

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 NO. 20801, 20804

Application of Vista Disposal Solutions, LLC
for Approval of a Salt Waster Disposal Well
in Lea County, New Mexico

REPORTER'S TRANSCRIPT OF PROCEEDINGS
EXAMINER HEARING
8:57 A.M.
THURSDAY, OCTOBER 31st, 2019
SANTA FE, NEW MEXICO

This matter came on for hearing before the
New Mexico Oil Conservation Division, Kathleen Murphy,
Examiner, Phillip Goetze, Examiner, Eric Ames, Legal
Examiner on Thursday, October 31, 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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18 I N D E X

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1 EXAMINER MURPHY: The next case -- I
2 believe there is two that are consolidated, 20801,
3 20805.

4 Call for appearances.

5 MR. PADILLA: Ernest L. Padilla for the
6 applicant, Vista Disposal Solutions, LLC. I have one
7 witness.

8 MS. BENNETT: Deana Bennett on behalf of
9 NGL Water Solutions Permian, LLC.

10 EXAMINER MURPHY: Witnesses?

11 MS. BENNETT: No witnesses.

12 EXAMINER MURPHY: Any other appearances?
13 Please proceed, Mr. Padilla.

14 MR. PADILLA: Ms. Murphy, this is a
15 continuation of these cases. We were asked on October
16 3rd to supplement our evidence.

17 EXAMINER MURPHY: Mr. Arthur has already
18 been sworn in, so I don't need to swear him in.

19 Is that true?

20 You are under oath.

21 EXAMINATION

22 BY MR. PADILLA:

23 **Q. Mr. Arthur, why are we here today,**
24 **briefly?**

25 A. We had questions regarding a couple of

1 issues at the last hearing on these two and some other
2 dockets, and we were requested to provide some
3 additional clarification, and that is what we have here
4 today.

5 Q. Now, specifically, you had -- you noted
6 a problem with your well bore diagram that was attached
7 to C-108, correct; that was one problem?

8 A. It was -- I don't know if I would say it
9 was a problem as much as a lack of clarity on how the
10 diagram was prepared. These diagrams get pretty
11 complicated, so we wanted to make sure that we made it
12 very clear what we were doing and to address some of
13 the issues that the examiners had brought up.

14 Q. Have you made changes to the well bore
15 diagram?

16 A. Yes, sir.

17 Q. Let me direct your attention to what we
18 have marked as Exhibit 1-A in cases 20801 and 20805.
19 Tell us where you made the changes.

20 A. Essentially, what we did is clarify the
21 tops of various formations as they intersect the well
22 bore based on the research and geology that we've done
23 so far.

24 We also did additional evaluation of logs
25 relative to the base of the lowermost underground

1 source of drinking water in the area and determined
2 that the base of our proposed casing would be adequate
3 to protect the lowermost USDW. And we made sure that
4 we were at least 25 feet below the top of the hydride
5 and then, based on that analysis and the construction
6 of the well, we would be protective of USDW's. But we
7 also just made overall clarifications to the formation
8 tops relative to their various casing strings so there
9 wasn't any confusion.

10 **Q. So, the way I see these two exhibits is**
11 **they are pretty much identical; is that correct?**

12 A. They are essentially identical with the
13 exception of various depths based on differences in
14 location. So, small variations in depth really just
15 specific to that location in Lea County.

16 **Q. So, depending on where your geology is**
17 **or where the freshwater is located, you are going to go**
18 **have to go 25 feet below the formation bottom, right?**

19 A. That's correct.

20 **Q. And that wasn't shown completely**
21 **originally; is that right?**

22 A. It wasn't clear, and there was also some
23 questions raised by the examiner. So, we did
24 additional geologic, hydrogeologic evaluation just to
25 confirm some of that. And what we were able to confirm

1 is that what we are showing here in these depths should
2 be protective and below what we can ascertain to be the
3 base of the lowermost underground source of drinking
4 water and making sure that is isolated within OCD
5 requirements.

6 **Q. What other information are you supplying**
7 **today?**

8 **In that regard, let me hand you Exhibit 1,**
9 **which you already have. Tell us what that is.**

10 A. So, during the last hearing, we were --
11 we discussed fault slip potential analysis, and we were
12 asked to supplement or take some additional
13 considerations into the modeling analysis that we did,
14 and that is what this exhibit presents.

15 **Q. You were asked to supplement it by**
16 **adding additional information from existing wells or**
17 **proposed wells?**

18 A. Um, really, both. So, what we had tried
19 to do in the initial, um, modeling methodology was we
20 included kind of an overly conservative estimate
21 because we really don't know or, at this point, even
22 now, we didn't know then and we still don't know now
23 what they will be injecting.

24 So, what we did in this case, as opposed to
25 taking that approach, to try to compensate for

1 unknowns, is we did two additional sets of model runs,
2 one with a 250-foot injection interval, and one with
3 about a 1250-foot injection interval, which would
4 accommodate the entire zone. And we've seen that
5 presented, that approach of really simply the longer,
6 the full-thickness of our injection zone, which is
7 probably most appropriate relative to what we're doing.

8 But the other thing that we did is we
9 included -- there is one well, one active well in the
10 area that Mr. Goetze made us aware of that is
11 requesting an additional increase in their injection
12 volume, 80,000 barrels a day.

13 And then what we did, in addition to that, is
14 we put in the proposed wells that there are currently
15 applications for in the area and added those to this
16 and assumed those at a rate of 40,000 barrels per day
17 and the Vista Wells at 30,000 barrels a day, which
18 they're being requested.

19 **Q. Where do you want to start on this**
20 **exhibit?**

21 A. You know, I think on Page 2, you know,
22 would be -- it would be a good spot here. It
23 essentially talks about the overall approach for SFP
24 modeling methodology.

25 Page 3 discusses the two general scenarios

1 that we did with, you know, we left off in this case
2 the hundred-foot zone because it was really overly
3 conservative. And we did that because we didn't want
4 to make assumptions at that point of what wells might
5 be drilled and used and so forth. So, with that in
6 mind, what we did is we took the approach of modeling a
7 200-foot interval and a 1250-foot interval for our
8 injection. And those appear to be appropriate with
9 what we know.

10 And then we also did, as I mentioned before,
11 we put in increased rates for existing wells and
12 included proposed wells for which there is
13 applications, which there are several. And we tried to
14 make that even where we had wells within a mile and a
15 half so that we would encompass really all the
16 possibilities.

17 Now, I will say that, on Page 5, this exhibit
18 actually includes some discussion with regards to two
19 model areas, but we're only going to talk about one
20 today because several of the wells have been continued.

21 If we go to Page 6, this shows the two areas
22 that we modeled. Area 1 is really what we're looking
23 at. In the upper, left corner of Area 1, the Katherine
24 and Charles Federal SWD#1 are the two wells that we're
25 looking at here.

1 If we go to Page 7, under this scenario, what
2 we did is, for Area 1, we kept those assumptions that I
3 discussed. We didn't include any hypothetical faults.
4 So, again, this is, you know, a 200-foot interval. We
5 just left the map faults. So, this is our kind of
6 known map faults in there. And, you know, and this
7 is -- these are faults that actually are basement
8 faults that are not in the Silurian Devonian injection
9 interval, but the model assumes that they are within
10 that. So, with that modeling, over a 25-year scenario,
11 with just those map faults, we've come up with the SFP
12 potential of zero.

13 Then what we did, for Area 1 and scenario
14 what we called 1-B, is we added three hypothetical or
15 model-generated faults using the same, you know,
16 estimated porosity permeability injection interval and
17 then a 200-foot thickness.

18 When we did that, you can, you know,
19 certainly see, just like the first one there, there is
20 some pressure buildup, as you might expect, but we get
21 a fault slip potential for each of the three
22 hypothetical-generated faults of zero.

23 **Q. Those generated faults are within the**
24 **disposal zone?**

25 A. Yes. All the faults that we looked at

1 in this model, they assume that they are in your
2 injection interval.

3 And then for, in the same area, in our
4 Scenario 2-A, so that is assuming our -- we're assuming
5 we're taking advantage of the entire injection
6 interval, which is probably most realistic, a 25-year
7 modeling period with the same assumptions on injection
8 and so forth.

9 And with this and just the map faults, so
10 these are faults that are outside of this
11 hundred-square-mile area, we wouldn't typically do
12 these, but we went ahead and ran it just in case, and
13 we came up with a 0.00 slip fault potential after 25
14 years.

15 **Q. Somebody may ask what happens with the**
16 **well you have if you have injection for 30 or 40 years?**
17 **What is your opinion of that?**

18 A. We've done sensitivity analyses before,
19 and I haven't tried to do that here. We've run FSP
20 models that go out 50 years in these scenarios and
21 we've still gotten 0.0 slip fault potential.

22 But, again, you know, that would be making
23 some big assumptions on whether there would be the
24 quantity and supply of water coming from production
25 wells.

1 We talked about this at the last hearing,
2 that a lot of these wells, they have high flowbacks,
3 high initial produced water that tails off over time.
4 So, as we start getting 15, 20, 30 years down the road,
5 there isn't likely to be the same volume of water. And
6 I would expect that water injection volumes in these
7 areas and throughout the region would probably decline.

8 So, in Scenario 2-B, we again, for the larger
9 area, modeled the hypothetical faults. So, these are
10 generated faults within this. This is actually for the
11 1250-foot thickness. The exhibit says 200-foot, but
12 it's 1250 feet. And in this one, we get very little
13 pressure buildup, 0.00 fault slip potential.

14 And the other modeling runs on this are for
15 Area 2, and the wells in that have been continued.

16 But if we look at the overall conclusions
17 under this modeling scenario versus our last modeling
18 scenario, as we get to the end of considering this is
19 that we still believe there is, you know, little or no
20 risk of injection induced site seismicity in these
21 areas for these two wells.

22 MR. PADILLA: So, can we look at your
23 overall conclusions on Page 13?

24 What do you conclude?

25 A. Well, that is, you know, what I noted is

1 that there is just little or no risk of
2 injection-induced seismicity caused by injection wells
3 in this area.

4 **Q. Okay. Do you have anything else to add**
5 **to your testimony regarding Exhibit 7?**

6 A. About the only thing that I would, I
7 would remind the examiners to just consider when we
8 look at FSP modeling is, you know, it's not reality.
9 Models are models. So, the way that the FSP model
10 works is that it assumes, when you put a fault there,
11 that it's in your injection zone. It also assumes that
12 your model or your faults are under a critical stress.
13 So, the big reason that, you know, that these -- I
14 would say the most prevalent reason that there isn't,
15 you know, an induced seismic potential in this specific
16 area is because we don't have faults that are oriented
17 along the critical stress lines. And if we had those,
18 the model will assume essentially that they are just
19 prone to slip. It also assumes that, even if it's not,
20 like these normal faults that are mapped, that they
21 want to.

22 And some of that is we just don't know. So,
23 this creates a very conservative case. And as you are
24 looking at that, which I think is what you're also
25 looking for, but I think what we'll find over time is

1 that -- I anticipate that we're going to find faults
2 that we didn't know about, that may be along critical
3 stress lines, that have had injection for a long time,
4 that aren't causing problems.

5 And the other thing I think that is important
6 is that, when we look at this overall, and we look at,
7 you know, as the division that said we don't want to be
8 like Oklahoma and have to deal with those issues. None
9 of the issues that we dealt with in Oklahoma or say the
10 Dallas, Fort Worth area were caused by injection that
11 didn't occur adjacent to or in basement.

12 So, considering, you know, this and where we
13 are in the separation from basement and that we,
14 especially for these wells, we've got a little better
15 data, suggesting that we have really good lower
16 confinement is a particularly calming thing for me
17 relative to assessing the potential for induced
18 seismicity.

19 **Q. Do you have anything further to add to**
20 **your testimony?**

21 A. No, sir.

22 **Q. Mr. Arthur, in your opinion, is the**
23 **approval of this application in the best interest of**
24 **conservation of oil and gas?**

25 A. Yes, sir.

1 MR. PADILLA: We ask that Exhibits 1-A
2 in cases 20801 and 20805 be admitted, and Exhibit 7 be
3 admitted in the same cases, 20801 and 20805, even
4 though we prepared this as a universal exhibit for the
5 four cases that we did.

6 EXAMINER MURPHY: Ms. Bennett?

7 MS. BENNETT: I have no objections to
8 the admission of the exhibits, and especially given the
9 caveat that Mr. Padilla just noted, which is that the
10 coversheet does identify all four cases that were
11 originally scheduled to go to hearing for today, but
12 two of those cases have been continued. So, at this
13 time, I agree that these exhibits should be admitted in
14 20801 and 20805, but not 20803 or 20804.

15 EXAMINER MURPHY: The exhibits are
16 admitted as to the cases --

17 MR. PADILLA: We have nothing further.

18 EXAMINER MURPHY: The exhibits are
19 admitted related to the cases that we just heard today.

20 MR. PADILLA: We would ask that the
21 cases 20801 and 20805 be taken under advisement.

22 EXAMINER MURPHY: Ms. Bennett?

23 MS. BENNETT: Thank you. I just have a
24 couple of follow-up questions.

25 EXAMINATION

1 BY MS. BENNETT:

2 Q. Good morning.

3 A. Good morning.

4 Q. Nice to see you again.

5 A. Nice to see you. Happy Halloween.

6 Q. Happen Halloween to you, too. I feel
7 like that is going to be a new thing, Happy Halloween.

8 I had a question about how you determined
9 which adjacent or proposed USWD's to include in the
10 models?

11 A. So, what we looked at is we have been
12 collecting data on all the proposed applications or all
13 the applications that have been submitted. And what we
14 tried to do, there is -- obviously, when you look at a
15 map of all of them, they can't all get done with a
16 mile-and-a-half setback. So, what we tried to do was
17 look at the ones that were submitted based on the data
18 that we have from OCD, first within a mile and a half
19 and make sure that we have that kind of mile-and-a-half
20 density.

21 Q. So, that was kind of your parameter
22 then, was you started with your proposed Vista Well and
23 then measured out a mile and a half?

24 A. Or looked at what applications were
25 there. Pretty much there -- I mean, they are pretty

1 jammed in there at about a mile and a half.

2 Q. So, does that mean that there are
3 pending applications within a mile and a half of the
4 Vista Wells -- or not a mile and a half radius?

5 A. Outside that, essentially.

6 Q. Okay. And then so the wells that you
7 identified to include in your updated FSP are on
8 Page 15, right? Or, 16? Sorry, 17. There is 2, 4, 6
9 wells.

10 A. Are those the only wells that are included?

11 A. Or, those are the only active wells that are
12 included in your modeling; is that right?

13 A. Correct.

14 Q. And then how many proposed wells are
15 included in your model?

16 A. I don't remember the specific number.
17 We identified them in the model. Really, we were
18 focused on a mile and a half, trying to make sure that
19 we had everything that would fit that we felt that was
20 going to be in there. I mean, I could try to go
21 through on the model and count them.

22 Q. That is okay. But they are identified?
23 A. I'm looking on Page 8, for example.

24 A. Yeah. If you look at Page 7 or Page 8,
25 I mean, you can see that we have the proposed Vista

1 Wells, the active SWD's and then the approximate
2 pending SWD locations. So, we've tried to --

3 And the little box here shows a broader area
4 than the hundred square miles. So, we did that within
5 the hundred square mile area. So, we didn't try to add
6 that for the entire Lea County or something like that.

7 Q. On Page 17, which shows the active data,
8 my understanding from reading your exhibit is that you
9 used the average daily injection rate for your model
10 with the exception of the Maelstrom and Sidewinder; is
11 that right?

12 A. That's correct.

13 Q. Even though these might be permitted at
14 a higher injection rate?

15 A. And they could be. They haven't shown
16 that. So, they could increase. But within what we've
17 done --

18 (Phone rang.)

19 So, keep in mind that is what has been
20 established. We already are making, trying to make a
21 number of assumptions to corral being conservative.
22 So, we're going with still a pretty thin, even by
23 adding those pretty thin 200-foot interval versus the
24 full thickness. When we look at the full thickness, we
25 could probably make all of these a hundred thousand

1 barrels a day and wouldn't see much. On the 200-foot
2 thickness, we've got most of these at 40,000 barrels a
3 day.

4 When you look at the numbers, Vista is at 30.
5 The one at 80,000. The other one is at average. That
6 is what they've done. So, as we look forward in
7 disposal volumes, it's, you know, it's difficult to
8 know what is actually going to happen, who is going to
9 get contracts out, all of those things. So, we did,
10 but we believe we compensated and even tried to
11 compensate before with even doing an unrealistically
12 thin layer.

13 So, I believe, even though we've done that,
14 that is kind of what the data shows. And then we've
15 been even more conservative by assuming all the new
16 ones are going to be injecting at their maximum. And I
17 know we've got one that has made a request for 80,000
18 barrels a day, but we don't know if OCD will approve
19 80,000 barrels a day.

20 **Q. Would it be more conservative though if**
21 **you had used the proposed upper maximum injection rates**
22 **for these wells?**

23 **A.** It would have been more conservative,
24 but I'm telling you, based on the model runs that we
25 did, I don't think it would have made any difference.

1 MS. BENNETT: Thank you.

2 EXAMINER MURPHY: I don't have any
3 questions.

4 MR. GOETZE: I'll just make one comment.
5 Thank you very much for bringing up the figures to
6 include all the information requested. And thank you
7 for expanding your interpretation on the FSP. And,
8 with that, I say the application is complete as far as
9 I'm concerned. So, no questions, just approval.

10 MR. PADILLA: And I'll ask that it be
11 taken under advisement.

12 MR. AMES: Mr. Goetze, you didn't mean
13 to say that the applications are approved, correct?

14 MR. GOETZE: No. We just have more
15 understanding on the information, that we would like to
16 avoid having -- if we get audited and they hold up your
17 example to us by the auditors that we didn't ask for
18 the things that we were supposed to ask for. It's just
19 one of those things. We just need the details, and
20 that is fine.

21 EXAMINER MURPHY: 20801 and 20805 will
22 be taken under advisement.

23 This concludes the hearing for today.
24 Thank you. There is not a whole lot of detail in here
25 with the proximity tract.

1 (The hearing concluded at 9:26 A.M.)
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REPORTER'S CERTIFICATE

I, ROBIN E. JOHNSON, RPR; CA CSR; New Mexico
Certified Shorthand Reporter, certify:

That the foregoing proceedings were taken
before me at the time and place therein set forth;

That the questions propounded and all
objections and statements made at the time of the
hearing were recorded stenographically by me and were
thereafter transcribed;

That the foregoing is a true and correct
transcript of my shorthand notes so taken.

I further certify that I am not a relative or
employee of any of the parties, nor financially
interested in the action.

I declare under penalty of perjury, under the
laws of New Mexico, that the foregoing is true and
correct, dated this 14th day of November 2019.

ROBIN E. JOHNSON, RPR, CA CSR
New Mexico CCR No. 105