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. 20684

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

August 8, 2019

Santa Fe, New Mexico

BEFORE: LEONARD LOWE, CHIEF EXAMINER
MICHAEL McMILLAN, TECHNICAL EXAMINER
DANA Z. DAVID, LEGAL EXAMINER

This matter came on for hearing before the New Mexico Oil Conservation Division, Leonard Lowe, Chief Examiner; Michael McMillan, Technical Examiner; and Dana Z. David, Legal Examiner, on Thursday, August 8, 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.

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EXHIBITS OFFERED AND ADMITTED

(8:57 a.m.)

EXAMINER LOWE: We will call Case Number 20684, application of Permian Oilfield Partners, LLC for approval of a saltwater disposal well in Lea County, New Mexico.

Call for appearances.

MS. KATZ: Good morning, Mr. Examiners. My name is Lara Katz from the Santa Fe office of Abadie & Schill, and I'm here on behalf of Permian Oilfield Partners, LLC.

MR. DeBRINE: Good morning, Mr. Examiner. Earl DeBrine with the Modrall, Sperling firm entering my appearance for Chevron U.S.A., Inc.

And we did not file a written entry of appearance. We had protested this application when it was filed administratively. And I'm trying to determine if Chevron actually received the notice pursuant to the Division rules right now, but we're entering our appearance. And obviously we won't be allowed to present technical evidence, but we're going to be appearing at the hearing today.

EXAMINER LOWE: Okay.

MS. KATZ: Mr. Examiner, the exhibits will show -- that we go through will show that Chevron did receive notice.

And I have four witnesses.

EXAMINER LOWE: Okay. May the witnesses be sworn in?

(Mr. Puryear, Dr. Zeigler, Mr. Nave, Mr. Fisher sworn.)

EXAMINER LOWE: Oh, and I'd also like to mention -- I forgot to mention this earlier -- for all -- for everyone here, if you could please email all of your exhibits to Kathleen Murphy. She will submit all the exhibits to the cases online. Her email is kathleena.murphy@state.nm.us. We will get hard copies here now for review on our end, but to complete this entire process, it's easier for us if we got things electronically and we can upload it and process it there. So I forgot to mention that earlier.

MS. KATZ: All right. I'll call my first witness, Mr. Sean Puryear.

SEAN PURYEAR,

after having been previously sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MS. KATZ:

Q. Good morning, Mr. Puryear.

A. Morning.

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

A. My name is Sean Puryear.

Q. And with whom do you work?

A. I work for Permian Oilfield partners.

Q. What is your position at --

A. I'm the CEO of Permian Oilfield Partners.

MS. KATZ: And I'm going to refer to Permian Oilfield Partners as P-O-P, if that's all right.

EXAMINER LOWE: Okay.

Q. (BY MS. KATZ) And what are your responsibilities as CEO at POP?

A. I manage the design and development of saltwater disposal wells and produced water infrastructure in southeastern New Mexico.

Q. And do your responsibilities include management and oversight of drilling saltwater disposal wells?

A. They do.

Q. Does your area of responsibility at POP include the areas of southeastern New Mexico?

A. Yes, it does.

Q. Are you familiar with the application filed by POP in this matter?

A. I am.

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

A. I am.

Q. And have you previously testified before the Division in this case?

A. I have.

Q. And were your credentials accepted as a matter of record?

A. They were.

Q. And I'm going to have you go ahead and summarize your background and education for the examiners.

A. Sure. I've got a bachelor's of science in petroleum engineering from Texas Tech University in 2010.

Shortly after, I went to work for a local area operator in the Panhandle of Texas as a drilling engineer and field engineer, company man. Did that for a couple of years there. Moved to the Delaware Basin and particularly in Eddy County. Over the course of the next four years, I had several roles in the drilling of mostly horizontal wells but quite a few saltwater disposal wells as well. I wound up as a supervisory level engineer, as well as operations supervisor.

Like I said, I participated in the development of about 120 wells in southeastern New Mexico from which time I transitioned over to a completions and production role as a -- many different

roles as a field engineer, as a senior-level engineer, as a senior-level operations supervisor. I dealt with a lot of completions of deep Devonian saltwater disposal wells.

And I finally landed in a role as the senior-level engineer, senior operations supervisor for the water department at that particular operator's business, in which I was responsible for the development of and operation of nine deep Devonian saltwater disposal wells. I was responsible for the engineering and design work for three large-capacity saltwater disposal wells in Lea and Eddy Counties, utilizing 7-inch-by-5-inch and 7-inch-by-5-1/2-inch tubing. Those wells were accepted by the OCD, and they are in operation today.

Q. All right.

MS. KATZ: I would tender Mr. Puryear as an expert in operations and engineering matters.

MR. DeBRINE: Mr. Examiner, if I could confer with counsel for the Applicant, we have a question with regard to whether notice was actually sent. I accepted a representation that it was, but in looking at the exhibit package, it looks like the notice was given of the administrative application that was filed back in September, but there is no indication that

notice of this hearing was actually sent to Chevron. We don't believe anybody at Chevron received notice, and so we would request that the hearing today be continued because we didn't get three days' business notice prior to the hearing.

MS. KATZ: And if I may respond to that. If you would turn to page 44 of the materials. So I believe what Mr. DeBrine is looking at at the moment is the administrative notice. However, on page 44 is the notice of this hearing, which was sent certified mail, and it indicates, as you'll see, Chevron, about five up from the bottom, did receive notice. And notice was also published. There is an Affidavit of Publication on page 45.

MR. DeBRINE: But there is no indication as to when that notice was delivered on page 44.

MS. KATZ: This is a confirmation of delivery from the certified mail provider.

MR. DeBRINE: It doesn't indicate when it was delivered.

MS. KATZ: Well, the requirement is that it is sent -- it is sent 20 days before.

MR. DeBRINE: Yeah. I know that's the requirement of the rules, but there is no indication on this document that it was actually done on that day.

MS. KATZ: It indicates that it was delivered to Chevron, and it indicates above that it's generated on July 23rd -- or that it's created on June 23rd.

If I need to, I can get -- I can get further confirmation, because it was sent out on the proper date ahead of time. So I would ask that the hearing continue, go forward. I have all my witnesses here who have traveled from out of town.

EXAMINER McMILLAN: Legal question.

EXAMINER DAVID: Counsel, question. So the transaction -- so the notices were sent all on the same day; is that correct?

MS. KATZ: Yes, they were.

EXAMINER DAVID: And as an attorney, is there -- are you aware if there are basic assumptions about the orderliness of delivery of mail?

MS. KATZ: Yes.

EXAMINER DAVID: And that generally speaking, mail is delivered within three to five days of when it's sent?

MS. KATZ: Yes.

EXAMINER DAVID: So based on the orderly delivery of mail, is there any reason to believe that the notice was not timely received?

MS. KATZ: No. And it indicates that it was -- this is certified mail, and it indicates it was delivered, and there is a return receipt.

EXAMINER DAVID: Thank you very much.

MR. DeBRINE: And we would just ask that the case be continued because Chevron did not -- at least from what I can tell, didn't receive notice of the hearing, and I didn't bring any witnesses with regard to oppose the hearing. And then we have a right to de novo appeal, but rather than go through the process of a de novo appeal, I think it makes sense to defer and have this heard before the Division at a time when everybody's ready and available.

MS. KATZ: And I would just again state that I have all our witnesses here that have traveled from out of state.

The basis for Chevron's administrative protest was indicated, and they know the basis of that. And they did receive notice of this case. They also knew about this case because my law firm had to request a conflict waiver. So they have been aware of this case, and so they had every chance to come in. And we would like to proceed with putting on our case with our witnesses who are here.

MR. DeBRINE: And I would just note in

terms of convenience, they do have another case that the witnesses are here for anyway, so they would have been here regardless of whether this case was going to be heard.

EXAMINER McMILLAN: July 23rd is at least ten business days from today, right? I don't have a calendar.

MR. DeBRINE: Yes, if this is accurate, then. But on its face, it doesn't indicate anything to me as to when it was actually delivered. And I'm trying to determine from communications with Chevron as to whether anybody actually received it and when, and I don't have that information.

EXAMINER McMILLAN: Okay.

MR. DeBRINE: I was just going off of the green sheets that were in the beginning that indicate delivery in March.

MS. KATZ: And, again, I would state as attorney that notice was performed as per the rule, sent 20 days -- at least 20 days prior to the hearing, and we have the confirmation of delivery, and that is all that's required.

EXAMINER DAVID: My advice to the hearing examiner is in my experience in these things as a lawyer, that there is a presumption of regularity in the

mail, and I think that the -- that the director would have authority in this case to proceed under these facts. I don't think that the failure to say exactly what date the notice was received is fatal to this application, as a legal notice.

EXAMINER LOWE: Okay. Well, we'll hear the case since your witnesses are here for this particular matter, and then we'll bring forward other issues that come about as time progresses. Since your witnesses are here and prepared for this case, we'll have them bring forth their statements now.

MS. KATZ: And will the case -- I'm not clear on what you're saying. Will the case be taken under advisement or -- I mean, Chevron, as Mr. DeBrine indicated, does have a right to appeal.

EXAMINER McMILLAN: It depends on what the testimony that's presented today determines.

MS. KATZ: Okay. But on the basis of the delivery --

EXAMINER McMILLAN: We're hearing the case today.

MS. KATZ: Okay.

EXAMINER McMILLAN: That's all that can be said at this point.

MS. KATZ: Okay. Thank you.

Again, I'd tender the witness as an expert in operations and engineering matters.

EXAMINER LOWE: So qualified.

MR. DeBRINE: No objection.

CONTINUED DIRECT EXAMINATION

BY MS. KATZ:

Q. All right. POP originally filed this application for the Big Suck Federal SWD No. 1 as an administrative application; is that correct?

A. That is correct.

Q. And were there protests?

A. There were.

Q. And who protested?

A. Chevron protested.

Q. And Chevron did not enter an appearance in this case until this morning, correct?

A. Correct.

Q. And they were given notice of the hearing?

A. They were.

Q. And the State Land Office entered an appearance and then withdrew that appearance?

A. That is correct.

Q. All right. Please turn to Tab 1 of your materials, and behind Tab 1, marked as Exhibit A, is the application for an injection well, the Big Suck Federal

No. 1, along with the C-108 and the backup documentation?

A. That is correct.

MS. KATZ: And I will note that the application included in these materials is an amended application and that the injection interval has changed, and Mr. Gary Fisher will be testifying regarding that in his testimony here.

Q. (BY MS. KATZ) Mr. Puryear, can you explain what POP seeks under this application?

A. Sure. POP seeks to drill and utilize the Big Suck Federal SWD No. 1 to inject salt water into the Devonian/Silurian Formation with a depth from 17,935 feet to 19,475 feet utilizing a 7-inch-by-5-1/2-inch tubing string at an injection pressure of 3,587 pounds, which follows the 0.2-psi-per-foot gradient at a maximum rate of 50,000 barrels per day.

Q. And if you would turn to page 8 -- I'd like to have you go through the properties of the casing and the wellbore schematic on pages 8 and 9 as they relate to protection of freshwater resources, underground sources of drinking water and mineral rights that could be affected, so if you could begin on page 8 of the document entitled "Well Construction Data."

A. Sure. Overall, this is a four-string casing

design, with three strings bought back to surface. All three of those strings will be cemented with cement circulated all the way through surface. The surface casing string is set to be -- is set at a depth of 740 feet. That will be deeper than any known fresh water in the area. Again, that is cemented to surface. That string in and of itself protects any known fresh water in the area.

In addition to that, we have intermediate number one and intermediate number two. Intermediate number one will cover the salt section so as not to contaminate any freshwater zones through any kind of chlorides. And intermediate number two will cover the Delaware, the Bone Spring and into the top of the Wolfcamp. That will isolate any kind of lower-pressured, you know, potentially protective zones.

The liner, which we're calling intermediate number three, will be set -- tied back 200 foot inside of the 9-5/8. That string will protrude down to about 35 feet into the Devonian Formation. That particular string will isolate the potentially productive zones directly on top of the Devonian Formation, as well as the Wolfcamp, Morrow, everything up to the zones that the 9-5/8 is covering. That string will be run as a liner. It will be cemented. We will sting [sic] out

the liner, and we will circulate cement off of the liner top so as to confirm there is a positive and good cement across that interval. We will also run a cement bond log to verify that the cement is, in fact, intact and across that entire interval.

Q. And is the casing that POP is proposing for each step consistent with industry standards?

A. It is.

Q. And you mentioned before that you've worked on deep Devonian SWD projects for other companies?

A. Yes, ma'am.

Q. And is the wellbore schematic and design that POP is proposing consistent with what you saw in your prior experience?

A. It is.

Q. And consistent with what you understand other operators to be proposing for similar high-volume SWDs with similar tubing size?

A. It is.

Q. Is the casing designed to protect freshwater resources?

A. It is.

Q. And what type of tubing will be used?

A. This will be a 7-inch, 26-pound HCP 110 flush joint casing. It will cross over to a 5-1/2-inch,

17-pound HCLE flush joint casing. This is a thread profile that is known to be gas tight. It's also one of the few that are designed specifically for a fiberglass insert liner, in which case we will be using a fiberglass insert liner that will protect this particular tubing string from any type of corrosion from the ID.

On the OD, we will have -- at the very bottom, we will have a permanent set Inconel packer that will isolate the back side from any type of corrosion. And there will be an inert packer fluid behind the tubing, as well as a SCADA system that will continuously monitor the annulus, as well as the tubing to check for any type of leaks or any areas that the tubing or casing would not be competent and alert us immediately.

Q. Okay. Is this tubing consistent with industry standards?

A. It is.

Q. And the application addresses whether there are other wells within the proposed area of review that penetrate the Devonian Formation. Are there any such wells?

A. There are no wells within the area of review that penetrate the Devonian.

Q. And are there any freshwater wells in that

area?

A. There are no freshwater wells according to the Office of the State Engineer within the well's one-mile area of review.

Q. And page 17 shows water wells within the one-mile area of review, correct?

A. That's correct.

Q. And the documentation showing the results of the State Engineer database search is included on pages 18 through 26; is that correct?

A. That is correct.

Q. Okay. Turning to page 13 of the materials. This shows the well location and one-mile area of review for the Big Suck Federal No. 1, correct?

A. That is correct. It's also on page 14.

Q. Yes.

And that shows the one-mile area of review and also a two-mile radius -- area?

A. Correct.

Q. Did you use these maps to identify wells within a one-mile radius?

A. We did.

Q. And those maps are shown -- sorry. Those wells are shown on page 14?

A. They're shown on page 14.

Q. And then they're listed on page 16?

A. That's correct.

Q. And if you turn to the last page of the materials, which is a seismicity statement from Mr. Fisher, which he'll testify to later, that discusses -- below the screenshot, there is a discussion of where the closest permitted or active Devonian disposal well is to your well?

A. That's correct.

Q. And where is that located?

A. That well is approximately 2.35 miles away, and that is the Salado Draw 13 No. 1.

Q. And that is an active well?

A. It's an active well. It's in Section 13, 26-32.

Q. Okay. So when you filed the application administratively, did you send notice to the affected parties?

A. We did.

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

A. We followed the New Mexico Administrative Code's definition of an affected person. That definition -- that definition states that we should notify anybody that is a wellbore operator within the

well's one-mile area of review or a designated operator within the well's one-mile area of review. In the event there is not a designated operator, we would notify the leaseholder. In the event there is not a leaseholder, we would identify -- or we would notify the mineral owner. We also identified the surface owner, which is the BLM, and the State Land Office.

Q. Okay. So you did send letters to the State Land Office and the BLM?

A. We did.

Q. And then the affected parties to which you sent notice for your administrative application are included on page 28; is that correct?

A. That is correct.

Q. Okay. And did you -- sorry. And you also published notice of your administrative application, which is shown on page 32, correct?

A. We did.

Q. Did you request to amend the C-108 to change the maximum injection rate for this well?

A. We did.

Q. And did that reduce that maximum injection rate?

A. It did. This well was initially designed for 66,500 barrels per day. We reduced that maximum

requested injection volume to 50,000 barrels per day.

Q. Okay.

MS. KATZ: And that request was made via email, which I meant to include in the materials but I didn't, so I will be sure to send that after the hearing.

Q. (BY MS. KATZ) And the C-108 that is included with these hearing exhibits includes the amended maximum injection rate, correct?

A. It does.

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

A. We did. We consulted with a local area fisherman named Steve Nave with Nave Oil & Gas.

MS. KATZ: And Mr. Nave is here today actually, and he will be testifying to discuss those operations.

Q. (BY MS. KATZ) Did you prepare a Plugging Risk Assessment?

A. I did.

Q. And is that included on pages 33 through 41 of these materials?

A. It is.

MS. KATZ: And Mr. Nave will go through that risk assessment in his testimony.

Q. (BY MS. KATZ) Why did you choose this particular location for this well?

A. This location satisfied the NMOCD's request for a minimum of a one-and-a-half-mile wellbore-to-wellbore spacing. It's also an area of increasing development where there is a need for produced water disposal. And we specifically picked this area because of the well density -- the proposed well density and our ability to take that fluid and dispose of it for those operators.

Q. And so you intend to drill this well and operate it?

A. We do.

Q. Based on your prior work experience with other operators, you're familiar with the regulatory requirements for operating and maintaining an SWD such as this one?

A. We are.

Q. And in your opinion, does POP have the technical and operational and other relevant experience to comply with those regulatory requirements?

A. We do.

Q. And do you intend to comply with those regulatory requirements?

A. We do.

Q. Can you please turn to what is marked as

Exhibit 1B, which is on page 42 behind Tab 1? Is this an affidavit that I prepared identifying the parties to whom notice of this hearing was sent?

A. It is.

Q. And those parties are listed on page 44?

A. They are.

Q. And does that spreadsheet show the status of those mailings?

A. It does.

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

A. It does, as of 7/23.

Q. And is page 45 an Affidavit of Publication showing that notice of this hearing was also published on July 19th, 2019?

A. It is.

Q. Did you help prepare the C-108 for this well?

A. I did.

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

A. That is correct.

Q. And was Exhibit 1B compiled from company business records, which is the parties --

A. Yes.

MS. KATZ: And I have no further questions

for Mr. Puryear at this time.

EXAMINER LOWE: Do you have any questions?

EXAMINER McMILLAN: Wait, wait. Cross.

MR. DeBRINE: I just have a couple of questions.

CROSS-EXAMINATION

BY MR. DeBRINE:

Q. With regard to page 44, the delivery notice page, did you generate that document?

A. I did not generate this document.

Q. Do you know who did?

A. I do.

Q. Who was it?

A. I believe it was Ms. Katz.

Q. And it does not indicate the actual date that notice was delivered; is that correct?

A. That's correct. It indicates the date that this document was generated, at approximately 3:48 p.m. on July 23rd, indicating that that return receipt was delivered -- that that package was delivered, and there is an electronic return receipt.

Q. But you don't know if this document was actually generated on July 23rd?

A. It states that it was generated July 23rd.

Q. But you don't have any knowledge with regard to

whether that actually is true or not because you didn't prepare it?

A. I don't.

Q. Did you have any conversations with anybody at Chevron with regard to the application that was filed with NMOCD?

A. We did.

Q. When was the last conversation you had?

A. It was several months back, with Mr. Fred Vainer [sic], I believe is his name.

(The court reporter requested a repeat of the name.)

THE WITNESS: Verner.

Q. (BY MR. DeBRINE) But those conversations were several months back with regard to the administrative application; is that correct?

A. Correct.

Q. You didn't have any subsequent conversations with regard to the formal application filed with the Division that's being heard today?

A. No.

Q. Do you know who determined the address to send notice to Chevron?

A. Yes. That original address was determined through our company records, as well as publicly

available information on the OCD's website, also on several other land type of websites and also through the courthouse documents.

Q. And if you look at page 14 of Exhibit A, which is the area-of-interest map, that indicates that Chevron owns -- leases in Section 28 immediately to the east of the proposed well; is that correct?

A. It does.

Q. And what is the nearest -- the distance between the proposed well and any active well of Chevron?

A. I'd like to back up a little bit. Did you say Section 28? Can you clarify that for me?

Q. I'm sorry. 29.

A. In Section 29, Chevron has leased acreage. Yes.

Q. And what is the distance between proposed injection well and any producing well Chevron has?

A. It is within one mile.

Q. And what is the basis for the right of your company to drill the proposed injection well? What's the source of your title?

A. Can you explain that a little further?

Q. How is it that you have a right to actually drill and inject? Who grants you that authority? What landowner?

A. That authority hasn't been granted yet. That's what we're doing today.

Q. And I'm not talking about the authority of the NMOCD to approve an injection well. I'm talking about the title or right with regard to the interest in land that gives you the right to inject.

A. Well, the pore space at the moment is owned by the surface owner, which is the BLM in this case. It is standard accepted practice to file for an application and request an authorization from the NMOCD to inject in that interval. The BLM will grant that request assuming that we get an application for a permit to drill and produce, and a right-of-way, I believe, is what the BLM is requiring.

Q. And the pore space -- you're not a lawyer, are you?

A. I'm not.

Q. And you don't know whether -- as a matter of legal principle, whether the BLM is a surface owner, would own the pore space under New Mexico law?

A. I can't comment on legal affairs in that matter.

Q. And have you ever been involved in the drilling or overseeing the operation of an injection well in this particular township and range before?

A. In this and range? Yes -- correction. One township and range over, 26-32.

Q. So this is your first well in this area?

A. In this township and range, yes. The nearest well that I've been involved in is about six miles to the west.

MR. DeBRINE: No further questions.

EXAMINER LOWE: Questions, sir?

EXAMINER DAVID: I have no questions.

EXAMINER LOWE: Michael?

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. And we want to make sure when you run logs, we get a copy of all logs.

A. Absolutely.

Q. And what was the date of the Chevron -- what was the date of the Chevron protest -- administrative protest?

MS. KATZ: I can -- I don't have their protest in the materials. I can get that.

EXAMINER McMILLAN: Okay. Supply that to me.

MS. KATZ: Yes.

EXAMINER McMILLAN: I don't have any questions.

EXAMINER DAVID: Sorry. I do have one question.

CROSS-EXAMINATION

BY EXAMINER DAVID:

Q. Mr. Puryear, just looking at page 5 of the application, the front page of the Oil Conversation Division form, it identified -- the certification of truthfulness and correctness is by Mr. Gary Fisher, whose title is manager. So I assume that means he's a manager of Permian Oilfield Partners?

A. He's the president of Permian Oilfield Partners. Yes, sir.

Q. Okay. Thank you.

CROSS-EXAMINATION

BY EXAMINER LOWE:

Q. It was stated -- you said there were no water wells from the State Engineer's Office indicating that there are no water wells within a one-mile radius?

A. In the area of review.

Q. Okay. And it was mentioned that there was an amendment that was submitted and that amendment was 66,000 to --

A. Correct. This well was originally proposed at 66,500 barrels per day max.

Q. Oh, per day.

A. That's been reduced to 50,000.

Q. Okay. And when was that amendment submitted or when --

MS. KATZ: I don't have the actual date. I believe it was in early July, but I'll put that -- I'll send that in as well, that email.

EXAMINER LOWE: Just to -- just to clarify and to keep my radar awake, you're going to be sending an email -- or, actually, in reference to that amendment, you said there was an email. What did you mean by that?

MS. KATZ: It was an email to the OCD, I believe to Mr. Goetze, with -- you know, indicating -- just asking to amend the application to reduce the maximum injection rate.

THE WITNESS: That email was sent by Mr. Fisher. I'm sure he can comment on that.

EXAMINER LOWE: Yeah. I don't have that in here or anything for that matter, but I will keep an eye on that. If you could --

(Consultation off the record.)

EXAMINER McMILLAN: Yes. Make sure that Chevron gets a copy so there are no questions.

THE WITNESS: Yeah. The application that we're discussing today states 50,000 barrels per day.

EXAMINER McMILLAN: That's fine.

EXAMINER LOWE: That's fine.

MS. KATZ: And I will include that email and the other things with the exhibits that I file -- send to Kathleen Murphy.

EXAMINER LOWE: Okay. Yeah. I'll keep an eye on that on my side and attach it to this case.

That's all the questions I have for you.

MS. KATZ: May I ask a follow-up?

MR. DeBRINE: Yeah. I just have one follow-up based on that question.

MS. KATZ: Why don't you go first?

RECROSS EXAMINATION

BY MR. DeBRINE:

Q. Yes. I noticed on page 5 of your exhibits, which is -- it's denominated "Application for Authorization to Inject," and that's dated August 6th, 2019.

MS. KATZ: And Mr. Fisher is going to be testifying with regarding that matter, so I'd ask you hold off questions for him.

MR. DeBRINE: Well, I guess I'm confused because the testimony has been that an email was sent amending the application --

MS. KATZ: This is a different amendment,

and Mr. Fisher will testify to that.

MR. DeBRINE: Okay. And obviously nobody was given notice of something that was just filed a couple days ago.

MS. KATZ: And Mr. Fisher's testimony will go through that issue.

MR. DeBRINE: But we would just renew our objection to the case being heard because we didn't receive notice of the amendment that was filed through email. I think that they would have had to provide notice to the interested parties with regard to the change because it's a material change, with regard to the amount of volume water that's going to be injected into the well.

MS. KATZ: The email that was sent in early July was prior to the filing of this hearing application, and this hearing application, the one that was noticed to Chevron, requested the 50,000 barrels.

The amendment that I'm talking about with Mr. Fisher has to do with a change in the injection interval, a slight change based on some new date, and he is going to testify about that and why it is not a material change that does not require further notice.

Are there any other questions?

MR. DeBRINE: Well, I think it's

inappropriate to have a new application being heard in conjunction with this case where the new application is part of the hearing exhibits, and none of the interested parties were provided notice of the new application. Whether it's material or not, the Division rules require that a new application be sent and interested parties notified, and that wasn't done --

MS. KATZ: And that objection --

MR. DeBRINE: -- so I think it makes sense to continue.

MS. KATZ: That objection can be made at the time that Mr. Fisher goes through his testimony on that point.

May I ask one follow-up question of Mr. Puryear?

EXAMINER LOWE: Yes, you can.

REDIRECT EXAMINATION

BY MS. KATZ:

Q. Mr. Puryear, was POP required to request this hearing because Chevron protested their administrative application?

A. That is correct.

Q. So Chevron was aware that this case would be going to hearing?

A. Chevron was aware.

Q. Thank you.

MR. DeBRINE: Just one follow-up question.

RECROSS EXAMINATION

BY MR. DeBRINE:

Q. You didn't -- you've never, after Chevron posted, you didn't -- you've already indicated you did not have any further conversations with Chevron that you were going to request the application be heard on the formal adjudicatory docket; is that correct?

A. That's correct. We have an affidavit in our packet here from Ms. Katz stating that the mailings on the page that are in question for you are, in fact, true.

MR. DeBRINE: No further questions.

EXAMINER LOWE: Well, I think what we're going to do right now, being that there is a little motion going on with this case, we're going to take a 15-minute break. We'll discuss on our end, and we'll bring back our consensus afterwards. So in about 15 minutes, we'll come back.

(Recess, 9:35 a.m. to 9:49 a.m.)

EXAMINER LOWE: And now we'll continue with your next witness.

MS. KATZ: POP calls Mr. Steve Nave.

STEPHEN J. NAVE,

after having been previously sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MS. KATZ:

Q. Good morning, Mr. Nave.

A. Good morning.

Q. Can you please state your full name for the record.

A. Stephen J. Nave.

Q. And for whom do you work and in what capacity?

A. I'm president and owner of Nave Oil & Gas, a fishing tool company in Hobbs, working in the Permian Basin, performing fishing operations for the oil fields.

Q. And you have testified before the Division on previous occasions?

A. I have.

Q. And your qualifications were accepted as a matter of record?

A. Yes, ma'am.

Q. And can you briefly summarize your background and experience for the examiners?

A. I went to school in Hobbs, New Mexico, high school education. I was a roustabout, gang pusher, roughneck, driller, tool pusher. Then I started in the

fishing tool business for a company called Star Tool Company in 1980. I've been dealing with fishing tools and fishing operations ever since. I own the company that I'm working for now.

Q. So you have extensive experience in fishing operations?

A. Yes, ma'am. That's all I've done for 39 years, is fishing.

Q. Does your area of responsibility include the Permian Basin in southeastern New Mexico?

A. It does.

Q. And are you familiar with the application that has been filed by Permian Oilfield Partners in this case?

A. Yes, ma'am.

MS. KATZ: At this time I'd tender Mr. Nave as an expert in fishing operations.

MR. DeBRINE: No objections.

EXAMINER LOWE: He is so qualified.

THE WITNESS: I'm sorry?

MS. KATZ: You are qualified.

Q. (BY MS. KATZ) All right. Mr. Nave, will you please turn to page 33 behind Tab 1 of the materials? And this is the Plugging Risk Assessment for this proposed well. Have you reviewed this document to

prepare for your testimony today?

A. Yes, I have.

Q. At the bottom of page 2 of this document, which is page 34 of the materials, it shows well schematic, and there is a section titled "Tubing." Can you discuss the tubing specifications set out there and what they refer to?

A. The tubing specifications here would be 5-1/2-inch tubing on the bottom, 7-inch tubing on the top, sometimes referred to as casing because that's normally what it is. The casing, in this instance, we're going to be using it as tubing. It's pretty standard stuff for the injection wells nowadays of these deeper, larger wells. I suppose that's -- that's the gist of it.

Q. All right. And if you turn to the next page, there are charts referring -- regarding 7-inch tubing inside of a 9-5/8-inch casing. Can you explain those charts and what they refer to?

A. What -- what this is doing is giving you ODs, outside diameters and inside diameters, of the tubing and the casing, which would be the permanent part of the well, the inside diameter. And then what this translates to in my terms is fishability, what can we do inside of this in the case of a problem as far as -- as

far as being able to recover the tubing. The casing would be cemented in. So that's what the diameters here give, is the nominal diameters on the -- on the tubing --

Q. Okay. And if you turn to the next page, this -- this section discusses fishing procedures for 7-inch tubing. And can you briefly walk us through and explain those procedures beginning with the overshot fishing procedure?

A. Okay. This is -- the overshot procedure is one of several procedures that may be used in fishing 7-inch casing out of -- out of 9-5/8 -- 7-inch tubing out of 9-5/8 casing.

Basically, there would be two methods that are -- that are thought of first off, and not necessarily the only methods, but you either catch it from the outside or you catch it from the inside. The overshot method is from the outside. It involves a tool that is designed to slide over the casing from the outside. It has teeth in it that bites into the outside wall of the -- pick it back up and remove it from the well.

Q. So if you continue to the following page, this discusses other fishing procedures.

A. The spearfishing procedure is another option to

pick this up. It is basically the opposite type tool. It would be a smaller diameter tool that would go inside the 7-inch casing. It has teeth to bite from the inside to be able to remove something that's parted from the well.

This tubing does have a fiberglass liner in it. That can be dealt with fairly easily, so fishing from the inside is absolutely a viable alternative in this case.

Q. And then the charts on page 38 of the materials, that's for the 5-1/2-inch tubing, correct?

A. That's correct.

Q. And then turning to the next page, the fishing procedure is the same as that for the 7-inch tubing, correct?

A. That's correct. It's just -- it's just a difference in the size of the tools that we would use.

Q. All right. Would you say there is an advantage to a larger tubing string as far as plugging goes?

A. Absolutely. In other wells over the Permian Basin, we use the same size stuff as casing. All of the plugging has to be done from the inside in a casing situation. And this you have the potential to pull the tubing from the well, but if you can't, you can still do anything to plug the well from the inside of the tubing.

Just leave the tubing in there. So as far as plugging risk, this well would be easier to plug than your standard production well that would have 5-1/2 casing or 2-7/8 or 2-3/8 tubing in it.

Q. So turning to what is marked as page 41 in these materials, page 9 of the Plugging Risk Assessment, can you please explain the abandonment procedure in the event of a tubing failure?

A. The tubing failure, if you -- if you opt to remove the tubing from the hole, there would be numerous methods that we could go through to retrieve it. It should be no problems getting ahold of the tubing. It even could be washed over inside the casing if it were stuck. And like I say, if -- if you get the tubing out, well, then it's a standard plugging operation. If you don't get the tubing out, like I say, there is the option to plug it from inside the tubing by the same method you would plug it if the tubing was out. Just run tools in there, pump a few holes and pump the cement through all of the strings. That should be able to isolate anything of consequence.

Q. Okay. So in your opinion, will the use of 5-1/2-inch tubing inside of the proposed casing result in an increased risk of tubing failure that cannot be resolved?

A. No, ma'am.

Q. And is it your conclusion that fishing operations will be possible for the well if POP is permitted to use the tubing requested in this application?

A. Yes, it is.

Q. Thank you.

MS. KATZ: No further questions.

CROSS-EXAMINATION

BY MR. DeBRINE:

Q. Just a couple of questions, Mr. Nave. When did you do your study with regard -- as reflected in your exhibits beginning on page 33 of the well at issue?

MS. KATZ: And I would object. Mr. Nave did not do the study. This is the Plugging Risk Assessment that was submitted by POP, and Mr. Nave reviewed it and went through it.

THE WITNESS: That's correct.

Q. (BY MR. DeBRINE) When did you review it?

A. Three days ago.

Q. Do you know the injection level for the proposed well?

A. I do not.

MR. DeBRINE: No further questions.

MS. KATZ: May I ask a follow-up question?

REDIRECT EXAMINATION

BY MS. KATZ:

Q. Does the injection level affect your testimony regarding fishing operations?

A. I don't see how it does.

EXAMINER LOWE: Any questions, Dana?

EXAMINER DAVID: I have no questions.

CROSS-EXAMINATION

BY EXAMINER LOWE:

Q. So everything on page 33 to 41 is basically what you included for your presentation today; is that correct?

A. That's correct. I believe 41 was the last one. Yes. That's just the Plugging Risk Assessment and being able to get in or get the materials out of the wellbore that are left behind.

Q. That's all the questions I have. Thank you.

MS. KATZ: Thank you. I have no other questions for Mr. Nave.

EXAMINER LOWE: Okay.

MS. KATZ: I would call my next witness, Ms. Kate Zeigler -- Dr. Kate Zeigler. Excuse me.

KATE ZEIGLER, Ph.D.,

after having been previously sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MS. KATZ:

Q. Good morning, Dr. Zeigler.

A. Good morning.

Q. Would you please state your full name for the record?

A. Kate Zeigler.

Q. And who do you work for and in what capacity?

A. Zeigler Geologic Consulting on behalf of Permian Oilfield Partners.

Q. And can you provide a brief summary of your professional credentials?

A. So I have a bachelor's in geology and anthropology from Rice University. I have a master's in earth and planetary sciences from the University of New Mexico, as well as a Ph.D. in earth and planetary sciences also from the University of New Mexico. Both my master's and my Ph.D. focused on different aspects of stratigraphy in New Mexico.

And once I graduated with my Ph.D., I started doing consulting geology and spent a couple of years working on geologic maps on the Pickle Slope in the western part of the basin, and I've also worked significantly with the Delaware Basin in northeast New Mexico, northwest New Mexico, a variety of different

areas, mostly different facets related to the stratigraphy of the rocks.

Q. And you've previously testified before the Division?

A. Yes.

Q. And your credentials were accepted as a matter of record?

A. Yes.

Q. Were you retained by POP to evaluate the stratigraphy and local geology for this proposed well?

A. I was.

Q. And are you familiar with the application that was filed by POP in this case?

A. Yes.

Q. Are you familiar with the status of the land where this well is proposed to be drilled?

A. Yes.

Q. Have you conducted a geologic study of the area covering the proposed well location?

A. I have.

Q. And you have prepared similar studies for other SWD well applications before the Division?

A. Yes.

MS. KATZ: At this time I would tender Dr. Zeigler as an expert in geology matters.

MR. DeBRINE: No objection.

EXAMINER LOWE: So qualified.

Q. (BY MS. KATZ) Dr. Zeigler, if you would please turn to page 2, which is your study? Can you give a brief overview of the study and just walk through each piece?

A. Uh-huh. So this -- this will look fairly similar, as we have prepared similar exhibits for other deep SWD wells in the area. We'll start with just a quick overview of the stratigraphy so that we all know in space where we're sitting in regards to freshwater resources or production zones in the target injection interval for this well. And then we'll work through a series of isopachs maps showing the thicknesses right above through the target injection interval and a little bit lower so that we can think about the thicknesses of the rock units that are at issue here, and then finally a cross section through the area with what little deep well log data is available for this part of the Permian Basin so that we can see how these relationships occur across the area that this well is proposed here.

Q. So what is marked as Exhibit 2A here, page 46, is a document that you prepared that sets out the stratigraphic unit descriptions. And was this compiled based on other resources?

A. Yes. So what I did for this was compiled a basic stratigraphic chart for the Delaware Basin that's based primarily on Ron Broadhead's 2017 memoir. In that paper, he draws on decades' worth of literature and data to build a compiled stratigraphic section for the entire Delaware Basin.

And then in looking at resources such as the State Engineer Office, we've also done our own -- some private groundwater assessments in the area looking at where freshwater resources are most likely to occur within that stratigraphy, as well as current production zones, and then the target injection interval that's been proposed for this well so that we see how everything sets vertically downhole.

Q. And so -- and this just goes from top to bottom of the stratigraphy?

A. Yes. So if you were to stand where this well is proposed to be drilled, you would be standing on Chinle or Dockum red beds. And then if you drilled straight down under your feet, these are the different rock units that you would hit as you went down.

And then the estimated depths below land surface, which is off on the far right-hand side, these are based on data from the Salado Draw 13 SWD well. And what I did for that well, because the completion records

that are online seem to have some discrepancies, was we repicked the tops of those units based on those logs, and so these are projected depths based on a nearby well that logs are available on the OCD site. And so those depths are from that neighboring well with the most current information we have for that well.

Q. And the Salado Draw well that you just mentioned that had those discrepancies, that was a Chevron well?

A. In its original form, yes.

Q. Okay. Okay. So this exhibit shows that the target injection interval is far below freshwater resources?

A. Yes. We're looking at at least well over 17,800 feet down to the target injection interval. From our groundwater resource studies that we've done for one of the ranchers in the area, the deepest you get water that's even good enough for livestock is maybe down to about 700 feet, and even so, that water quality tends to not be fabulous. It's usually significant with shallower than that. But there are a couple of deep wells that pull water from a little deeper down, and it's not great water, but that's about the deepest you get that you can even use for cattle.

Q. And that interval is also below the

hydrocarbon-bearing zones as well?

A. Yes.

Q. All right. So the next page is marked as Exhibit 2B, beginning on that page, and this is a series of isopach maps that show each rock unit interval, and they identify the well that's the subject of this application there. Can you walk us through those isopach exhibits in the packet and explain what they depict?

A. So there are two isopachs maps for each rock unit. One just shows the Big Suck location by itself so that it's a little less cluttered.

And the second version shows the wells that we used to develop a line of cross section across the area, again noting, as is frequently the case out here, there are not a whole lot of deep wells to do much with, and so we're doing the best that we can with what we've got.

We'll start with the Woodford and then work our way on down-section. And so in each of these maps, there are green lines that have a number on them. That's the projected thickness of that rock units. This data is compiled from the Texas Bureau of Economic Geology database.

Also on here are two different sets of

dashed fault lines. There is a lighter blue and a darker blue, and these are faults that are shown both in the Texas Bureau of Economic Geology database but in things like the Zoback paper and other references. And so what we did was we just compiled all of the faults that people have interpreted over many years to potentially be there and have shown all of them. Most of them are dashed because we don't have enough well control in the deep parts of the basin to really get the locations of these precisely correctly. So we honor the data that's been built up until now, and so that's why there are two different colors of faults in there, to show all these different amalgamated data sets.

So if we start at the Woodford, looking at a thickness of a little over 200 feet thick, that's going to be our upper shale permeability barrier for this injection interval. And at 200 feet, that's quite a reasonable thickness to act as an upper permeability barrier.

So the next two isopachs are for the Wristen-Fusselman. And this is -- I'm going to make one small stratigraphic note here. The Wristen and Fusselman are referred to by drillers frequently as the Devonian. When they say "the top of the Devonian," they mean the top of the Wristen and/or the top of the

Fusselman. Those rocks are actually Silurian in age. So if there is -- if it seems like there is a discrepancy between my cross section and my stratigraphic chart, it's because in the cross section, I'm going to honor the driller lingo and stick with calling it the Devonian even though, from a paleontological perspective, it is not, in fact, Devonian in nature.

So when we look at the Fusselman -- Wristen-Fusselman combined in this area, we're looking at approximately 1,500 feet thick. This is fractured limestone, a little bit of dolomite. It's a nice thick unit, no significant changes in the thickness through this area that might suggest any issues.

If we go more and we get to the Montoya, thickness on the order of approximately 350 feet thick. Again, no significant changes in the isopach maps that would suggest there are any issues with the Montoya.

And then if we finally get to the Simpson isopach, looking at a projected thickness of approximately 900 to 950 feet in thickness. The Simpson is a unit that has quite a bit of variability in it lithologically, but it has a high proportion of shales in it. And so the Simpson can act as your lower permeability barrier in conjunction with the Montoya,

which has been observed in the area to be a very tight unit. We also understand that no one is to drill into the Montoya any more than is absolutely necessary. But we do show the Simpson here because that will operate as part of your lower permeability barrier, and it's very thick in this area, which will help to make a good lower seal, if it needed to act in such a fashion.

And then we finally finish with the Ellenburger, which we're looking at 800 and 850 feet thick Ellenburger in the area. Again, there is nothing in the projected isopach data to suggest any lateral variations or structural issues that might influence the thickness of these rock units if you were to drill down where this well is to be located.

Q. Okay. And are the fault zones identified on these maps?

A. Yes. So those are the dark blue dashed and the light blue dashed.

Q. With the dark blue being the Precambrian faults and the light being the basement fault?

A. Which for all intents and purposes are going to be the same thing. The light blue basement faults are from the Bureau of Economic Geology data set, and then the darker blue ones are ones that we have incorporated from other sources in the literature that suggested that

there were these faults present. And, hopefully, further data down the road will help clarify these relationships.

And the nearest faults, even if you were to project it, were easily eight to ten miles to the west or southwest of the nearest projected fault zone.

Q. Okay. Thank you.

And then if you turn to Exhibit 2C on page 57, this is a cross section from wells in this area. And I have a larger version of this since the one there is tiny. Can you explain what this figure shows?

A. So this is a cross section from west to east as close as we could find deep enough well logs to the project area such that we could start to project these units through the project area. And so if you were to flip back one page to the last Ellenburger isopach, it shows where each of these reference wells set in location to the projected well. Again, there is not a whole lot of deep data in this area, so we're working with what we've got.

And basically -- the take-home message for this is the Big Suck well is shown there in red font, in approximately the middle of the figure sitting between the Salado Draw SWD and the Rattlesnake 16. And basically we don't see significant variations in the

thicknesses that might suggest that there is any reason for that target injection interval to have any issues with thickness or other factors that may prohibit the ability to use it.

We do have a dashed fault in red that's over towards the right side of the figure, and that's that dark blue fault line on the Google Earth maps. And, again, this is projective. This is one that came out of the literature. We don't see distant enough offset between the reference wells on either side of it to think that there is much vertical offset on that, but we did go ahead and show it in the cross section to honor the data from all these different sources suggesting where faults may be present.

Q. And so what do these isopachs and cross sections tell you about this area and the injection zone?

A. It suggests that from a geologic prospective, the thickness of the target injection interval is well defined. It's a very thick unit. There are no changes in that thickness laterally that suggest either structural issue or facies variation within that that might pose a problem for injection. We don't see sudden changes in where these rock units project. They fall in line with other data sets for the area. And so there's

no data available that suggests that this is not a reasonable area to have an injection interval in these units.

Q. And -- and it shows that there are permeability barriers both above and below the injection zone?

A. Yes. We were fortunate enough to find a few wells that did go all the way through into the Ellenburger. And so you can see in the -- for example, the Cotton Draw No. 65, which is the third from the left, as well the Fairview Mills Fed No. 1 and the South Lea Fed 001 that are more toward the right side, that we do have quite a bit of shale variability in those logs suggesting that can operate as a lower permeability barrier.

Q. And did you review Mr. Fisher's figures?

A. I did.

Q. And did you find that they are reasonable and consistent with your study?

A. Yes.

Q. Are you aware of any productive shales in the formation at issue?

A. None that have been reported.

Q. And is there likely to be any economically viable reserves in this area in the Permian?

A. It's unlikely. If you look through what's been

suggested for these units, there are potential areas that might have something in them. They're very small. They're isolated. You would need some pretty significant imaging available -- you know, imaging to be able to locate them and target them efficiently, so it's generally not been an issue through this area.

Q. So in your opinion, will this well affect the correlative rights of mineral interest owners?

A. No.

Q. And in your opinion, is there a risk to freshwater resources if the proposed well is drilled?

A. No.

Q. And were the exhibits behind Tab 2 prepared by you or compiled under your direction and supervision?

A. Yes.

Q. Thank you.

MS. KATZ: At this time I would move admission of exhibits behind Tab 2 into the record.

EXAMINER LOWE: Any objection?

MR. DeBRINE: No objection.

EXAMINER LOWE: Okay. Exhibits from Tab 2 will be accepted for the case in hearing.

(Permian Oilfield Partners, LLC Exhibit Number 2 is offered and admitted into evidence.)

MS. KATZ: And I have no further questions for Dr. Zeigler.

EXAMINER LOWE: Any questions, sir?

EXAMINER DAVID: I have no questions.

EXAMINER LOWE: Mr. McMillan?

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. Okay. I want -- okay. So the Montoya you expect to be tight, right?

A. Uh-huh.

Q. It's going to be -- perform a lower barrier. And the Simpson also?

A. Uh-huh.

Q. I just want that clear for the record.

EXAMINER McMILLAN: I don't have any questions.

CROSS-EXAMINATION

BY EXAMINER LOWE:

Q. You mentioned there is going to be groundwater or there is groundwater at 700 feet in the vicinity? Is that --

A. Probably within about a 20-mile radius, there are a couple wells much further to the northeast. But there is only a handful of them that go that deep, and, like I said, the water quality is --

Q. Can you quantify that water quality as far as TDS?

A. The TDS for the couple of deep wells that we looked at -- they were more just west of Jal, and we were looking at TDSes that were on the order of 1,500 parts per million or higher. They were -- they could have been qualified as a weak salt water. They were very poor quality.

Q. Okay. And as I recall, protectable in that case is 20,000 or better. But I just wanted to find out what -- what that is and what -- okay. That's all I have questions for now. Thank you.

MS. KATZ: May I ask one follow-up?

MR. DeBRINE: I had a couple as well.

MS. KATZ: Go ahead.

CROSS-EXAMINATION

BY MR. DeBRINE:

Q. Dr. Zeigler, for your study, how did you select the wells that you used for your cross section?

A. So I selected wells that were basically anywhere near the proposed location that go deep enough to get as far into the Fusselman or in -- as far down into the Ellenburger as possible. And as far as what was available -- publicly available well log data, this is what I was able to find. I had to cast a pretty

broad net to find these wells because there are simply not very many deep wells in the area and/or deep wells that have their logs available for us to use.

Q. If you turn to page 14, which is area of interest, it shows several dozen producing wells on it; does it not?

A. Uh-huh. Yes, sir.

Q. And what process did you use to determine whether to include or exclude those wells as part of your study?

A. So because my task in this is to understand the target injection interval, I went through and looked for wells that were drilled deep enough to go partway through or all the way through the target injection interval. The vast majority of these wells, their total depths are far above the target injection interval.

Q. Okay. But does that indicate there is a minority of them that are within the target -- the wellbore goes through the target interval?

A. To my knowledge, there are very few in the whole part of this southern area that go deep enough to go through the target injection interval because it has not been a target.

Q. But there are other wells out there that do go through the target interval that you did not include as

part of your study?

A. I included all the ones that I was able to find publicly available well log data for.

Q. Did you -- did you look at any seismic data for the area of inquiry?

A. I did not have access to seismic data.

Q. And you indicated that there is not enough well control out there to get precise locations as to the faults that you're representing on your isopach maps; is that correct?

A. That's true. I would suggest that given that we don't see significant variations in thicknesses or depths across the area, that we feel we're not -- we're not seeing significant structural offset through this area with the data that is available to us.

Q. But given the absence of data, you cannot say with a reasonable degree of geological certainty that the faults are actually located on the area depicted on your map?

A. I can only use the data that's available to me.

Q. No further questions.

EXAMINER LOWE: Okay.

MS. KATZ: May I do follow-up?

EXAMINER LOWE: Yes, you can.

REDIRECT EXAMINATION

BY MS. KATZ:

Q. Dr. Zeigler, the study and the methods that you use in evaluating this area, you've used those -- you've testified in a number of other SWD cases, correct?

A. Yes.

Q. And this is the same methodology, the same analysis that you've used in those other SWD cases?

A. Yes.

Q. And regarding the protectable -- if there is protectable groundwater, you did testify that there is an upper permeability barrier that would -- that would prevent affecting that -- that water?

A. Yes. And as a matter of fact, it's not -- if we just think about the whole lithology through this area, it's not just the Woodford Shale that's going to help separate your target interval from as deep as 700 feet. There are several other rock units in the package that have significant quantities of shale within them, as well as gypsum and salt, that will also act as additional permeability barriers even above the Woodford Shale. And so the chances of upward migration is extremely minimal given the lithology of all the rock units above it.

Q. Thank you.

MS. KATZ: I have nothing further.

MR. DeBRINE: Just one other follow-up.

RECROSS EXAMINATION

BY MR. DeBRINE:

Q. What is the target interval exactly for the proposed well?

A. It's the combined Wristen-Fusselman and -- so that would be what's called the, quote, "Devonian" in driller lingo, as well as the Fusselman.

Q. And what's the actual depth in terms of feet?

A. So the projected depths for these using the Salado Draw as our closest analog well that we can use, we're looking at about 17,600 or greater feet to the top of the injection interval.

Q. And my question was with regard to the actual well. Do you know what the proposed injection interval is in terms of feet, where injection will take place within that interval?

A. Starting at approximately 17,600 feet, which Mr. Fisher will testify to in the next set of exhibits.

Q. And what was the change from the original application to the amended application that's been submitted during that --

MS. KATZ: And I would object. That's already been dealt with by another witness. Another

witness will be addressing that, Mr. Fisher, and that's not Dr. Zeigler's -- it's -- it's already been there. It's in the application.

MR. DeBRINE: And I'm just asking the witness what that change was.

THE WITNESS: Are you asking why it was made or what that change was?

Q. (BY MR. DeBRINE) What the change was, the change in the interval.

MS. KATZ: It's on the application on the first page.

THE WITNESS: So they -- they lowered those -- the projected formation tops from what they had originally projected because, as was mentioned previously, new data was acquired that suggested that those tops could be safely revised.

Q. (BY MR. DeBRINE) And do you know what that data was?

A. I do.

Q. Did you provide it to them?

A. It was -- it was the log data for Salado Draw No. 13 that became available on the OCD website in May, and I believe Mr. Fisher will speak further to that.

MR. DeBRINE: No further questions.

EXAMINER LOWE: Okay. That's all?

MS. KATZ: Nothing further.

EXAMINER LOWE: Okay. Thank you.

MS. KATZ: At this time I would call my fourth witness, Mr. Gary Fisher.

EXAMINER LOWE: Okay.

GARY E. FISHER,

after having been previously sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MS. KATZ:

Q. Good morning, Mr. Fisher.

A. Morning.

Q. Can you please state your full name for the record?

A. Gary Edward Fisher.

Q. And for whom do you work?

A. Permian Oilfield Partners.

Q. And how long have you worked for POP?

A. Since we founded in 2018.

Q. And what are your responsibilities for Permian Oilfield Partners?

A. I'm the president of general office -- excuse me -- general operational responsibilities. I also take care of our geology and our fault slip analysis.

Q. And your responsibilities include management

and oversight of drilling saltwater disposal wells in particular?

A. Yes, ma'am.

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

A. Yes, it does.

Q. And you're familiar with the application that POP filed in this case?

A. Yes.

Q. And you're familiar with the well that is the subject of that application?

A. Yes, I am.

Q. And you have recently testified before the Division, haven't you?

A. Yes, I have.

Q. And your credentials were accepted by the Division as a matter of record at prior hearings; is that right?

A. Yes, ma'am.

Q. And because Chevron's protested the administrative application in this case, took issue with your knowledge, training and experience, I'm going to have you discuss your background on the record here with respect to your familiarity and expertise in matters of geology, fault slip analysis and log analysis.

A. Okay. I've got 28 years in the oil and gas industry. I graduated from the University of Southern California with a degree in mechanical engineering. I went to work for Schlumberger as an open-hole logging engineer where I ended up doing log analysis and geology for customers.

I went to Numar Corporation, now Halliburton, where I also did log analysis, geology, a lot of well-to-well correlations, lithology identification for our customers.

After that, I went to Core Laboratories where I was involved in fracture diagnostics, especially as related to hydraulic fracturing jobs, basically figuring out where the fracture is going to go based on rock stresses and rock properties and wellbore design and then correlation with the microseismic.

After that, I joined Pioneer Energy Services where I once again did open-hole and cased-hole log analysis, geology, a lot of well-to-well correlation and rock type and whether there is hydrocarbon or not. I also did internal instruction. I was an instructor at that company, so internal instruction for external customers on log interpretation and various geology topics. I also did quite a bit of completion design for our customers, quite a few of them for SWDs, basically

how to complete them to be able to get appropriate rates down the well, designing those completion methods. I also did a lot of work and a lot of interpretation on mechanical integrity logs, mechanical integrity testing, especially as it relates to groundwater protection.

When I was there, I also was part of our -- it was an internal induced seismicity study, particularly as it applies to up in Oklahoma with the seismic events they're having due to all the Arbuckle injection. Ultimately, the end result of that, I had a logging procedure which ended up being mechanical integrity testing type procedures that were adopted by the OCC up there.

I've been a member of the Society of Petrophysicists and Well Log Analysts for 21 years, a member of the Society of Petroleum Engineers for 20 years and a contributing editor to the AESC green book. I have been running FSP as well for all of POP's wells.

Q. Thank you.

MS. KATZ: At this time I would tender Mr. Fisher as an expert in engineering and fault slip analysis.

MR. DeBRINE: No objection.

EXAMINER LOWE: No objection?

He is so qualified.

THE WITNESS: Thank you.

Q. (BY MS. KATZ) All right. So, Mr. Fisher, first I'm going to have you discuss the change to the injection interval that has come up -- we spoke about it earlier -- in the amended application that's included in Exhibit 1A. So if you could turn to page 1 of the materials. So the administrative application and the initial application for hearing stated the injection zone as being from 17,366 feet to 18,972 feet.

MS. KATZ: And I can submit copies of that if you would like, the original application.

Q. (BY MS. KATZ) The amended application that is included in these materials and regarding what Dr. Zeigler testified earlier states an injection zone of 17,935 feet to 19,475 feet, so approximately 500 feet deeper than the zone identified in the earlier applications. Can you explain why that changed?

A. Yes. We had used -- or excuse me. I had used a cross section which involved the Chevron Maelstrom well, which is about four miles away -- it was the Chevron Salado Draw 13 at the time; now that's an NGL well -- and the Devon Rattlesnake well, which is a little bit farther to the east. I used those for my nearby cross sections for those deep zones.

And the log -- at the time of submission,

the log for that Salado Draw well, which is only basically 2.4 miles away, the log was not publicly available for the deeper portions. There was only a portion available up higher, so I used the Chevron tops, which had been submitted on the paperwork, as readable numbers and its interpretations based on those. There were a couple of errors, so I had interpreted it a little bit. But anyway, I used those tops.

And those tops, once we filed for the hearing, we started looking back at it. We talked to Dr. Zeigler. She made us aware that the deeper Salado Draw well was now available on the OCD website, and using that new data, we saw that the log tops were approximately 500 feet deeper than the original tops that were submitted by Chevron at the time. So we decided it would be best, rather than running with the old numbers, to actually correct the depths based on the new log data that was available that we saw from Dr. Zeigler.

Q. Okay. And the change in that injection zone resulted in a minor change to the proposed maximum injection pressure, which went from 3,474 psi to 3,587 psi?

A. That's correct. It correlates to approximately a 500-foot deeper depth depiction of that zone, and we

wanted to correct the injection depth -- the injection pressure as well to correlate with the new liner -- new liner bottom.

Q. And so the updated injection interval is based on that additional data that you didn't have previously?

A. That's correct.

Q. Does the change in the injection interval change the formation into which the injection would occur?

A. No, not at all.

Q. It's still in the Devonian?

A. That's correct.

Q. Okay. And does the change in the -- and notice under the Division's rules requires identification of the -- the zone for injection?

A. That's correct.

Q. Does the change in the injection interval require notice to any additional parties?

A. No.

Q. And does the change alter any substantive elements of the proposed well or the application such that it would require new notice to the affected parties?

A. No, not at all.

MR. DeBRINE: Objection. That is beyond

the witness' area of expertise. He's not a lawyer with regard to who is entitled to notice, and there's been no qualifications of him with regard to those issues.

MS. KATZ: He's qualified regarding the substantive issues regarding the well and the application and the engineering, and that's what I asked him about.

MR. DeBRINE: You asked him whether the change would require additional notice, and I don't think he's competent to render a legal opinion with regard to that issue.

Q. (BY MS. KATZ) Does the change alter any substantive elements of the proposed well or the application?

A. No.

I might add that when wells are drilled, the final order that you get in order to operate the well will use updated tops that you get during the drilling of the well. We were just trying to be more correct to come up ahead with maybe a better estimate, so if it changes after drilling, it wouldn't be as -- wouldn't be as relatively --

Q. So there is necessarily some margin of error in the injection interval as identified in the SWD applications?

A. Oh, absolutely. Yeah. You won't know where it is until you drill it exactly.

Q. All right. And so when the -- the well logs that are obtained when the well is actually drilled will require amendment of that requested zone based on the actual data as opposed to the projections used for the application?

A. Yes, ma'am.

Q. So if the injection interval were to be off by 500 feet from what was stated in the application after the well is drilled, the Division doesn't require additional notice to the affected parties based on that change?

A. No, it doesn't.

MR. DeBRINE: Same objection. Calls for a legal conclusion.

Q. (BY MS. KATZ) Based on your experience, you've not been required to do that?

A. No.

Q. Thank you.

All right. Let's please turn to page -- to Tab 3 of the materials, what is marked as Exhibit 3A, and this is a statement regarding seismicity that you prepared for the administrative application?

A. That's correct.

Q. This is dated July 30th, 2019, and that's after the administrative application was filed?

A. That's correct.

Q. It says it was revised. Why did you revise that statement?

A. Well, I revised -- from the initial?

Q. (Indicating.)

A. Well, there were two reasons. One was to include some time-based data that we received input from a previous hearing, that the OCD would like to see some five, ten, 20 and 30-year as opposed to just the final result. So I inserted the time-based data. And also I updated for the new -- for the new depths as well.

Q. Okay. And so the ultimate conclusion is the same in this revised statement. It just includes the updated information and the analysis of the time?

A. That's correct.

Q. Is this statement regarding seismicity based on publicly available information?

A. Yes, it is.

Q. And did you first evaluate historic seismicity in the area?

A. Yes, I did.

Q. And what did you determine?

A. There is very minimal. There were only two

earthquakes even in a 30-mile radius, which is a pretty large area. There was a 2.9 in 1984 -- it was 17 miles away -- and a 3.1 almost 20 miles away, so very minimal.

Q. Okay. And did the publicly available data contain information regarding where the nearest fault is to the proposed well?

A. Yes, it did.

Q. And where is that fault?

A. Approximately 11 kilometers to the east.

Q. Okay. And did you run a fault slip probability analysis using the publicly available Stanford tool?

A. I did.

Q. And that tool is basically a model input data, and the software makes the predictions based on that data?

A. That's correct.

Q. And if I can just have you briefly discuss your experience using models and interpreting results.

A. Sure. I've used a number of different geological and other types of modeling softwares, anything from PetCom to RockWare to Petra, various types of logging softwares, even 3D CAD. I'm pretty well versed in operating software -- operating technical software.

Q. So when you ran the fault slip probability

analysis, did you use conservative inputs? Meaning, did you use worst-case scenario?

A. Yes, I did.

Q. Okay. And you actually -- you ran two scenarios?

A. I did. I ran -- I ran one model based on the publicly available data, which shows the Precambrian faults, or the nearest one is at 11 kilometers away. There is also some data that shows that maybe the far north end of that nearest fault segment that runs north-south off to east, that it penetrates into the Devonian, so I ran a second one assuming fault penetration through the Devonian, used the Devonian specifications as well, just to cover all my bases.

Q. Okay. So -- so this first revised statement, which is on page 58 of Exhibit 3A, is the first worst-case scenario, which is the downhole failure into the Precambrian?

A. That's correct.

Q. And then there is a second statement, which is on page 69, marked as Exhibit 3B, and that's the analysis that you looked at for the other scenario, which assumes a fault in the injection zone in the Devonian?

A. That's correct.

Q. Okay. So looking first at the Precambrian fault scenario on page 59, point six on that page discusses the distance to the nearest basement fault; is that correct?

A. That's correct.

Q. And you testified it was approximately 11 kilometers?

A. That's correct.

Q. And you also summarize your conclusions on point six. What are your conclusions regarding the probability of an induced seismic event over time?

A. Zero percent after five, ten, 20 and 30 years.

Q. And, again, that's assuming a catastrophic well failure into the Precambrian?

A. That's correct. The well would have to inject basically straight down through the Montoya through the Simpson that we're using as barriers into the Ellenburger, the Cambrian and into the Precambrian. So it's not a very realistic scenario.

Q. Okay. And so then the next several pages, on pages 60 through 68, contain that additional information that OCD requested that you provide showing the analysis at the time?

A. That's correct.

Q. And can you just briefly walk us through those

pages and discuss those screenshots and what they indicate?

A. Sure. On page 59, I show the input assumptions, including reference depths, viscosities, permeabilities and porosities for the Precambrian.

The next page shows a calculated pore pressure to slip for each of those faults. I used very, very conservative numbers, so these pore pressures that you see tend to be lower than what we have seen in the past from other people. I've tried to go overly, overly conservative with those numbers. I did the variability of the probability analysis on it allowing for variations in my inputs.

And then you can see the five-year hydrology and then the probabil- -- probabilistic hydrology screen. In this case there is -- the blue delta pressure line is almost not visible way over on the left-hand line. As you get over to the 30-year, you can see where the pressure gets high enough even to start registering on the scale.

Q. And that's that screenshot at the bottom of --

A. Yeah. That's at the bottom of page 61.

What you're looking for there is the blue delta pressure line starting to cross over your green fault slip pressure line, and the blue line isn't even

on the page. It's so low.

And then the five-year overall summation fault slip probability, which is zero percent at five. Then you see the ten-year, the same screenshots for ten-year, 20-year.

And then on page 67, you can see it for year 30, the hydrology showing with the -- with the calculator in the fault slip, based on the Hsieh and Bredehoeft paper from 1981. It's basically a modified Theis equation. And then the hydrology, you can see that the -- that the fault delta pressures are starting to be apparent, depending on the page. And on the next page, you can see that they're still very low. It's on the order of 13 psi, which is much, much less than the almost 3,600 psi required for fault slip in that closest segment.

Q. Okay. So then let's move to the second worst-case scenario where you talk about the fault injection information in the Devonian.

A. Yes.

Q. And that's on page 69 of the materials --

A. Yes.

Q. -- marked as Exhibit 3B.

A. Correct.

Q. And, again, you summarize your conclusions on

point 6 on page 70.

A. Yes.

Q. What are your conclusions regarding the probability of an induced seismic event over time assuming this hypothetical fault in the Devonian?

A. It would be zero percent probability. We might back up to point number five. This is the nearest portion of the fault in any of the -- in any of the publicly available data. It doesn't shown it penetrating into the Devonian. The portion it does shows it to be approximately 20 kilometers up to the northeast, very far northeast, pretty far away from this well.

Q. So you're just -- you're projecting that that is in this area?

A. I'm -- I'm -- I'm making -- I'm making a gross assumption that it actually projects through the Devonian all the way through, all the way down into this area.

Q. And so then the next several pages, 71 through 79, show, again, the FSP result screenshots for that scenario. And I won't have you go through each of those. We can just move to the last one out showing 30 years out, which is on pages 78 and 79.

A. Yes. Yeah. There is no crossover on the

probabilistic hydrology, and you're not seeing any fault delta pressures, hydraulic pressures crossing over onto the fault slip pressures. And then you can see a maximum fault delta pressure on segment number seven, which is 15 psi, which is much, much less -- much less than the 3,009 psi that would be required based on the Devonian specifications.

Q. Okay. And so your conclusion from the modeling of these two worst-case scenarios is that there is very low probability of fault slip either assuming a catastrophic well failure, assuming a fault in the Devonian in the area of the well?

A. That's correct.

Q. And that holds true even over time?

A. That's correct, over 30 years.

Q. Were the C-108 and the statements regarding seismicity that are included in Exhibit 1A and in the exhibits behind Tab 3 prepared by you, under your supervision or compiled from company business records?

A. Yes, they were.

MS. KATZ: So at this time, I would move admission of the exhibits behind Tab 1 and Tab 3 into the record.

MR. DeBRINE: No objection.

EXAMINER LOWE: Exhibits Tab 1 and Tab 3

will be admitted to the record.

(Permian Oilfield Partners, LLC Exhibits Tab 1 and Tab 3 are offered and admitted into evidence.)

MS. KATZ: Thank you.

And I have no more questions for Mr. Fisher at this time.

EXAMINER LOWE: Do you have any questions, Dana?

EXAMINER DAVID: I have no questions for Mr. Fisher at this time.

EXAMINER LOWE: Cross?

CROSS-EXAMINATION

BY MR. DeBRINE:

Q. Yeah, Mr. Fisher, a couple of questions. If you turn to page 5, which is the "Application for Authorization to Inject," the C-108 form that you filed, what's the date on that form?

A. 8/6 of 2019.

Q. Page 5. I'm sorry. I didn't hear you.

A. Oh. Oh. 8/6 of 2019.

Q. So this was filed two days ago?

A. It was -- yes. It was included with our hearing documents.

MS. KATZ: It was not filed --

EXAMINER McMILLAN: Okay. Let him finish the question. Don't cut people off.

MS. KATZ: Okay.

EXAMINER McMILLAN: Am I clear about that?

MS. KATZ: Yes.

EXAMINER McMILLAN: You've done it numerous times, and it's not professional --

MS. KATZ: I apologize.

EXAMINER McMILLAN: -- and it's rude.

MS. KATZ: I apologize.

EXAMINER McMILLAN: Proceed.

Q. (BY MR. DeBRINE) So this form has not yet been filed with the Division?

A. Correct.

Q. If you turn to -- what was your purpose in submitting a new C-108 form as part of the exhibit package in this case?

A. We just -- we got the new info -- the new corrected info based on the Salado Draw 13 well, and it showed the deep formation tops being by about 500 feet deeper than we had picked based on the previously submitted data to OCD. We wanted to correct that data before we came into hearing so that you would have the correct depths, understanding that they would also be corrected during drilling, if necessary.

Q. As I heard your testimony, you said you also corrected it to include some time-based data; is that correct?

A. That's correct.

Q. And what was that change, and what was the nature of the --

A. The initial --

Q. -- time-based data to the change?

A. I'm sorry.

Our initial fault slip analysis just showed the results after 30 years. So the -- the revision was to include data at five years, ten, 20 years and 30 years, so you could see the progression through time.

Q. If you look at your revised C-108, Roman numeral VIII [sic], could you read what it says on that form?

A. "Applicants must complete the 'Proof of Notice' section on the reverse side of this form."

Q. And then if you turn to the reverse side, under Roman numeral XIV, which is the proof of notice --

A. Yes.

Q. -- it requires that -- if you could read the first paragraph under that.

A. "All applicants must furnish proof that a copy of the application has been furnished, by certified or

registered mail, to the owner of the surface on which the well is to be located and to each leasehold operator within one-half mile of the well location."

Q. And you haven't done that; is that correct?

A. Not for this piece right here.

Q. And Chevron was not provided with the revised application, I take it then?

MS. KATZ: Objection. The application hasn't -- he just testified that the application -- this revised -- the amended application is being submitted as part of these exhibits. I believe that's already been established.

MR. DeBRINE: Yeah. But I asked him if he had provided notice of it to Chevron, is my question. Just trying to confirm.

THE WITNESS: No.

Q. (BY MR. DeBRINE) And the change in the injection interval is how many feet? By my calculation, you're going from 17,336 to 17,935; is that correct?

A. That's correct.

Q. And that's -- if my math is correct, that's 569 feet?

A. Correct. I'll take your word for the math.

Q. And you testified that a 500-foot change wasn't material; is that correct?

A. Correct.

Q. Do you know what the Division's statewide rules are for setback of wells in which they deem a well would be encroaching and potentially interfering with an adjacent working interest owners' correlative rights? What are the setback requirements under the Division's rules?

A. I believe 330 feet, but I would -- I'm not an expert on that.

MR. DeBRINE: I would again renew my motion to continue because the application -- and it's based on essentially estoppel. They're trying to slip in a new administrative application under the guise of this hearing. It's a material change, and the Division's form and its rules obviously require that notice be provided with regard to the change in the application. And the witness is the president, the manager of the company and has admitted that notice has not been given with regard to the revised application, and so I don't think that the Division ought to be hearing this case today.

MS. KATZ: May I respond?

EXAMINER McMILLAN: Certainly.

MS. KATZ: POP would submit that the change is not material, that Chevron has received notice both

of the administrative application and of this hearing, and there is no basis on which to continue. And Mr. Fisher has testified as to why it would not be considered material. It does not change any other aspect.

If the Division does decide to continue on that basis, we would request that any hearing after that be confined only to issues relating to the change in injection interval because otherwise you are essentially giving a second crack at everything that's been presented regarding all the other aspects of the application on which Chevron received notice already.

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. So the new well -- your revised injection interval was actually based on a Chevron well, right?

A. That's correct.

Q. So certainly Chevron would have access to the logs, right?

A. Yes. That's correct.

MR. DeBRINE: And that's irrelevant. I mean, the issue is whether this is a material change. And I think a 600 -- or a 560-foot change with regard to the actual location of the formation that they're proposing to inject is material. The Division's rules

with regard to setbacks are 300 feet. I think this is a material change. Under New Mexico law, when you are sending an AFE to your working interest owners, if you were to change a well by a depth of 500 feet, you would have to renotice, and any prior election with regard to the well that was made by the working interest owners would be ineffective. So I think this is a material change that requires additional opportunity to -- a requirement that the interested parties be notified and have an opportunity to object to it.

MS. KATZ: And one more thing. The rules require notice regarding injection zone, and this is still in the same injection zone in the Devonian.

MR. DeBRINE: But they're changing the location of the well by almost 600 feet.

EXAMINER McMILLAN: Let's just go outside. We're taking a break.

(Recess, 10:54 a.m. to 10:56 a.m.)

EXAMINER McMILLAN: Okay. We're back on the record.

EXAMINER LOWE: Well, from what we discussed and what we've been exposed to all morning with this case, what has been stated and what has been a concern is -- we don't feel -- we don't think it's enough to take this case -- to continue this case. We

will accept and take all of what the witnesses that were stated for this case under advisement, and then we will move forward on this case.

Any more?

MS. KATZ: Thank you.

MR. DeBRINE: Thank you, Mr. Hearing Examiner.

EXAMINER LOWE: So Case Number 20684 will be taken under advisement.

(Case Number 20684 concludes, 10:56 a.m.)

STATE OF NEW MEXICO

COUNTY OF BERNALILLO

CERTIFICATE OF COURT REPORTER

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

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

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

DATED THIS 19th day of August 2019.

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