

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:

CASE NOS: 21031

APPLICATION OF AWR DISPOSAL LLC
FOR APPROVAL OF SALT WATER DISPOSAL WELL,
LEA COUNTY, NEW MEXICO.

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

FEBRUARY 6, 2020

SANTA FE, NEW MEXICO

This matter came on for hearing before the New Mexico Oil Conservation Division, EXAMINERS FELICIA ORTH, PHILLIP GOETZE and DYLAN COSS, on Thursday, February 6, 2020, 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: Irene Delgado, NMCCR 253
PAUL BACA PROFESSIONAL COURT REPORTERS
500 Fourth Street, NW, Suite 105
Albuquerque, NM 87102
505-843-9241

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A P P E A R A N C E S

For the Applicant:

DEANA BENNETT
MODRALL SPERLING ROEHL HARRIS & SISK PA
500 4th Street, NW, Suite 1000
Albuquerque, NM 87102
505-848-9710
deana.bennett@modrall.com

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1 HEARING EXAMINER ORTH: Which brings us back
2 around to those matters in which we expect to hear
3 witnesses. We will start with 21031 AWR Disposal Muledome
4 Well.

5 MS. BENNETT: Good morning.

6 HEARING EXAMINER ORTH: Good morning.

7 If you would all enter appearances, Ms. Bennett.

8 MS. BENNETT: Good morning, Deana Bennett,
9 Modrall Sperling on behalf of AWR Disposal LLC, and I have
10 with me one witness.

11 HEARING EXAMINER ORTH: Okay. If you would
12 please raise your right hand. Do you swear or affirm that
13 the testimony you are about to give will be the truth, the
14 whole truth, and nothing but the truth.

15 THE WITNESS: I do.

16 HEARING EXAMINER ORTH: Tell me your name.

17 THE WITNESS: Neel Duncan. N-e-e-l.

18 MS. BENNETT: Good morning.

19 HEARING EXAMINER ORTH: Good morning.

20 NEEL LAWRENCE DUNCAN

21 (Sworn, testified as follows:)

22 DIRECT EXAMINATION

23 BY MS. BENNETT:

24 Q. Mr. Duncan, good morning.

25 A. Good morning.

1 Q. Will you please state your name again for the
2 record.

3 A. Neel Lawrence Duncan.

4 Q. And for whom do you work?

5 A. Integrated Petroleum Technologies.

6 Q. You have been retained by AWR Disposal LLC; is
7 that right?

8 A. I have.

9 Q. And what are your responsibilities for AWR?

10 A. Development drilling and operations.

11 Q. You have experience with development, drilling
12 and operations of disposal wells; is that right?

13 A. Yes, I do.

14 Q. Have you previously testified before the
15 Division?

16 A. Yes, I have.

17 Q. And can you tell the examiners a bit about AWR?
18 For example, is AWR associated with a ranch?

19 A. Yes. AWR is a disposal operation on the
20 Limestone Ranch in Lea County.

21 Q. And has AWR filed SWD applications with the
22 Division before this application.

23 A. Some administrative applications have been filed.

24 Q. And has AWR filed any other applications that are
25 set for hearing -- that will be set for for hearing

1 A. Yes, they will be set for hearing, yes.

2 Q. Does your role for AWR or your role at ITT
3 involve management and oversight of drilling saltwater
4 disposal wells?

5 A. Yes, it does.

6 Q. When you testified before the Division before,
7 were your credentials accepted as a matter of record?

8 A. Yes, they were.

9 Q. Are you familiar with the application that I
10 filed on AWR's behalf on this matter?

11 A. I am.

12 Q. Are you familiar with the lands at issue in this
13 application?

14 A. Yes.

15 Q. A moment ago I believe you testified that the
16 land at issue are fee lands within the Limestone Basin Ranch
17 property?

18 A. Yes.

19 Q. Applications will cover both fee and state land
20 over time, but this one is limited to fee land?

21 A. Yes.

22 Q. Are you familiar with the saltwater disposal
23 well, which is the subject of AWR's application?

24 A. I am both.

25 MS. BENNETT: At this time I would like to tender

1 Mr. Duncan as an expert in operations and engineering
2 matters.

3 HEARING EXAMINER ORTH: Any questions about his
4 qualifications?

5 EXAMINER GOETZE: No.

6 HEARING EXAMINER ORTH: Thank you. He is so
7 recognized.

8 BY MS. BENNETT:

9 Q. Mr. Duncan, we have worked together for a while
10 now; right?

11 A. Yes.

12 Q. And we have put on a number of cases before the
13 Division.

14 A. Yes, we have.

15 Q. Together when we do so we usually follow this
16 protocol with you presenting as prepared by experts that
17 have been retained by, in this case, AWR?

18 A. Yes, that's correct.

19 Q. That's been a process that we have used on a
20 number of occasions?

21 A. Yes.

22 Q. So that's the same process we are going to use
23 today.

24 HEARING EXAMINER ORTH: Thank you.

25 BY MS. BENNETT:

1 **Q.** So if you could, please turn to Tab 1, and the
2 **materials behind Tab 1. Is that the application that I**
3 **prepared on behalf of AWR for the Muledome SWD-1?**

4 A. Yes, it is.

5 MS. BENNETT: And also behind -- and for the
6 Examiners's benefit, we did double side these packets as
7 well based on the instructions for general affidavit cases.
8 If the Examiners prefer single sided in the future, just let
9 us know.

10 HEARING EXAMINER ORTH: Double sided is better.
11 Thank you.

12 BY MS. BENNETT:

13 A. Mine is single sided.

14 **Q.** **That's because you have the original.**

15 A. Okay.

16 **Q.** So if you look behind the application that I
17 **prepared, starting on Page 4, is that the C-108 that**
18 **Mr. Weyand of Lonquist prepared?**

19 A. Yes, it is.

20 **Q.** **Has Mr. Weyand prepared C-108s for other**
21 **saltwater disposal wells?**

22 A. Yes, he has.

23 **Q.** **Do you know if he prepared C-108s for AWR**
24 **Disposal before?**

25 A. Yes, he has.

1 Q. Has Mr. Weyand testified before the Division?

2 A. He has, recently.

3 Q. And a moment ago there were no other parties that
4 has entered their appearance in this case, as far as you
5 know?

6 A. That's correct.

7 Q. What does AWR seek under this application for the
8 Muledome SWD?

9 A. We seek to drill and operate a saltwater
10 injection well and -- SWD, saltwater disposal well. And it
11 will be in Section 30 of 22 South, 33 East in Lea County.

12 The injection zone proposed is going to be the
13 Devonian or Silurian Fusselman, at 16083 to 17701 feet,
14 obviously corrected if necessary after drilling, and if
15 those depths change as we change geological records on this
16 well. We intend to complete the well with 7 inch casing at
17 the bottom, 9 5/8 toward the top. 9 5/8 will go down to the
18 Wolfcamp A, and then 7 inch down below that, so we will have
19 a tapered tubing string of 7 inch by 5 1/2.

20 We will be asking for injection rate, a maximum
21 injection, not an average rate, but maximum daily injection
22 rate of 50,000 barrels per day, and a pressure of, maximum
23 pressure of 3216 psi. We expect the average pressure to be
24 around 2400 psi.

25 Q. Thank you. A moment ago you described the casing

1 and tubing that AWR proposes to use. Is that fairly
2 standard these days for SWDs?

3 A. Yes. We see a lot of applications, our
4 applications as well as applications of others asking for
5 this.

6 Q. Why is that, that the new normal for tubing size
7 for these types of wells?

8 A. It reduces friction, obviously, and that has, you
9 know, less, you know, less work, horsepower requirements,
10 you get more water in a single well, so less injection
11 wells.

12 Q. So fewer surface disturbances as well?

13 A. Yes.

14 Q. Has AWR considered whether fishing operations are
15 feasible in a deep well like this?

16 A. Yes, they are. Expensive, but they are feasible.

17 Q. Okay. I want to now turn to Tab 2. Has AWR
18 retained a reservoir engineer to conduct a study of the
19 injection zones for this well?

20 A. Yes. And we retained Scott Wilson, and his -- he
21 has previously testified, and his qualifications have been
22 accepted.

23 Q. Thank you. And has Mr. Wilson provided an
24 affidavit for this case.

25 A. Yes, he has.

1 Q. And is that affidavit marked as Exhibit 1, Pages
2 25 through 28 of the materials?

3 A. Yes.

4 Q. And did he also perform a study, a reservoir
5 engineering study which models migration of fluids injected
6 into the wells?

7 A. He did.

8 Q. And is his study marked as Exhibit 2 A and does
9 that span Pages 29 through 45?

10 A. Yes.

11 Q. Have you had a chance to review Mr. Wilson's
12 affidavit and his study?

13 A. I have.

14 Q. In his affidavit does Mr. Wilson confirm that
15 increasing tubing size or using the tubing size we discussed
16 for this well will reduce friction in the wellbore?

17 A. Yes.

18 Q. Does he also confirm that using this tubing size
19 will have a very small impact on core pressure in the
20 formation?

21 A. Yes.

22 Q. Is it his opinion this tubing size will not cause
23 fracture in the formation?

24 A. Yes.

25 Q. In his study, in his reservoir engineering study,

1 did he conclude that over a period of 20 years, the majority
2 of the fluids injected into this well will stay within a
3 mile of where the well is located?

4 A. Yes, without having an adverse impact on
5 reservoir pressure.

6 Q. This study that Mr. Wilson prepared is similar to
7 studies Mr. Wilson has prepared for other cases; is that
8 right?

9 A. Yes, it is.

10 Q. Is it similar to studies that have been submitted
11 in other hearings?

12 A. Yes.

13 Q. Okay. Let's turn then to what's marked as
14 Exhibit 3. Has AWR retained a geologist to review the
15 geology in this area where the well will be located?

16 A. Yes, they have. And that's Dr. Kate Zeigler.
17 She has testified before the Commission, and her
18 qualifications have been accepted.

19 Q. And she has also testified before the Division on
20 a number of --

21 A. Yes.

22 Q. Has she prepared an affidavit in support of AWR's
23 application?

24 A. She has.

25 Q. And is that affidavit marked as Exhibit 3 and on

1 **Pages 46 through 50?**

2 A. Yes, it is.

3 Q. Did she prepare a study, a geologic study on
4 **AWR's behalf for this application?**

5 A. She did.

6 Q. And is that marked as Exhibit 3 and encompasses
7 **Pages 51 through 65?**

8 A. Yes.

9 Q. Have you had a chance to review Dr. Zeigler's
10 **affidavit and her study?**

11 A. I have.

12 Q. Is the study that Dr. Ziegler prepared for this
13 **case similar to the studies she's prepared for other cases?**

14 A. Yes.

15 Q. So does the study she prepared include isopachs
16 **of the relevant formations and then a cross section of each**
17 **formation?**

18 A. Yes.

19 Q. Did Dr. Zeigler find the area where this well is
20 **proposed to be located is suitable for injection at these**
21 **rates?**

22 A. Yes, it is. We have confinement at the top and
23 the bottom of the injection zone.

24 Q. And so Dr. Zeigler did conclude that there is a
25 **permeability barrier both above and below the area where --**

1 A. Yes. Yes.

2 Q. Did she also testify in her affidavit that she
3 found no evidence of open faults or other hydrologic
4 connection between the disposal zone and any underground
5 sources of drinking water?

6 A. Yes.

7 Q. Is that in her affidavit at Paragraph 14?

8 A. Yes, it is.

9 Q. If you look at Page 65, is that the cross section
10 that Dr. Zeigler prepared?

11 A. Yes.

12 Q. And it shows where the AWR Muledome SWD Number 1
13 would be located roughly within the cross section?

14 A. Yes.

15 Q. Okay. All right let's turn to Tab 4 then. Is
16 Tab 4 -- is the affidavit behind Tab 4 an affidavit of
17 Dr. Stephen Taylor?

18 A. Yes, it is.

19 Q. Has Dr. Taylor been retained by AWR to prepare a
20 seismology report?

21 A. Yes, he has.

22 Q. And who is Dr. Taylor?

23 A. He is a geophysicist in Los Alamos. He -- he
24 does all the monitoring for AWR, as far as the seismic
25 monitors that will be installed with the wells.

1 Q. And he has access to data from other seismic
2 monitors in the area?

3 A. Yes, he does.

4 Q. And so have you had a chance to review Dr.
5 Taylor's affidavit and his study?

6 A. I have.

7 Q. So Dr. Taylor's affidavit describes his study
8 which is behind what is marked as Exhibit 4 A, Pages 59
9 through 73, but it also describes the study or includes the
10 study from FTI Platt Sparks marked as Exhibit 4 B. Is that
11 right?

12 A. Yes. This is the fault slip analysis.

13 Q. And who prepared this fault slip probability
14 analysis?

15 A. Todd Reynolds of Platt Sparks.

16 Q. Has Dr. Taylor -- let's break it down. Has Dr.
17 Taylor previously testified before the Division?

18 A. Yes, he has, and his qualifications have been
19 accepted.

20 Q. And how about Mr. Reynolds?

21 A. Mr. Reynolds has also testified and his
22 qualifications have been accepted.

23 Q. Looking at Dr. Taylor's study, his study
24 identifies, for example, on Pages 71 and 72, the location of
25 seismic monitors in the area and seismic activity; is that

1 right?

2 A. That's correct.

3 Q. And he also on Table 2, which is on Page 7, he
4 also includes seismicity reports, reporting that he has
5 compiled; is that right?

6 A. Yes, he -- yes.

7 Q. As recently as 1-30-20, which is the last entry
8 on his table?

9 A. Yes.

10 Q. So this is a very recent cumulative report that
11 he's prepared?

12 A. Yes, it is. You can have even more up to right
13 now if you want.

14 Q. And so he, Dr. Taylor, looked at prior seismic
15 activity in the area as well; right?

16 A. Yes.

17 Q. Did he conclude that there is not a lot of
18 seismic activity in the area?

19 A. Yes, he did.

20 Q. And did Dr. Taylor review the FTI Platt Sparks
21 modeling?

22 A. Yes, he did.

23 Q. And does the FTI Platt Sparks modeling, which is
24 the fault slip probability analysis, find there is very
25 little risk of induced seismicity from this proposed well?

1 A. Yes. There is one fault quite far to the east,
2 and I don't know exactly how far it was, but it's
3 north/south orientated, and we do not see any slip potential
4 in that fault.

5 Q. And looking at, for example, Page 81 of his
6 report, on Page 81 does he identify the Muledome Well in
7 that set -- in that grid?

8 A. Yes, he does.

9 Q. And based on your review of his report, can you
10 describe for the Examiner what the other numbered squares
11 are around the Muledome Well?

12 A. Those are application wells.

13 Q. So those are other SWD wells --

14 A. Yes.

15 Q. -- in the area --

16 A. Yes.

17 Q. -- that he input into his model?

18 A. Yes, either application or active.

19 Q. If you look at Page -- he modeled the fault slip
20 potential over time; is that right?

21 A. That's correct.

22 Q. And so turning to Page 91 of his report, which is
23 the last page of his report, is that the -- his model
24 that's run through year 2045?

25 A. Yes.

1 Q. Does that show the same wells as we saw on the
2 prior page, those squares?

3 A. Yes.

4 Q. And in the upper left-hand corner where it says
5 all faults, and they are all green, what does that mean?

6 A. Well, that means we don't raise the core pressure
7 in the fault significantly enough to cause a slip.

8 Q. And the fault is identified on this slide, and
9 then other slides as the green line to the right of the
10 proposed well and the other wells on that?

11 A. Yes. And it's about ten kilometers east.

12 Q. Great, thanks. Let's look at Exhibit 5. Is
13 Exhibit 5 an affidavit that I prepared as AWR's counsel
14 showing that I mailed notice letters of this hearing and
15 that I also published notice of this hearing on January 18,
16 2020?

17 A. Yes, it is.

18 Q. Turning to Pages 93, 94 and 95, is that an
19 affidavit prepared by Mr. Weyand?

20 A. Yes, it is.

21 Q. And as we discussed earlier today, he is the
22 consultant who prepared the C-108; is that right?

23 A. Yes.

24 Q. And in his affidavit does he testify that he
25 compiled a list of parties entitled to notice based on the

1 **OCD regulations?**

2 A. Yes.

3 **Q. Did he provide that notice list to me?**

4 A. Yes, he did.

5 **Q. Thank you. Looking at Page 125, does that look**
6 **to you like an affidavit of publication showing that notice**
7 **of this hearing was published?**

8 A. It does look like one.

9 **Q. Oh, one question I had about Mr. Weyand's**
10 **affidavit. Did he use the one-mile area of review --**

11 A. Yes.

12 **Q. -- for the notice parties?**

13 A. Yes, he did.

14 **Q. Were Exhibits 5 -- were Exhibits 1 through 5**
15 **created by you or prepared under your supervision and**
16 **direction or compiled from business records?**

17 A. Yes, they were.

18 **Q. In your opinion, will the granting of this**
19 **application promote the prevention of waste and protection**
20 **of correlative rights?**

21 A. Yes.

22 MS. BENNETT: At this time I would like to move
23 that Exhibits 1 through 5 will be admitted into the record.

24 HEARING EXAMINER ORTH: Thank you. Exhibits 1
25 through 5 will be admitted.

1 (Exhibits 1 through 5 admitted.)

2 HEARING EXAMINER ORTH: Mr. Coss, do you have
3 questions?

4 EXAMINER COSS: Did you guys have any questions?
5 I mean, I do. I can lead in first.

6 So, good morning. How are you today? Nice to
7 see you again, Mr. Duncan.

8 So I noticed on reviewing the wellbore's diagram
9 that the intended depth of the bottom hole section is 17,700
10 and --

11 THE WITNESS: One.

12 EXAMINER COSS: -- one feet?

13 THE WITNESS: Yes.

14 EXAMINER COSS: And the pick for the top of
15 Montoya is 17,601 feet?

16 THE WITNESS: Yes.

17 EXAMINER COSS: Is AWR intending to inject into
18 the Montoya formation?

19 THE WITNESS: No, but we get through it so we can
20 sufficiently log and find the bottom of the Fusselman and
21 Silurian, so without penetrating at least -- 100 feet is a
22 little bit conservative, I guess, or more may be a little
23 bit more than we need, but we need to get our logging tools
24 down through the bottom in order to the first reading is
25 going to be about 60 feet off the bottom of the logging

1 tool.

2 EXAMINER COSS: Okay.

3 THE WITNESS: But the Montoya won't take any,
4 won't take any fluid.

5 EXAMINER COSS: But there will be an open hole
6 section in a little bit of the Montoya?

7 THE WITNESS: Yes, and Phillip may beat me over
8 the head for that, but --

9 EXAMINER GOETZE: No, Dr. Zeigler will.

10 THE WITNESS: I specifically asked Dr. Zeigler if
11 she was comfortable with going 100 feet into the Montoya,
12 and she did say yes, so --

13 EXAMINER COSS: So I guess the assumption then is
14 that AWR believes it will need the entire section of the
15 Devonian that's present and not any left.

16 THE WITNESS: That is correct. Some of that rock
17 is pretty tight, and you need all you can get.

18 EXAMINER COSS: Okay. Well, I guess that leads
19 me to another question. In Ziegler's testimony and in the
20 modeling, is the attributes used for the Devonian general
21 within the entire basin, or was the kind of local
22 hypothesized porosity permeability of the --

23 THE WITNESS: It's fairly general, you know. We
24 don't have a lot of information in the local area, and so
25 we, we drill and see what we get, so, you know. Injection

1 rates, I know we have applied for 50,000 barrels a day in a
2 lot of these wells, but we can't seem to achieve that just
3 because of permeability.

4 EXAMINER COSS: I see. Okay. Well that would be
5 my -- the other questions I was going to ask, and I notice
6 that your well is also within kind of the mile and a half
7 AOR of the Goodnight well application. Just wanted to know
8 if you all had been in communication with them regarding
9 the --

10 THE WITNESS: We are aware of that well. It's
11 about a mile and a quarter, I believe, from the Goodnight
12 application. That is protested. I don't know who all
13 protested that well, but yeah.

14 EXAMINER COSS: Yeah, it was the State Land
15 Office, at least in part.

16 THE WITNESS: Okay.

17 EXAMINER COSS: I believe those are all my
18 questions.

19 EXAMINER GOETZE: Two questions, one specific.
20 In light of the previous activity by NGL to delineate and
21 deal with proximity to faults, in this evaluation for AWR's
22 well, was there any consideration given on the same
23 proximity to the Devonian fault previously? We have had
24 these faults identified as breaching through the confining
25 layer. NGL has made a recommendation to stand back. Was a

1 cursory consideration also given to this well?

2 THE WITNESS: On this well we didn't find
3 anything, but on other applications we are in discussions
4 with Marathon now on some seismic that they have. So of
5 course as the information comes in we will keep you
6 informed.

7 EXAMINER GOETZE: We'll find out for sure. The
8 second one is why come to hearing, just out of curiosity?

9 MS. BENNETT: Why not.

10 THE WITNESS: We like to see you.

11 EXAMINER GOETZE: I'm sure of that, but I realize
12 there is not much activity in this area, so it is an
13 isolated application. Okay, other than that, I have no more
14 questions, thank you.

15 THE WITNESS: Thank you.

16 HEARING EXAMINER ORTH: Thank you very much
17 Mr. Goetze, Mr. Duncan. Thank you Ms. Bennett.

18 MS. BENNETT: At this time I would ask that case
19 Number 21031 be taken under advisement.

20 HEARING EXAMINER ORTH: It will be so. Thank
21 you.

22 (Taken under advisement.)

23

24

25

1 STATE OF NEW MEXICO)
)SS
2 COUNTY OF SANTA FE)

3 I, IRENE DELGADO, certify that I reported the
4 proceedings in the above-transcribed pages, that pages
5 numbered 1 through 22 are a true and correct transcript of
6 my stenographic notes and were reduced to typewritten
7 transcript through Computer-Aided Transcription, and that on
8 the date I reported these proceedings I was a New Mexico
9 Certified Court Reporter.

10 Dated at Santa Fe, New Mexico, this 6th day of
11 February 2020.

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Irene Delgado, NMCCR 253
Expires: 12-31-20