall coring or anything, are you?**

1 A. No, sir.

2 Q. What about logs? What logs are you going to
3 run?

4 A. Yeah. Well, I would like to run as many logs
5 as possible (laughter).

6 Q. Yeah.

7 A. But we have at the bare minimum --

8 Q. Aren't you the president of this company
9 (laughter)?

10 A. Yeah (laughter).

11 We have a neutron -- a compensated neutron
12 gamma ray log bottom to top, plus bottom logs.

13 Q. Okay. But not sonic? You're not going to run
14 sonic?

15 A. No, not at this point.

16 Q. And it's lateral log country, right?

17 A. Yes, it is.

18 Q. It's not induction -- or it's induction?

19 A. It depends on what portion of the drilling
20 you're in.

21 Q. Okay.

22 A. Up higher, it definitely would be lateral logs.
23 Depending on how you drill, if you swap out your muds
24 and you get down deeper, then you can probably run an
25 induction log.

1 Q. Okay. But your calipers are pretty -- pretty
2 good through this zone?

3 A. Yes, sir. Yes.

4 Q. And -- and these faults --

5 A. They're stereotypical gun barrels. Right?

6 Q. Okay. Okay.

7 These faults, we've heard stories that the
8 location of these faults may be getting fine-tuned as
9 these wells are being drilled with the data. Have you
10 looked at any of that or --

11 A. As yet, there's only been, in this area, maybe
12 one other well that's been drilled.

13 Q. Okay.

14 A. Right? And that was that Delaware Moomaw. And
15 that one, I'm not even sure the log data is available on
16 that one yet.

17 Q. Okay. Now, you probably covered this, but the
18 direction -- the azimuth of these faults -- what's the
19 dip of these faults?

20 A. I used -- if you go back, you can see all the
21 assumptions I used on page 24. So I assumed a 75-degree
22 fault dip, which is a little more -- I would say worst
23 case, I think, right, as opposed to a straight
24 up-and-down, like a 90-degree straight up-and-down.

25 Q. Yeah. So the most danger is a strike-slip

1 **fault?**

2 A. Yeah. Yeah. You're going to see the most slip
3 at about 60 degrees, so I tried to take it at worst
4 case. I don't think 60 degrees is realistic, but I
5 think 80 to 90 degrees is getting a little bit
6 conservative. So I tried to make a good, happy medium
7 with 75, and it corresponds to the data that we're
8 seeing on that Snee and Zoback paper as well. That's
9 what they recommended, so I ran with it.

10 **Q. Okay. Now, the azimuth of the faults versus**
11 **the current stress direction, what can you say about**
12 **that?**

13 A. Well, ideally, right, they need to be at
14 perpendicular. Right?

15 **Q. Uh-huh.**

16 A. If you have a fault that runs this way
17 (demonstrating) and you've got the stress running this
18 way (demonstrating), you're going to see a lot of slip
19 on it because we're basically pushing that rock past
20 each other. Right?

21 **Q. Uh-huh.**

22 A. In this area, though (demonstrating), you've
23 got a fault that basically runs more or less north and
24 south-ish. Okay? And then you've got stresses which
25 are running almost perpendicular to it. So it could

1 push really -- you know, the rock stress, it can push
2 really hard on that fault, but it's not going to go
3 anywhere.

4 Q. Uh-huh. It's not going to go strike slipwise?

5 A. Correct.

6 Q. Okay.

7 A. And the -- and the angle -- and the dip angle
8 isn't enough for it to start -- for it to start pushing
9 up over it. There is certainly no shear on it, and then
10 the angle is not enough that it's going to start pushing
11 over the top.

12 Q. Okay. And you know these are all in
13 Precambrian faults?

14 A. Yeah. According to all the public -- all the
15 public info, that's correct. Now, interestingly -- it's
16 not included. I did run it just for curiosity sake.
17 Assuming that -- say all these faults actually ran all
18 the way up into the Devonian -- I haven't seen any
19 evidence that they do, but assuming that they did, it's
20 actually a better-case scenario because your porosities
21 are higher, your permeabilities are higher in the
22 Devonian than they would be in the basement rocks.

23 Q. Uh-huh.

24 A. And so --

25 Q. But you're not running any dipole sonic or

1 **fully oriented sonics on this?**

2 A. Correct. Correct.

3 Q. What about -- you -- you were introduced as
4 **pretty much an expert in fracture slip analysis. Does**
5 **that mean you worked in hydraulic fracture design for**
6 **years?**

7 A. That's correct. That's correct.

8 Q. Okay. So you just -- the leak-off -- in other
9 **words, what are -- quickly, what are the factors that**
10 **would cause fracture slip in --**

11 A. Well, the -- the overriding one is always
12 direction of maximum stress.

13 Q. Okay.

14 A. Right?

15 So overburden, you're going to get fracture
16 initiation in the direction of your maximum -- maximum
17 stress, and 99 percent of the time, it's vertical due to
18 overburden.

19 Q. Right.

20 A. So it's going to initiate up and down, right,
21 and then it will start propagating in the direction of
22 your maximum horizontal stress. So --

23 Q. Okay. And the leak-off that would happen -- in
24 **other words, just forgetting about these -- worrying**
25 **about the seismic issues of actual fracturing of the**

1 Devonian, what is the probability of that versus matrix
2 injectivity? In other words, at what point would you
3 turn into a fracture -- fracturing the formation?

4 A. Yeah. You'd have to start exceeding the
5 fracture stress on the rock, and at .2 psi maximum
6 allowable, we're way below that. That number is -- I
7 used .75 psi for a -- for a frac gradient. So you'd
8 have to be injecting --

9 Q. .75 bottom hole for a frac gradient?

10 A. Oh. Psi per foot?

11 Q. Yeah.

12 A. So -- yeah, yeah. So you can do the math; you
13 know, times 18,000 feet would get you a surface pressure
14 to cause that.

15 Q. Okay. And by the time you get three miles
16 down, all that friction, your -- your actual pressure
17 into your Devonian is pretty low?

18 A. It's pretty low. Yes, it is. And we're not
19 proposing to inject with that type -- inject to that
20 kind of pressure. The maximum allowable is only .2 psi
21 per foot, basically to keep fractures from happening.

22 Q. Okay.

23 EXAMINER JONES: Mr. Brooks?

24 EXAMINER BROOKS: I don't think I have any
25 questions for this witness.

1 EXAMINER JONES: Okay. This is an
2 uncontested case, and we took an hour on it (laughter).
3 So --

4 MS. BENNETT: Could I ask a couple of
5 follow-up questions?

6 EXAMINER JONES: Yes, go ahead.

7 REDIRECT EXAMINATION

8 BY MS. BENNETT:

9 Q. Mr. Fisher, can you turn to page 15, please?

10 Now, when Mr. Puryear was testifying, I
11 believe Mr. Jones asked him if Permian Oilfield Partners
12 had amended their application. And I just want to
13 clarify for the record that the C-108 that's attached is
14 the exact C-108 that was submitted administratively?

15 A. That's correct.

16 Q. With the exception of the revisions to the
17 statement regarding seismicity?

18 A. Yeah, and the -- and the --

19 Q. Plugging risk assessment?

20 A. The plugging risk assessment.

21 Q. But otherwise the location has remained the
22 same?

23 A. That's correct.

24 Q. This is not an amended application?

25 A. No, it's not.

1 Q. And if you look at page 15, this is a list of
2 parties to whom you sent notice of your application; is
3 that right?

4 A. That's correct.

5 Q. Marathon is listed as a party to whom notice
6 was sent?

7 A. Yes. Yes.

8 Q. And then let me just take a look before I ask
9 you this question (laughter).

10 If you look at page 44, is this the list --
11 based on your understanding of this document, is this
12 the list of parties to whom I sent notice of this
13 hearing and of your application?

14 A. Yes, it is.

15 Q. And is number four on page 44 Marathon?

16 A. Yes, it is.

17 Q. And does it show that I sent them notice on
18 6/20/2019?

19 A. Yes.

20 Q. Thanks.

21 MS. BENNETT: I have no further questions
22 of Mr. Fisher.

23 EXAMINER JONES: Okay. Thanks, Mr. Fisher.

24 THE WITNESS: Thank you.

25 EXAMINER JONES: Is that all in this case?

1 MS. BENNETT: It is, but I would ask that
2 this case be continued for the limited purpose of me
3 clarifying with Marathon that this is not an amended
4 application. It's their understanding -- their
5 misunderstanding that this case -- this application is
6 an amended application and that it differs somehow from
7 the prior application. So I'd ask that this be
8 continued but for the limited purpose of me clarifying
9 that with Marathon.

10 EXAMINER JONES: Okay.

11 MS. BENNETT: I don't actually -- I mean,
12 Marathon has asked me to ask you to continue the case.

13 EXAMINER BROOKS: Yes. And I'm always
14 reluctant to have cases continued for a limited purpose.
15 I think you can rest your case if you want to, and we
16 can continue it with the understanding that you're going
17 to approach Marathon on that matter, but if Marathon
18 comes in here and says they want to be heard on
19 something, then I think we're going to have to hear them
20 and even though we may eventually decide they didn't
21 have a right to be heard. So I believe that we should
22 simply continue it, and you can state on the record that
23 you rest your case so that if the matter is re-opened,
24 you would have a right to present more evidence but not
25 otherwise.

1 MS. BENNETT: That's what I'd like to do.
2 I may have seemed a little distracted during the witness
3 testimony. I was trying to clarify this while the
4 witnesses were testifying so that we could put this
5 issue to bed today, but we weren't able to get to that
6 point in our communications that admittedly had to be
7 brief because of the ongoing proceedings. So I would
8 like to rest our case today with the understanding that
9 Marathon does have an outstanding request that it be
10 continued.

11 EXAMINER BROOKS: Okay.

12 EXAMINER JONES: What about the Delaware
13 notice issue?

14 EXAMINER BROOKS: Well, that's -- Delaware?

15 EXAMINER JONES: They were -- they
16 protested the admin application. We are at hearing, and
17 it hasn't been moved.

18 EXAMINER BROOKS: If Ms. Bennett rests her
19 case, which she said she did, then anybody else who has
20 a right to present something in this case can do so.
21 But we don't know whether they have a right, and they're
22 not here today. We're going to have to first decide
23 whether they have a right to present any evidence. If
24 they have a right -- if we decide they have a right to
25 present it, then we'll listen to it. If we decide they

1 don't, then we'll go ahead and take the case under
2 advisement.

3 MS. BENNETT: So is there anything I need
4 to do?

5 EXAMINER JONES: No. We've heard the case,
6 and it's continued, so thank you very much.

7 MS. BENNETT: Thank you.

8 (Case Number 20585 concludes, 9:40 a.m.)

9 EXAMINER JONES: Okay. Ten minutes.

10 (Recess, 9:40 a.m. to 10:05 a.m.)
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1 STATE OF NEW MEXICO
2 COUNTY OF BERNALILLO

3

4 CERTIFICATE OF COURT REPORTER

5 I, MARY C. HANKINS, Certified Court
6 Reporter, New Mexico Certified Court Reporter No. 20,
7 and Registered Professional Reporter, do hereby certify
8 that I reported the foregoing proceedings in
9 stenographic shorthand and that the foregoing pages are
10 a true and correct transcript of those proceedings that
11 were reduced to printed form by me to the best of my
12 ability.

13 I FURTHER CERTIFY that the Reporter's
14 Record of the proceedings truly and accurately reflects
15 the exhibits, if any, offered by the respective parties.

16 I FURTHER CERTIFY that I am neither
17 employed by nor related to any of the parties or
18 attorneys in this case and that I have no interest in
19 the final disposition of this case.

20 DATED THIS 26th day of July 2019.

21

22

23 MARY C. HANKINS, CCR, RPR
24 Certified Court Reporter
New Mexico CCR No. 20
Date of CCR Expiration: 12/31/2019
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