

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 NGL WATER SOLUTIONS CASE NO. 16443
PERMIAN, LLC FOR APPROVAL OF A
SALTWATER DISPOSAL WELL IN LEA COUNTY,
NEW MEXICO.

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

February 21, 2019

Santa Fe, New Mexico

BEFORE: PHILLIP GOETZE, CHIEF EXAMINER
 MICHAEL McMILLAN, TECHNICAL EXAMINER
 TERRY WARNELL, TECHNICAL EXAMINER
 DAVID K. BROOKS, LEGAL EXAMINER

This matter came on for hearing before the New Mexico Oil Conservation Division, Phillip Goetze, Chief Examiner; Michael McMillan and Terry Warnell, Technical Examiners; and David K. Brooks, Legal Examiner, on Thursday, February 21, 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
 New Mexico CCR #20
 Paul Baca Professional Court Reporters
 500 4th Street, Northwest, Suite 105
 Albuquerque, New Mexico 87102
 (505) 843-9241

1 APPEARANCES

2 FOR APPLICANT NGL WATER SOLUTIONS PERMIAN, LLC:

3 DEANA M. BENNETT, ESQ.
ZOE LEES, ESQ.
4 MODRALL, SPERLING, ROEHL, HARRIS & SISK, P.A.
500 4th Street, Northwest, Suite 1000
5 Albuquerque, New Mexico 87102
(505) 848-1800
6 deanab@modrall.com

7 FOR INTERESTED PARTY SOLARIS WATER MIDSTREAM, LLC:

8 JAMES G. BRUCE, ESQ.
Post Office Box 1056
9 Santa Fe, New Mexico 87504
(505) 982-2043
10 jamesbruc@aol.com

11 FOR INTERESTED PARTY NEW MEXICO STATE LAND OFFICE:

12 ANDREA ANTILLON, ESQ.
ARI BIERNOFF, ESQ.
13 NEW MEXICO STATE LAND OFFICE
OFFICE OF GENERAL COUNSEL
14 310 Old Santa Fe Trail
Santa Fe, New Mexico 87501
15 (505) 827-5702
aantillon.state.nm.us
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1 (10:32 a.m.)

2 EXAMINER GOETZE: And now to make the rest
3 of you compulsory pooling people suffer, we will go to
4 the Sidewinder case, Case Number 16443, application of
5 NGL Water Solutions Permian, LLC to approve a saltwater
6 disposal well in Lea County, New Mexico.

7 Call for appearances.

8 MS. BENNETT: Good morning. Deana Bennett
9 on behalf of NGL Water Solutions Permian, LLC, the
10 Applicant, along with Zoe Lees.

11 EXAMINER GOETZE: Any other appearances in
12 this case?

13 MR. BRUCE: Mr. Examiner, Jim Bruce of
14 Santa Fe representing Solaris Water Midstream, LLC. I
15 have no witnesses.

16 MS. ANTILLON: Andrea Antillon with the
17 State Land Office. We have entered an appearance in
18 this matter, but we don't have any witnesses or any
19 objection.

20 EXAMINER GOETZE: Thank you.

21 MS. BENNETT: Thank you.

22 As with the prior cases, Asroc and Viper,
23 we have several witnesses with me, and they were
24 previously sworn in, and I leave it to the examiner's
25 pleasure whether to swear the witnesses in again.

1 EXAMINER GOETZE: We don't swear too many
2 times around here, but, in essence, you're saying you
3 will have the same roster of witnesses. So let us
4 proceed, and we will assume that they're still qualified
5 and under oath.

6 And your case.

7 MS. BENNETT: Thank you.

8 With that, I'd like to call my first
9 witness, Mr. Neel Duncan.

10 NEEL L. DUNCAN,
11 after having been previously sworn under oath, was
12 questioned and testified as follows:

13 DIRECT EXAMINATION

14 BY MS. BENNETT:

15 Q. Good morning, Mr. Duncan.

16 A. Good morning, again. It's still morning?

17 Q. If you would just briefly state your name for
18 the record and who you work for.

19 A. Neel Lawrence Duncan, managing director for
20 Integrated Petroleum Technologies.

21 Q. You've been retained by NGL?

22 A. Yes.

23 Q. And your responsibilities for NGL include
24 management and oversight of drilling saltwater disposal
25 wells?

1 A. Yes.

2 Q. Have you previously testified before the
3 Division?

4 A. I have.

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

7 A. Yes.

8 Q. Are you familiar with the application filed by
9 NGL in this matter?

10 A. I am.

11 Q. And are you familiar with the saltwater
12 disposal well which is the subject of this application?

13 A. I am.

14 MS. BENNETT: I'd like to tender Mr. Duncan
15 as an expert in petroleum -- I'm sorry -- in operations
16 and engineering matters.

17 EXAMINER GOETZE: He is so qualified as an
18 expert.

19 MS. BENNETT: Thank you.

20 Q. (BY MS. BENNETT) Let's look at Tab A. Exhibit
21 1A behind Tab A is the amended application that NGL
22 filed in the Sidewinder -- for the Sidewinder well; is
23 that correct?

24 A. Yes.

25 Q. And why did NGL file an amended application?

1 A. We moved the location.

2 Q. Moved the location of the well?

3 A. Yes.

4 Q. And why did NGL move the location of the well?

5 A. To get away from the Solaris Telluride. It's
6 now 1.57 miles away.

7 Q. And who requested the move or who proposed the
8 move?

9 A. OCD.

10 Q. And so NGL moved the well in response to a
11 request from OCD?

12 A. Yes.

13 Q. Could you briefly describe what NGL seeks in
14 its exhibit for the Sidewinder well?

15 A. We seek the authority to inject into the --
16 what we'll call -- what drillers will call the Devonian
17 Formation with a well design that is -- that will be
18 conducive to running a 7-inch-by-5-1/2-inch tapered
19 tubing string and an injection rate of 50,000 barrels
20 per day.

21 Q. Thank you.

22 If you look at Exhibit 1A, which is a few
23 pages in -- I'm sorry -- 1B, it's an email from my
24 office to Florene. Do you see that exhibit? It's
25 Exhibit 1B. It looks like this (indicating).

1 A. I'm looking for it in here. Yes. I see your
2 email to Florene.

3 **Q. Thanks.**

4 MS. BENNETT: So I have included this
5 exhibit because it recently came to my attention that
6 the amended application for Sidewinder is not posted on
7 OCD's website, and so I will be following up with
8 Florene today to ensure that the amended application is,
9 in fact, posted. But this email demonstrates that I
10 anticipated -- I filed it on December 14th by emailing
11 the amended application and also mailing a paper copy of
12 the application to the OCD. And we also, as you'll see
13 in a few moments, provided copies of the amended
14 application to all the parties entitled to notice,
15 including Solaris, at the time it was filed.

16 **Q. (BY MS. BENNETT) Okay. Let's look at Exhibit**
17 **2. Is Exhibit 2 an affidavit from NGL's consultant,**
18 **Chris Weyand?**

19 A. Yes, it is, a Permian consultant.

20 **Q. And does, in that exhibit, confirm that he**
21 **rechecked names and addresses provided to me for notice**
22 **based on the new location of Sidewinder?**

23 A. Yes, that's correct.

24 **Q. And did he conclude that additional notice was**
25 **required?**

1 A. No.

2 Q. I think he actually did.

3 A. Oh, okay. But it was done. Yeah.

4 Q. Yes.

5 A. It was done for the new location.

6 Q. Uh-huh. That's right.

7 And does his affidavit also include
8 information about the location of the Sidewinder well's
9 proximity to state lands?

10 A. Yes.

11 Q. And how about the location of the Telluride and
12 Aspen wells?

13 A. Yes.

14 Q. And you mentioned earlier that the Sidewinder
15 well is now closer than one mile away -- I'm sorry -- is
16 further than one mile away from any disposal well in the
17 area?

18 A. Yes.

19 Q. And it's one 1.57 miles from the Telluride
20 well?

21 A. Yes, it is.

22 Q. Do you know that the State Land Office entered
23 an appearance in this case?

24 A. Yes.

25 Q. And do you know what the State Land Office's

1 **concerns are?**

2 A. Their concern was a water well on fee land
3 about 500 feet from the Sidewinder location.

4 **Q. And did we have a conversation with the State**
5 **Land Office yesterday about that?**

6 A. Yes, we did.

7 **Q. And what was the -- after looking into that**
8 **ourselves, what did we conclude?**

9 A. That the water well is -- is property of NGL
10 Water Solutions for their cattle operation on the -- on
11 the ranch.

12 **Q. So it's a well on NGL's own fee land?**

13 A. It's NGL's own well on fee land. That
14 assignment was completed in, I believe, September. It
15 closed on the ranch in mid-July.

16 **Q. Okay. And has NGL submitted other applications**
17 **to the Division that include the same wellbore design**
18 **that NGL is including in its Sidewinder design?**

19 A. Yes. It's basically the same design except --
20 unless we get into, you know, the Capitan further east.

21 **Q. When NGL has gotten into the Capitan further**
22 **east, has NGL been responsive to making changes to its**
23 **wellbore design?**

24 A. Yes. We add a casing string to ensure that we
25 don't mix Capitan Reef and salt.

1 Q. So in your opinion, is the casing -- the
2 wellbore design and the casing design to protect water
3 resources?

4 A. Yes. For Sidewinder, this well will protect
5 freshwater resources.

6 Q. And could you please quickly explain NGL's
7 reason for requesting a 7-inch tubing size?

8 A. To reduce friction horsepower and allow for
9 more injection per well, reduce the number of wells and
10 surface impacts, reduce fuel requirements to inject that
11 water, overall a greener operation.

12 Q. And earlier today, did you testify that there
13 were other Devonian disposal wells for which the
14 Division has recently approved the use of
15 7-by-5-1/2-inch tubing?

16 A. Yes, I did.

17 Q. Would you look at Tab 3 to your exhibit, so A3?
18 Is that a declaration of the Mr. Steve Nave?

19 A. Yes, it is.

20 Q. Could you briefly describe Mr. Nave's
21 profession and what his declaration concludes for our
22 purposes?

23 A. He's a fishing tools and operation of those
24 tools expert, and he testifies here that should there be
25 difficulty in recovering the 5-1/2-inch tubing down

1 inside the 7-5/8 casing, we have adequate clearance to
2 get that done.

3 Q. If you could please turn to Tab 4 of your
4 exhibit, is that an affidavit prepared by me?

5 A. Yes, it is.

6 Q. And this affidavit includes the addresses to
7 whom I sent notice of this hearing, along with the
8 amended application, the results of that mailing, which
9 has the blue header, and then also notification of
10 publication at the very end?

11 A. Yes.

12 Q. Is that accurate?

13 A. Yes.

14 Q. Were Exhibits 1 through 4 created by you or
15 prepared under your direction and supervision or
16 compiled from company business records?

17 A. Yes, they were.

18 MS. BENNETT: At this point I'd like to
19 move the Tab A exhibits for admission into the record.

20 EXAMINER GOETZE: State Land Office?

21 MR. BIERNOFF: No objection.

22 (The court reporter requests the speaker's
23 name.)

24 MR. BIERNOFF: My name is Ari Biernoff.

25 MR. BRUCE: No objection.

1 EXAMINER GOETZE: Exhibits A1 through A4
2 are so entered.

3 (NGL Water Solutions Permian, LLC Exhibits
4 A1 through A4 are offered and admitted into
5 evidence.)

6 MS. BENNETT: Thank you.

7 At this point I have no further questions
8 for Mr. Duncan.

9 EXAMINER GOETZE: And, Mr. Bruce, you're
10 not going to be participating in this? You're going
11 with your solution as a point withdrawing your protest?

12 MR. BRUCE: Yes.

13 EXAMINER GOETZE: Okay. Does the State
14 Land Office have any questions?

15 MR. BIERNOFF: No questions.

16 EXAMINER GOETZE: Mr. Warnell?

17 EXAMINER WARNELL: No questions.

18 EXAMINER GOETZE: Mr. Brooks?

19 EXAMINER BROOKS: No questions.

20 EXAMINER GOETZE: Mr. McMillan?

21 EXAMINER McMILLAN: No questions.

22 EXAMINER GOETZE: I do have one thing,
23 though, I want to put on the record. I think this is
24 something we discussed at the preconference, is that
25 right now you've got this well spud, correct?

1 MS. BENNETT: That's correct.

2 EXAMINER GOETZE: And you are in violation
3 of the code of federal regulations with regards to our
4 authority and how this process is done. So we'll need
5 to talk with NGL about this situation, because it puts
6 us at liability and also makes you folks -- makes you
7 folks out of rule.

8 MS. BENNETT: And we would very much like
9 the opportunity to discuss that with you and talk about
10 where we are and how we got here and what the path
11 forward is. I mean, I do think -- I appreciate your
12 concerns about the code of federal regulations, and I
13 also do think, though, that there is some ambiguity
14 there, and we're kind of --

15 EXAMINER GOETZE: I don't think there is
16 any ambiguity, which is the reason why I opposed the
17 issuance of the permit.

18 MS. BENNETT: Of the APD?

19 EXAMINER GOETZE: Of the application and
20 permit to drill only about the well. You can have as
21 many APDs as you want. It's not a UIC permit. And the
22 authority that's given to us provides us the opportunity
23 such that if there are concerns as -- review of the UIC
24 application, that we need to have changes to the permit,
25 as in the case of the Galaxy and the Capitan, then it

1 gives us the ability to do it prior to you starting and
2 making commitments. So I understand NGL's presence and
3 what they want to do, but we do have rules, and they
4 will be followed.

5 So on that note, we'll have a discussion
6 later about it. Okay?

7 MS. BENNETT: Thank you.

8 EXAMINER GOETZE: I have no questions for
9 this witness.

10 Q. (BY MS. BENNETT) Anything you would like to
11 add, or are we good on this for now?

12 A. I think we're good on this for now.

13 And as you know, the -- the processes are,
14 you know, taking a while. We're resource limited at the
15 OCD. We're happy to help lobby, talk to our legislators
16 about getting more resources here.

17 EXAMINER GOETZE: That's not the issue.

18 THE WITNESS: That's not the --

19 EXAMINER GOETZE: It's black and white, and
20 someone's got to read it. And if no one's reading it,
21 then that first sentence in there prohibits injection
22 without the authority by permit. Now, if you're not
23 going to follow sentence two, are you going to follow
24 sentence one of 40 CFR -- let's see -- 144.11? And
25 that's -- our ability under the primacy agreement is

1 that these are what we have to follow.

2 THE WITNESS: Right.

3 EXAMINER GOETZE: So we don't get out of it
4 free, and we have been reminded by the EPA of our
5 shortcomings. And in light of the rapid expansion of
6 disposal, we have been reminded to look at the details
7 of that. So subject closed. We'll have a discussion
8 later. All right?

9 MS. BENNETT: Thank you.

10 EXAMINER GOETZE: Thank you.

11 MS. BENNETT: I'd like to call my next
12 witness.

13 EXAMINER McMILLAN: Actually, we can't read
14 the affidavit.

15 EXAMINER GOETZE: Oh, yeah, another
16 request. Can we try to get another one that doesn't
17 look like a big blob?

18 MS. BENNETT: I will do my best.

19 EXAMINER GOETZE: Okay. Thank you.

20 MS. BENNETT: Thank you.

21 I would like to call my next witness, Kate
22 Zeigler.

23 KATE ZEIGLER, Ph.D.,

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

1 DIRECT EXAMINATION

2 BY MS. BENNETT:

3 Q. Hello, again.

4 A. Good morning, again.

5 Q. Thank you again for being here today.

6 And just briefly if you could say your name
7 and who you work for for the record.

8 A. Kate Zeigler with Zeigler Geologic Consulting
9 on behalf of NGL.

10 Q. And your credentials have been accepted by the
11 Division as a matter of record?

12 A. Yes.

13 Q. And you're familiar with the application that
14 NGL submitted in this case?

15 A. Yes.

16 Q. And you've done a geologic study of the area
17 that's the subject of this well?

18 A. Yes.

19 MS. BENNETT: At this time I'd like to
20 tender Dr. Kate Zeigler as an expert in geology matters.

21 EXAMINER GOETZE: I figure the
22 State's busy, so --

23 No objections?

24 MR. BIERNOFF: None. Thank you.

25 EXAMINER GOETZE: She is so qualified.

1 MS. BENNETT: Thank you.

2 Q. (BY MS. BENNETT) So earlier today we went
3 through your exhibits for the Asroc and Viper wells, and
4 the exhibits for the Sidewinder well are similar to your
5 exhibits from earlier this morning; is that right?

6 A. Yes.

7 Q. And so I think we can pretty quickly dispense
8 with Exhibits 1 and 2. Those are the same exhibits that
9 we talked about earlier this morning showing the
10 depths -- in particular the depths below -- or above
11 which there are freshwater resources and petroleum and
12 then a permeability barrier and then the injection zone?

13 A. Yes.

14 Q. All right. So if we look at Exhibit 3, Exhibit
15 3, like your Exhibit 3 for the Asroc and Viper wells,
16 has ten pages; is that right?

17 A. Yes.

18 Q. And are these pages the isopachs that you
19 prepared for the stratigraphic units you discussed in
20 the earlier exhibits?

21 A. Yes. So this will be similar, with the first
22 page of each stratigraphic unit simply being just the
23 well, the isopach lines, the -- the estimated fault
24 placements. And then the second for each stratigraphic
25 unit shows the line of cross section just so that we

1 didn't provide one single, very cluttered figure.

2 Q. Thank you.

3 And you go through each layer, each unit?

4 A. Yup. So starting again with the Woodford is
5 our upper permeability barrier showing Sidewinder
6 sitting south on State Highway 128, with a thickness on
7 the Woodford Shale of approximately 220, 250 foot thick,
8 noting here that we are equally spaced between the
9 proposed traces of a couple of these Precambrian
10 basement faults.

11 And then if we move on to the combined
12 Wristen and Fusselman, the driller's injection interval,
13 looking at an approximate thickness here of 1,700 -- I'm
14 sorry -- 1,650 feet thick for the combined Wristen plus
15 Fusselman. I got my isopachs going the wrong way.

16 Below that are Montoya. Again, even though
17 we've scooted over just a little bit east, the thickness
18 of the Montoya is not probably significantly different
19 than it was for Viper, Asroc at about 350 feet in
20 thickness.

21 Moving on down-section to our lower
22 permeability barrier, our Simpson Group showing an
23 estimated thickness of around 900-to-950-foot thickness.

24 And then finally bottoming out with the
25 Ellenburger with an estimated thickness of probably

1 around 600-to-650-foot endings.

2 Q. Great.

3 And then anything else you'd like to say
4 about the isopachs before we move on to your cross
5 section?

6 A. Just as in the previous one, we don't see
7 significant variations in thickness that suggest major
8 lateral discontinuities. This well is located between
9 two of the faults. We don't seem to see anything in
10 isopachs that suggests that there is other fault cause
11 variation and thickness, so the thickness of the units
12 are fairly consistent through this area.

13 Q. Great.

14 So then if we look at Exhibit 4, can you
15 tell the examiners what Exhibit 4 is?

16 A. So 4 is a cross section. This shows
17 effectively the same reference wells that we saw for
18 Viper and for Asroc. The difference here is that the
19 Sidewinder well is located on the east side of the fault
20 that we've traced through the middle of this area, and
21 so that just shows the Sidewinder well sitting on the
22 upthrown side of this fault as opposed to over on the
23 downthrown side where Viper and Asroc were. So, again,
24 you can see that we have fairly consistent thicknesses
25 across this area. We're not seeing other structural

1 issues other than this larger fault.

2 Q. Thank you.

3 In your opinion, will the drilling of the
4 Sidewinder well impact the rights of mineral interest
5 owners?

6 A. No.

7 Q. And why is that?

8 A. Because we have a significant upper
9 permeability shale boundary, the Woodford Shale, that is
10 acting to protect different resources that are located
11 above it in the rock column.

12 Q. And is that the same rationale that you have
13 for concluding that the drilling of the Sidewinder well
14 likely will not affect any water resources?

15 A. True.

16 Q. And, again, we talked about -- or your exhibits
17 demonstrate that there is an upper permeability barrier
18 and a lower permeability barrier, and in between those
19 two permeability barriers is the injection zone?

20 A. Yes.

21 Q. That's all the questions I have at the moment.

22 Were the Tab B exhibits prepared by you or
23 compiled under your direction and supervision?

24 A. They were.

25 MS. BENNETT: I'd like to move the

1 admission of the Tab B Exhibits 1 through 4.

2 EXAMINER GOETZE: State Land Office, any
3 questions?

4 MR. BIERNOFF: No objections.

5 EXAMINER GOETZE: Thank you.

6 Tabs B1 through B4 are so entered.

7 (NGL Water Solutions Permian, LLC Exhibit
8 B1 through B4 are offered and admitted into
9 evidence.)

10 MS. BENNETT: Thank you.

11 EXAMINER GOETZE: State Land Office, any
12 questions?

13 MR. BIERNOFF: We have no questions.

14 EXAMINER GOETZE: Thank you.

15 Mr. Warnell?

16 EXAMINER WARNELL: No questions.

17 EXAMINER GOETZE: Mr. Brooks?

18 EXAMINER BROOKS: No questions.

19 EXAMINER GOETZE: And I have no questions.

20 MS. BENNETT: Thank you.

21 At this time I would like to call my next
22 witness, Dr. Steven Taylor.

23 STEVEN R. TAYLOR, Ph.D.,

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

1 DIRECT EXAMINATION

2 BY MS. BENNETT:

3 Q. Hello, again.

4 A. Hi, again.

5 Q. Will you please state your name again for the
6 record and who you work for and in what capacity?

7 A. Steven R. Taylor, GeoEnergy Monitoring Systems,
8 Incorporated, and I do the daily monitoring -- seismic
9 monitoring for NGL in southeastern New Mexico.

10 Q. And you testified before the Oil Conservation
11 Division this morning?

12 A. Yes.

13 Q. And your credentials were accepted by the
14 Division?

15 A. Yes, ma'am.

16 Q. And you're familiar with the application filed
17 by NGL for the Sidewinder well?

18 A. Yes, I am.

19 Q. And you conducted a seismology study related to
20 that well?

21 A. Yes.

22 MS. BENNETT: I'd like to tender Dr. Taylor
23 as an expert in seismology matters.

24 MR. BIERNOFF: No objection.

25 EXAMINER GOETZE: He's so qualified.

1 MS. BENNETT: Thank you.

2 Q. (BY MS. BENNETT) So if you could look at Tab C,
3 Tab C -- which is the report that you have in front of
4 you as well.

5 A. Yeah.

6 Q. -- is your seismic catalog analysis within 50
7 kilometers of the Sidewinder well. You prepared that
8 study in January 2019; is that right?

9 A. Yes.

10 Q. And is this study -- did this study take into
11 account the same information that the study you
12 presented earlier today did?

13 A. It's actually -- we just looked at the
14 seismicity -- because this was prepared earlier. We
15 looked at the seismicity through December 31st, 2018, so
16 there are not quite as many events on the seismicity
17 plots.

18 Q. So the seismicity plots that we discussed
19 earlier this morning, in particular the four new events,
20 don't appear on the Sidewinder map?

21 A. Right. Yes.

22 Q. And that's because the Sidewinder report was
23 prepared before those events occurred?

24 A. Yes.

25 Q. Thank you.

1 I don't think we need to walk through
2 your study because it's the same, essentially, as your
3 prior studies that we discussed earlier this morning,
4 but if you could quickly just give us the conclusion
5 you've reached through your study.

6 A. Okay. Well, there is some seismicity down in
7 that area of Sidewinder, but it's all very small, not
8 felt and hasn't been reported by any other agencies. So
9 the risks of anything being felt at this point seems to
10 be very small.

11 Q. In other words, given what you know about the
12 depths and locations of this well in this application,
13 there is little to no risk of felt-induced seismicity?

14 A. Yes.

15 Q. Were the -- was your study in Tab C prepared by
16 you or under your supervision?

17 A. Yes.

18 MS. BENNETT: At this time I'd like to move
19 that the Tab C exhibit be admitted to the record.

20 EXAMINER GOETZE: State Land Office?

21 MR. BIERNOFF: No objection.

22 EXAMINER GOETZE: Tab C is so entered.

23 (NGL Water Solutions Permian, LLC Exhibit C
24 is offered and admitted into evidence.)

25 MS. BENNETT: And I have no more questions

1 for Dr. Taylor.

2 EXAMINER GOETZE: Down the row,
3 Mr. Warnell?

4 EXAMINER WARNELL: No questions.

5 EXAMINER GOETZE: Mr. Brooks?

6 EXAMINER BROOKS: No questions.

7 EXAMINER McMILLAN: Could you incorporate
8 the updated information from the other cases into this
9 case?

10 MS. BENNETT: Certainly.

11 EXAMINER GOETZE: So other than that, I
12 have no questions for this witness.

13 Just go ahead and update and bring in the
14 other information --

15 THE WITNESS: Sure.

16 EXAMINER GOETZE: -- submit it by email.

17 MS. BENNETT: Definitely. Thank you.

18 Thank you.

19 At this time I would like to call my next
20 witness, Mr. Todd Reynolds.

21 TODD REYNOLDS,

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

24

25

1 DIRECT EXAMINATION

2 BY MS. BENNETT:

3 Q. Hello, again, Mr. Reynolds.

4 A. Hello.

5 Q. If you would briefly state your name and for
6 whom you work for the record.

7 A. Todd Reynolds, employed by FTI Platt Sparks.

8 Q. And you testified before the Division earlier
9 today?

10 A. Yes, I did.

11 Q. And your credentials were accepted into the
12 record?

13 A. They were.

14 Q. Are you familiar with the application that NGL
15 filed for the Sidewinder well?

16 A. Yes, I am.

17 Q. Have you conducted a fault slip probability
18 analysis related to that application?

19 A. I have.

20 MS. BENNETT: I would like to tender
21 Mr. Todd Reynolds as an expert in geology matters.

22 EXAMINER GOETZE: State Land Office?

23 MR. BIERNOFF: No objection from the State
24 Land Office.

25 EXAMINER GOETZE: Thank you.

1 He is so qualified.

2 MS. BENNETT: Thank you.

3 Q. (BY MS. BENNETT) Earlier today you testified
4 about the Stanford University fault slip probability
5 tool. And is that the same tool that you used to
6 prepare the study that we're about to discuss?

7 A. Yes, it is.

8 Q. So turning to Tab D, in Tab D, we have the same
9 Exhibit 1 that we discussed earlier today, which is the
10 USGS graph that shows sort of the magnitude of
11 earthquakes and how those earthquakes are felt by humans
12 and the effects of earthquakes. Any change between what
13 you testified on for Viper and Asroc and Sidewinder?

14 A. No. It's just the same general informational
15 background on what we're talking about here, which is
16 small magnitude events.

17 Q. And looking at Exhibit 2, is Exhibit 2 your
18 fault slip probability analysis for the Sidewinder well?

19 A. Yes, it is.

20 Q. Is this report different than the report that
21 you prepared for the Asroc and Viper wells?

22 A. It's essentially the same report because all of
23 the same wells need to be input into the model to -- to
24 have some -- to be valid, and so it is -- it's the same
25 model.

1 I will point out on Exhibit Number 1, where
2 the Sidewinder is, it's located in the southeast portion
3 of the area of review, which is the black-dashed outline
4 around all these wells. So as you can see, the
5 Sidewinder is more distant to the faults than the Asroc
6 and the Viper were, and so it has much less effect on
7 the pressure seen at the faults than some of the other
8 wells.

9 **Q. Thank you.**

10 **Earlier today we talked about this**
11 **100-square-mile sort of bubble that you've put around**
12 **the wells. Where does that come from, that -- that**
13 **parameter?**

14 A. It's -- it's a parameter that -- that we use
15 over in Texas. If there is a well permitted such as the
16 Sidewinder, the review area for seismicity is 100 square
17 miles, within 100 square miles. And a big reason for
18 that is the USGS locations are not very accurate. A lot
19 of these were located when their seismic network was not
20 as expansive as it is now. So there could be errors of
21 up to several miles of where the actual events were
22 occurring, and so you looked at a very large area
23 because of that. Now, they've gotten -- everything's
24 gotten better now because there are more local networks,
25 and the USGS is slowly incorporating all those networks

1 into their analysis. So that's why we look at such a
2 large area.

3 Q. And that area does include many of the wells
4 that are on your map? I mean, a lot of them are in the
5 100-square-mile area?

6 A. Yes.

7 Q. And those are all wells that you included in
8 your model?

9 A. Yes, that's correct.

10 MS. BENNETT: Unless the examiners would
11 like us to, I would suggest that we not go slide by
12 slide but rather have Mr. Reynolds summarize his
13 conclusions.

14 CROSS-EXAMINATION

15 BY EXAMINER GOETZE:

16 Q. Well, as far as content variation between -- I
17 mean, essentially, you're running the same model, the
18 same segments, the same fault selection, and you've run
19 the parameters from the Striker 6, and so we're using
20 the same elements in that assessment; is that correct?

21 A. That's correct. And we're talking about the
22 same faults.

23 Q. Yes. We're talking about the same faults.

24 And as long as the parameter, the model has
25 been run parallel, there is nothing new essentially as a

1 result of having new information since you ran the model
2 as opposed to the two previous cases, it's still the
3 same parameters, then I would say we've gone through
4 this in detail.

5 A. Yes. We've gone through this. The only thing
6 that would change in this area is if we come back two
7 months from now with new wells that weren't already in
8 the model, we would -- we would put those into the model
9 at that time.

10 Q. We'll worry about that two months from now.
11 But right now --

12 A. Exactly.

13 Q. -- your estimation and evaluation is as to the
14 Asroc and the Viper?

15 A. It is.

16 Q. Okay.

17 CONTINUED DIRECT EXAMINATION

18 BY MS. BENNETT:

19 Q. Okay. And so what are your conclusions based
20 on your report and your study?

21 A. Yes. My conclusions are there is seismicity
22 out here. I don't believe there is any correlation
23 between that seismicity and injection activity. There
24 are other factors that need to be looked at. And, you
25 know, I believe when you look at other areas that are

1 showing similar forms of seismicity, that it's typically
 2 not associated with injection in this -- in this area.
 3 It has to do with the complex normal pressure,
 4 overpressure, normal pressure environment, which leads
 5 to when -- when you have extraction, there are changes
 6 in stress environment.

7 Q. So it's your opinion, though, if I could just
 8 briefly restate, that the Sidewinder well -- drilling
 9 the Sidewinder well and operating the Sidewinder well
 10 does not present a risk of increased seismicity in the
 11 area?

12 A. That's correct. This well does not pose an
 13 increased risk for inducing seismicity.

14 Q. And given what you know about the depths and
 15 location of the well in this application, it's your
 16 opinion that there is no risk of induced seismicity?

17 A. That's correct.

18 Q. Okay. We've really driven that one home.

19 EXAMINER GOETZE: Just reintegrated.

20 MS. BENNETT: Yeah.

21 Q. (BY MS. BENNETT) And just one more time -- just
 22 kidding (laughter).

23 A. Only one correction from earlier --

24 Q. Yes.

25 A. -- it's actually the Bolivian flag, not the

1 Jamaican flag.

2 Q. Oh, okay. Thank you for that.

3 (Laughter.)

4 Q. Were the Tab D exhibits prepared by you or
5 under your supervision?

6 A. Yes, they were.

7 MS. BENNETT: At this time I'd like to move
8 that the Tab D exhibits be admitted into the record,
9 please.

10 EXAMINER GOETZE: State Land Office?

11 MR. BIERNOFF: No objection to that.

12 EXAMINER GOETZE: Exhibits D1 and D2 are so
13 entered.

14 (NGL Water Solutions Permian, LLC Exhibits
15 D1 and D2 are offered and admitted into
16 evidence.)

17 EXAMINER GOETZE: State Land Office?

18 MR. BIERNOFF: We don't have any questions
19 for Mr. Reynolds.

20 EXAMINER GOETZE: Mr. Warnell?

21 EXAMINER WARNELL: No questions.

22 CROSS-EXAMINATION

23 BY EXAMINER McMILLAN:

24 Q. So essentially what you're saying is if you go
25 to look at Exhibit 1 and you put a well, say, by fault

1 **16, that is not a preferred location, right? That would**
2 **be a couple of miles northeast of the Striker 6?**

3 A. Yes. Faults 15, 16 and 17 would be considered
4 the higher-risk faults in the area. And so a well
5 located right on top of those three faults, assuming
6 those faults are there where they're represented, that
7 would potentially -- when you ran the model, it might
8 reach a point where it would predict slip --

9 **Q. Okay.**

10 A. -- because of proximity to a fault that's more
11 optimally oriented to slip.

12 EXAMINER GOETZE: I have no questions for
13 this witness.

14 Thank you.

15 MS. BENNETT: Thank you.

16 And at this time, I'd like to call my final
17 witness, Mr. Scott Wilson.

18 SCOTT J. WILSON,
19 after having been previously sworn under oath, was
20 questioned and testified as follows:

21 DIRECT EXAMINATION

22 BY MS. BENNETT:

23 **Q. Good morning, Mr. Wilson.**

24 A. Good morning.

25 **Q. If you wouldn't mind stating your name and who**

1 you work for again.

2 A. Scott Wilson, Ryder Scott Company.

3 Q. Thank you.

4 And you've been retained by NGL for this
5 matter?

6 A. Yes.

7 Q. And you previously testified before the Oil
8 Conservation Division?

9 A. Yes.

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

12 A. Yes.

13 Q. Are you familiar with the application that NGL
14 filed in this case?

15 A. I am.

16 Q. Have you conducted a petroleum engineering
17 study related to this application?

18 A. Yes.

19 MS. BENNETT: At this time I'd like to
20 tender Mr. Wilson as an expert in petroleum engineering
21 matters.

22 EXAMINER GOETZE: State Land Office?

23 MR. BIERNOFF: None.

24 EXAMINER GOETZE: Thank you.

25 He is so qualified.

1 MS. BENNETT: Thank you.

2 Q. (BY MS. BENNETT) Let's talk about the study
3 that you prepared for the Sidewinder well. Is it your
4 study behind Tab E?

5 A. It is.

6 Q. And is it a similar study to the study we
7 discussed earlier today with respect to the Asroc and
8 Viper wells?

9 A. Very similar.

10 Q. Is it so similar that it's the same except for
11 a few slides?

12 A. Correct.

13 Q. Okay. So you undertook a nodal analysis and a
14 reservoir simulation analysis?

15 A. Correct.

16 Q. And those are both in your study?

17 A. Yes.

18 Q. Did you reach any connections from your nodal
19 analysis study in terms of increasing the tubing size to
20 7 inches?

21 A. Yes. The conclusion there is using a larger
22 tubing size is the more efficient use of horsepower and
23 capital and does not impact the reservoir in any way
24 that would be detrimental compared to the alternative
25 smaller tubing sizes.

1 Q. And did you also conclude that increasing the
2 tubing size reduces the number of wells needed for
3 disposal?

4 A. Yes, that's correct.

5 Q. Let's then turn to Exhibit 5 -- slide five of
6 your packet. Slide five is different than slide five in
7 your Asroc and Viper packet; is that true?

8 A. That's correct.

9 Q. What's the difference with this slide?

10 A. The difference between the slide is that the
11 Sidewinder well is now shown with a circle around it
12 showing the offsetting wells. And that circle -- the
13 size of it can be referenced against the scale in the
14 lower-left corner and also the section numbers on the
15 lower-left side.

16 Q. Thank you.

17 So then Exhibits 6 through 19 are similar
18 to the exhibits that you prepared and presented for the
19 Asroc and Viper cases?

20 A. Correct. They start to change at slide nine.

21 Q. Okay. Let's turn to slide nine.

22 A. Slide nine correctly shows the initial pressure
23 of the grid with no injection. So once you get to slide
24 nine, you'll see a nice flat surface that's all one
25 color, which represents the initial pressure of the

1 formation.

2 The next slide, slide ten, shows what it
3 looks like 20 years later.

4 **Q. And so the green is increased pressure?**

5 A. Correct. The green is a higher pressure. So
6 the pressure is represented by color here going from --
7 blue is the lowest pressure up to green, and then the
8 light blue is the highest pressure, but you don't see
9 any of that on this grid.

10 **Q. Uh-huh. And, in fact, when we're looking at**
11 **the -- sort of the exterior perimeter, it's still red?**

12 A. It is. It's still roughly the original
13 pressure. You can compare it against the prior slide.

14 **Q. Is Exhibit 11 a similar slide from what we**
15 **looked at for Asroc and Viper?**

16 A. Yes. Exhibit 11 is the same as the others.

17 **Q. And how about Exhibit 12?**

18 A. Exhibit 12 is the same as the others.

19 **Q. How about Exhibit 13?**

20 A. Exhibits 13 through 16 -- no -- 17 are a series
21 of slides designed to show a time progression from zero
22 years of injection to 20 years of the injection. And
23 slide 13 shows prior to any injection. And the graph in
24 the upper left-hand side has the wellbore traces, but
25 there is no fluid designated in any of those locations.

1 It's dark there. The slide in the lower right-hand
2 corner is the pressure. It's also representative of the
3 initial pressure that's simply a function of depth. So
4 this is a starting case.

5 Q. Okay.

6 A. After one year, you see what it looks like on
7 slide 14. And those little boxes that are around each
8 wellbore, that's the half-mile section around the
9 wellbore showing that the water that has been injected
10 for roughly a year has moved less than half a mile. It
11 has affected the one-half-mile grid, but it may not be
12 fully -- it may not be fully on. So that's the colors
13 around each of those little lines that shows the
14 injection. And you can also see the graph on the lower
15 right is now showing a little bit of a color difference
16 from the original conditions as the pressure around
17 those wells starts to build.

18 Slide two shows what it looks like after
19 two years, more of the same, but on the upper-left
20 graph, now you can see that the injection profile has
21 moved. At least it's seen more than a half mile away.
22 It's getting into the next mile.

23 Exhibit 16 is after ten years, and it's --
24 the upper-left slide shows that the water that is
25 injected has now moved roughly maybe three-quarters of a

1 mile into the offsetting space around the wellbore. And
2 notice that the pressure in the lower right-hand graph
3 is starting to climb a little bit. You have a little
4 hill of pressure that's around the wellbores. But the
5 point I was trying to make with this series of slides is
6 that the fluids don't exactly correspond to the
7 pressure. The pressure is seen as a smooth profile.
8 Whereas, the fluids are -- they kind of stay around the
9 well that they're injected into.

10 **Q. So the pressure sort of disperses more quickly**
11 **than the water does?**

12 A. Exactly. The pressure is a nice cone that
13 worked its way out gently. Whereas, the water is either
14 there or it's not.

15 And then slide 17 is after 20 years, so
16 that's twice as long as the prior slide. And you see
17 the upper left. It's still -- the wells aren't really
18 pounding into each other. The fluids that are being
19 injected into each other may be starting to go into the
20 same grid cells, but the pressure is starting to
21 distribute. And if I ran this 100 years, you'd see that
22 fluid then kind of spread out and move to the other
23 areas as it moves away from the injectors. That's slide
24 17.

25 **Q. Thank you.**

1 A. So should I go over 18?

2 **Q. 18 and 19 are the same as in your last --**

3 A. They're similar, but these have more injectors.

4 **Q. Okay. Yes. Let's talk about them then.**

5 A. Slides 18 and 19 have a larger group of
6 injectors, and those wells reached maximum injection
7 pressure, a few of them did, after ten years as opposed
8 to 20 years in the prior case. And so the model does
9 honor the injection profiles of each of the wells as it
10 moves forward in time. And once it hits that maximum
11 injection pressure, as is shown in Exhibit 19, the wells
12 drop off. The rate falls, and they stop injecting at
13 the original 40,000 barrels a day.

14 And that's the end of this.

15 **Q. And what did -- what conclusions can we take**
16 **away from your reservoir simulation study?**

17 A. That the injection profiles around the wells
18 can be modeled. We can do a fairly good job of
19 predicting pressures over time. As long as operators
20 honor their maximum injection pressures, there is no
21 risk of fracturing the formation due to the injection
22 of -- at any rate, as long as they stay below those
23 pressures, and the fluids do disperse over time. The
24 impact is larger per higher injection rates, but it does
25 dissipate depending on the offsets and how long the

1 injection period is.

2 Q. Thank you.

3 Were the Tab E exhibits prepared by you or
4 under your supervision or compiled from company business
5 records?

6 A. They were.

7 MS. BENNETT: At this time I'd like to move
8 Tab E exhibits to be admitted into the record.

9 MR. BIERNOFF: No objection.

10 EXAMINER GOETZE: Thank you.

11 Tab E exhibits are so entered.

12 (NGL Water Solutions Permian, LLC Exhibit E
13 is offered and admitted into evidence.)

14 MS. BENNETT: Thank you.

15 And I have no further questions for
16 Mr. Wilson.

17 EXAMINER GOETZE: State Land Office?

18 MR. BIERNOFF: No questions of this
19 witness.

20 EXAMINER GOETZE: Mr. Warnell?

21 EXAMINER WARNELL: No questions.

22 EXAMINER BROOKS: No questions.

23 EXAMINER GOETZE: Nobody up here has a
24 question?

25 EXAMINER BROOKS: No.

1 EXAMINER GOETZE: We have no more
2 questions.

3 MS. BENNETT: And I'd ask that Case 16443
4 be taken under advisement.

5 EXAMINER GOETZE: Case 16443 is taken under
6 advisement.

7 MS. BENNETT: Thank you.

8 EXAMINER GOETZE: Thank you.

9 (Case Number 16443 concludes, 11:30 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 27th day of March.

21

22

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

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