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 GOODNIGHT MIDSTREAM PERMIAN, LLC FOR APPROVAL OF A SALTWATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO. CASE NO. 20555

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

June 14, 2019

Santa Fe, New Mexico

BEFORE: PHILLIP GOETZE, CHIEF EXAMINER
DAVID K. BROOKS, LEGAL EXAMINER

This matter came on for hearing before the New Mexico Oil Conservation Division, Phillip Goetze, Chief Examiner; and David K. Brooks, Legal Examiner, on Friday, June 14, 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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(9:35 a.m.)

EXAMINER GOETZE: Back on the record.

We will start with Case Number 20555, application of Goodnight Midstream Permian, LLC for approval of a saltwater disposal well, Lea County, New Mexico.

Call for appearances.

MR. RANKIN: Good morning, Mr. Examiner. Adam Rankin on behalf of the Applicant. We'll have four witnesses today.

MS. ANTILLON: And Andrea Antillon on behalf of the State Land Office. I will not have any witnesses today. I just want to make a statement.

EXAMINER GOETZE: Very good.

MR. RANKIN: Mr. Examiner, if that's the case for all these four cases and Ms. Antillon doesn't want to -- it's up to her, but I'm just going to offer, if she wants to make her statement now and have that be incorporated for each of the four cases. I'm just making the offer.

EXAMINER GOETZE: No. The lady needs to have it in the record. Each of them -- give the opportunity for her to make it part of the record, and we'll hand out mimeographed sheets later. Okay? But let's go ahead with the single case.

MR. RANKIN: Thank you, Mr. Examiner.

EXAMINER GOETZE: Your witnesses?

Would you please stand, identify yourself to the court reporter and be sworn in?

MR. TOMASTIK: Tom Tomastik.

MR. ADAMS: Grant Adams.

MR. DRAKE: Steve Drake.

MR. ALLEMAN: Nathan Alleman.

(Mr. Tomastik, Mr. Adams, Mr. Drake and Mr. Alleman sworn.)

MR. RANKIN: Mr. Examiner, I'd like to call my first witness, Mr. Grant Adams.

GRANT ADAMS,

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

DIRECT EXAMINATION

BY MR. RANKIN:

Q. Mr. Adams, will you please state your full name for the record?

A. Grant Adams.

Q. By whom are you employed?

A. Goodnight Midstream.

Q. In what capacity?

A. I am their general counsel.

Q. And as general counsel, what are your current

obligations or responsibilities with respect to overseeing saltwater disposal matters?

A. Generally I'm responsible for all legal functions, transitional, regulatory and, of course, permitting.

Q. So you're familiar with the applications that were filed in this case?

A. Yes, I am.

Q. But you're appearing here today and testifying as a nontechnical witness?

A. Yes. That's correct.

Q. Now, were these applications -- this application -- let's talk about the one only. Was this filed for administrative approval?

A. Yes, it was.

Q. But it was protested?

A. That's correct.

Q. And that's why we're here today?

A. Yes.

Q. Do you recall who it was that protested this one case?

A. This was protested by the State Land Office.

Q. That's right.

Now, if you would, Mr. Adams, this is the first time Goodnight Midstream has appeared before the

Division at hearing?

A. Yes, it is.

Q. Have you prepared a few exhibits that just sort of help orient the Division to your company?

A. Yes, we have.

Q. Have those been marked as Exhibit A in the exhibit packet before you?

A. Yes. That's correct.

Q. Will you just review for the examiners -- give a little bit of background about who Goodnight Midstream is, what you guys do and what your footprint is in New Mexico?

A. Sure. Goodnight was founded in 2011. We are based in Dallas, but our initial operations were in North Dakota. Over the years, we grew to be the largest third-party disposal company in North Dakota. In 2016, we commenced operations in Texas, and then we started operations in New Mexico in early 2018. Currently, we have one large high-pressure pipeline system. It's in Lea County. We refer to it as the Llano system.

Q. And you've prepared some exhibits just to kind of give a little more detail on your infrastructure, your footprint and your operations. So would you review for the examiners a little more about what your operations entail in New Mexico?

A. Certainly. Our Llano system is currently 47 miles in the ground. It will be about 60 miles by the end of the year. The capacity is approximately 400,000 barrels of water per day. The Llano system was constructed with the intent to take the approach of moving water away from areas of intense production into depleted reservoirs up on the Central Basin Platform.

Q. So if you look at the third page of Exhibit A, is that a map that depicts your Llano system?

A. Yes. That's correct.

Q. And so just to review for the examiners, what this shows is how that relates to your testimony about moving water from these high areas of high activity to areas of low activity with completed reservoirs?

A. That's right.

Q. I mean, essentially, that's what this shows, right? What are all these red different colored dots?

A. Sure. So the dots, the red, the green and the blue, are active drilling applications and drilling permits, our production permits. The yellow line is the Llano system. It depicts the three active saltwater disposal wells that are currently attached to it. On the far west side of the yellow line, the dotted line is the portion that's currently under construction with scheduled completion in October of this year.

Q. So those red -- those yellow triangles are your active SWD wells?

A. Yes. That's correct.

Q. So you have essentially taken all this water from these areas of high drilling activity, moving it out to the east where you've identified some depleted reservoirs that are up to receiving these volumes?

A. Yes. That's correct.

Q. It's a way of avoiding drilling into the Devonian where you're seeing a lot of activity; is that right?

A. That's exactly right. Our approach is intended to avoid any potential for induced seismicity with deep injection. Our geologists who are here with us today have identified the massively depleted reservoirs up on the Central Basin Platform and identified them as a site for sustainable disposal.

Q. So this application for the Nolan Ryan in this case is one of the wells that you're going to be tying into this system?

A. Yes. That's correct.

Q. So you'll be able to utilize this well as a way to receive some of these volumes and take some of the pressure off the areas of high-activity oil and gas wells for disposal --

A. Yes. That's correct.

Q. So obviously it's a big commitment for the company to make this investment in this infrastructure, and you intend to be operating these wells for some time in New Mexico?

A. Yes, we do.

Q. All right.

MR. RANKIN: So with that, Mr. Examiner, I would move the admission of Exhibit A into the record and pass the witness for any questions you may have.

EXAMINER GOETZE: Any questions?

MS. ANTILLON: No questions.

EXAMINER GOETZE: And on the exhibit?

MS. ANTILLON: And no objection to the exhibit.

EXAMINER GOETZE: Exhibit A is so entered.

(Goodnight Midstream Permian, LLC Exhibit A is offered and admitted into evidence.)

EXAMINER GOETZE: You don't have any questions, Mr. Brooks?

EXAMINER BROOKS: I have no questions.

EXAMINER GOETZE: Thank you for the introduction, but we have no questions with regard to this witness.

MR. RANKIN: Thank you, Mr. Examiner.

THE WITNESS: Thank you.

MR. RANKIN: I'd call our second witness today, Mr. Steve Drake -- I'm sorry -- Mr. Nate Alleman. I'm throwing you a curve ball.

MR. ALLEMAN: I thought I knew what was going on.

NATHAN ALLEMAN,

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

DIRECT EXAMINATION

BY MR. RANKIN:

Q. Mr. Alleman, will you please state your name for the record?

A. Nathan Alleman.

Q. And by whom are you employed and in what capacity?

A. I work for ALL Consulting, and I'm a regulatory advisor and project manager.

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

A. I have not.

Q. Will you please review generally your educational background and your relative work experience as it pertains to saltwater disposal injection permitting?

A. I have a bachelor's in biology from Pittsburgh State University and a master's in environmental policy and management from the University of Denver.

In terms of work history, I've been in the oil and gas industry for 11 years now and have helped upstream oil and gas operators throughout the nation with various regulatory, environmental issues, and those generally pertain to emergency response, planning and implementing water infrastructure systems, permitting oil and gas wells. I've managed the permitting of over 500 oil and gas wells, conducting due diligence on oil and gas well facilities and doing saltwater disposal audits.

I've have been supporting detailed induced seismicity investigations in the Mid-Continent, have supported gas migration investigations throughout the nation. I've done over -- on the due diligence side, I've done over 1,500 -- due diligence on over 1,500 oil and gas facilities. And I've done disposal facility audits on over 150 saltwater disposal facilities regarding the permitting of saltwater disposal wells. I've managed the -- managed the permitting of over 75 saltwater disposal wells mostly in Louisiana, Texas, Oklahoma and New Mexico.

Q. Pretty extensive over the 11 years.

Now, with respect to New Mexico, how many SWDs have you been involved with the permitting in New Mexico?

A. I've managed the permitting of approximately 50 to 60 saltwater disposal wells in New Mexico.

Q. Now, what exactly is your role in terms of overseeing the permitting of an SWD?

A. Specifically for Goodnight -- at Goodnight's direction, I manage -- I put together and manage a team of multidisciplinary experts, engineers, geologists, landmen, to put together applications that are in compliance with OCD's regulations.

Q. So your job was essentially to oversee the management, compile the information and submit the C-108s that were at issue in this case?

A. That's correct.

Q. Now, you're familiar with the status of the lands that are at issue in this case?

A. I am.

Q. And you oversaw the land work that was done to identify the parties entitled to notice in these cases?

A. Well, in this case this application was put together by Thomas Schumacher.

Q. So you -- but you reviewed the work that Mr. Schumacher did and the land brokers that were done

that were used to do that work, and you satisfied yourself and familiarized yourself with what they did to conduct their investigations and --

A. That's correct.

Q. -- and identify the parties?

A. We did a full review of all those activities.

MR. RANKIN: Now, with that, Mr. Examiner, I would tender Mr. Alleman as an expert witness in the permitting of SWDs for regulatory matters.

EXAMINER GOETZE: Any objections?

MS. ANTILLON: No objections.

EXAMINER GOETZE: He's so qualified.

MR. RANKIN: Thank you.

Q. (BY MR. RANKIN) Mr. Alleman, let's dig into this first case, Case 20555. Will you briefly summarize what it is that Goodnight Midstream is requesting with this application? And as you do so, you know, feel free to refer to Exhibit B in your exhibit packet, which is the C-108 that was filed administratively with the Division.

A. Goodnight's looking to receive authorization to drill and inject into the Nolan Ryan SWD No. 1.

Q. Okay. And what are the approximate volumes that Goodnight Midstream is seeking to inject here, if you're familiar with them?

A. Sure. So they're going to have an average rate -- or are expecting an average of about 15,000 barrels of water per day, and then the maximum rate will be determined based on the maximum injection pressure allowed.

Q. Referring to what's been marked as Tab Number 2 in Exhibit B, would you just orient the Division to the location of this well?

A. Yes. So it is -- this well is located in Section 13, Township 21 South, Range 36 East, 779 feet from the south line and 1,995 feet from the east line in Lea County.

Q. Okay. And those -- those footages and the locations, are they still in the location that Goodnight Midstream is reporting for this well?

A. That's correct.

Q. Now, you talked about what the average injection rates are going to be. On average, about 15,000 barrels per day?

A. That's correct.

Q. And the maximum injection rate will be limited based on the surface injection pressures based on the formation; is that correct?

A. That's correct.

Q. What is your understanding of the maximum

surface injection pressure for this well?

A. They're expecting an average of about 400 psi, but the maximum injection pressure will be 820 psi, which is based on the OCD's regulation of .2 psi per foot.

Q. Now, we'll have an engineer who will go into more detail on this, but that's just for general overview purposes.

Is this an open or closed system?

A. It will be closed.

Q. And it'll be a commercial injector?

A. That's correct.

Q. Now, what is the land ownership here on the surface?

A. It's private surface and private minerals.

Q. Okay. And has the company prepared a C-108 and submitted it administratively?

A. Yes, they have.

Q. And is that -- the C-108 that was submitted administratively, has that been marked as Exhibit B?

A. Yes, it is.

Q. Okay. Now, MidCon Resource Group prepared the C-108, you said?

A. That is correct.

Q. And that was done at Goodnight's direction

based on publicly available information and information that was provided to MidCon from Goodnight Midstream?

A. That's correct.

Q. And you've reviewed the information provided in the C-108 that was filed?

A. That's right.

Q. In your opinion, does the C-108 contain all the information that's required by the Division to approve this injection well?

A. It does.

Q. And is this an explanation of a project or a new injection project?

A. This is a new project.

Q. Let's look at notice issues here. To whom was notice provided of this application?

A. Notice was provided to the surface landowner, Dasco Cattle Company, along with the leaseholders and oil and gas well operators within the AOR, which is one-half mile.

Q. Okay. So one-half mile is the area of review?

A. That's correct.

Q. Let's look at Tab Number 3, which is the overview map of the different scales of review. Will you review for the examiners what this map shows?

A. Sure. The larger red buffer circle is a

two-mile -- two-mile review just showing all the leases within two miles, and then there is a smaller blue circle that shows all the leases within one-half mile.

Q. And the next page, is that a similar map with similar radii except that it shows the wells?

A. Yes. That's correct.

Q. And then the next map is a close-up of the lease tracts using a Midland Map within the one-half-mile area of review?

A. That's correct.

Q. And the next page is a tabulation of all the leasehold -- leasehold owners and operators within that half-mile area?

A. That's correct.

Q. Now, Mr. Alleman, were all the parties who received notice of this administrative application identified based on the ownership records in the county, as well as BLM and OCD operator records?

A. That's correct.

Q. And is Tab Number 12 in Exhibit B -- is that a description of the procedure that was taken to identify all the parties entitled to notice?

A. It is.

Q. And is the next page a list of all the parties that were identified using that procedure to provide

notice of this application administratively?

A. It is.

Q. And the next tab, 13, is this a letter that was sent to each of those parties giving notice of the application?

A. Yes.

Q. And the subsequent pages, are those the green cards reflecting that the notice was provided by certified return mail?

A. Yes.

Q. Look through to the very end. I think you'll see that -- yeah. All those green cards. Great.

And Exhibit 14 -- Tab Number 14 is the Affidavit of Publication reflecting that Goodnight Midstream gave notice of this application in the newspaper in the county of which the well is located?

A. That's correct.

Q. And if you flip behind that, there is some additional discussion about the potential additional mineral interest owners; is that correct?

A. That's correct.

Q. So as a result of the additional land work that was done, did Goodnight Midstream identify other potential owners that were required notice or --

A. Yes.

Q. -- there were errors -- sorry. Let me rephrase the question. I'll take that question back and ask it a different way.

Were there some errors with some of the addresses that were identified?

A. Yes. There were several -- several of the -- several of the mailings were returned as nondeliverable, and so they found new addresses and delivered the notice of the applications to those addresses.

Q. Okay. And Tab 15 reflects the four addresses that were incorrect and then the -- the -- the renotifications with the correct address?

A. That's correct.

Q. So the pages behind that amended affected parties list reflects that they actually received a notice letter, and following that are the green cards showing that they actually received notice?

A. That's correct.

Q. Now, did Goodnight identify some additional parties that were required notice as well in this case?

A. Yes. They also -- they also notified the OCD, New Mexico Land Office, BLM for that application.

Q. Okay. And that's reflected behind Tab 16?

A. That's correct.

Q. And as well behind Tab 16 is a copy of the

letter that went to those entities and the green cards reflecting that they were notified?

A. Yes.

Q. And the last tab -- rather, Exhibit C -- sorry -- is that a copy of the affidavit that was prepared by me and my office reflecting that we gave notice of this case to the parties that had protested it?

A. Yes.

Q. And the next page, is that copy of the letter that was sent to those parties by my office --

A. Yes.

Q. -- giving notice of the hearing on June 13th? And the subsequent pages, is that a USPS tracking information sheet showing those parties were sent notice and actually received the notice?

A. Yes, it is.

Q. In your opinion, Mr. Alleman, did Goodnight Midstream undertake a good-faith effort to locate and identify all the correct parties and valid addresses required for notice within the one-half-mile area of review?

A. They did.

Q. Were there any unlocatable notice parties, that is, parties for whom Goodnight Midstream was unable to

locate a valid and correct address?

A. No.

Q. To the best of your knowledge, are the addresses valid and correct?

A. Yes.

MR. RANKIN: And with that, Mr. Examiner, I would move the admission of Exhibits B and C into the record?

EXAMINER GOETZE: Any objections?

MS. ANTILLON: No objections.

EXAMINER GOETZE: Exhibits E and C are so entered.

MR. RANKIN: B and C, right?

EXAMINER GOETZE: B and C. I'm sorry.

(Goodnight Midstream Permian, LLC Exhibits B and C are offered and admitted into evidence.)

MR. RANKIN: With that, Mr. Examiner, I pass the witness.

EXAMINER GOETZE: (Indicating.)

EXAMINER BROOKS: I'm sorry?

EXAMINER GOETZE: No. I was going to ask if you have any questions, but I'm going to ask questions.

EXAMINER BROOKS: I don't have any

questions.

MS. ANTILLON: No questions.

EXAMINER GOETZE: No questions from the State Land Office, so it's just to me.

CROSS-EXAMINATION

BY EXAMINER GOETZE:

Q. Welcome to the show.

A. Thank you.

Q. At this point I think you've answered most every question I have, including the fact that before we did raise the concern that with our new "affected person" definition, that the BLM and the State be notified.

A. Yes.

Q. We know the State got theirs. So the BLM, thank you for picking up that.

No. Most of my questions are on the geology side.

EXAMINER GOETZE: So I have no questions for this witness.

MR. RANKIN: Thank you, Mr. Examiner.

EXAMINER GOETZE: Thank you.

MR. RANKIN: We will call our next witness, the geologist.

STEVE DRAKE,

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

DIRECT EXAMINATION

BY MR. RANKIN:

Q. Mr. Drake, will you please state your full name for the record?

A. Steve Drake.

Q. And by whom are you employed and in what capacity?

A. I am employed by Goodnight Midstream. I am the vice president of geology and reservoir engineering.

Q. And what do your responsibilities entail in that position?

A. I identify, develop, drill and manage saltwater disposal wells in three states, North Dakota, Texas and New Mexico.

Q. And have you previously had the opportunity to testify before the Division?

A. I have not.

Q. Will you review for the examiners your educational background and relevant work experience in the petroleum geology field?

A. I have a bachelor's and master's degree in geology from Texas Christian University. I have 40

years of experience in the oil and gas industry, most of that employed by reservoir engineering and consulting firms, the primary of which is Netherland Sewell & Associates in Dallas where I performed the development of gas storage, monitoring and modeling of gas storage waterfloods, water disposal. We've drilled over 28 wells in North Dakota, and we manage the movement and disposal of 250,000 barrels a day in North Dakota. We've drilled wells in Texas and are now developing these projects in New Mexico. I've worked internationally in Barbados where we developed a gas maintenance project for the national oil company there. And I've also done work for Pemex. Most of that was offshore.

Q. And how long have you been working with Goodnight Midstream now?

A. Seven years.

Q. In that time have you been working within the Permian Basin?

A. We originally started in North Dakota. We have been in the Permian Basin for three to three-and-a-half years.

Q. And are you familiar with the C-108 application that was filed in this case?

A. Yes.

Q. Have you conducted a study of the lands and the geology in the surrounding area of the target injection zone?

A. Yes, I am.

MR. RANKIN: Mr. Examiner, I would tender Mr. Drake as an expert witness in petroleum geology at this time.

EXAMINER GOETZE: State Land Office?

MS. ANTILLON: No objection.

EXAMINER GOETZE: He is so qualified.

Q. (BY MR. RANKIN) Mr. Drake, will you please identify the proposed injection interval and formation for this well?

A. We want to dispose into the porosity intervals of the San Andres Formation at a depth of about 4,100 feet down to 4,700 feet.

Q. And is all the geologic information that's required by the C-108 included within this administrative application?

A. Yes, it is.

Q. And is that found behind Tab Number 8 in your packet before you?

A. It is. That's correct.

Q. Will you just refer -- referring to this exhibit, will you just give a general overview of the

geology, and then we'll dive into some more detail?

A. Okay. We have the Rustler and Salado Formations down to about 2,600 feet, then the Artesia group, which consists of Tansill, Yates, Seven Rivers, Queen, Grayburg. It extends down to about 3,800 feet. At that point we have the top of the San Andres Formation at about 3,980. The top of the San Andres is a dolomite that is infilled with anhydrite. It makes a very good barrier between the Grayburg and the San Andres porosity intervals. San Andres is roughly 1,000 feet thick and extends down to about 5,200, which would be the top of the Glorieta Formation.

Below the Glorieta, we would get into the carbonate intervals of the Leonard, which have -- four porosities members are identified within the Leonard. We would give those names of Paddock, Blinebry, Tubb and Drinkard.

Q. Now, have you prepared a cross section that kind of gives us a little more visual depiction of the geology and the stratigraphy in the area?

A. Yes, I have.

Q. Is that behind Tab Number 9?

A. It is. That is correct.

Q. Will you review for the examiners again the geology and why you think that this particular zone in

the San Andres is suitable for injection and will contain the fluids that you're injecting?

A. In this particular picture, we have a well to the south of the proposed location, open-hole well log, and then we have a well to the north on the left. What we see in the area is that the porosity is developed high in the section to the south and grades downward as we pass to the north.

Our reason for selecting the San Andres in Township 21 South, 36 East is we did a very long and extensive historical study of the operations in the area, and we determined that over 500 million barrels of water were pulled out of the San Andres to supply water to the Grayburg and Penrose waterfloods at the Monument Unit and at the Arrowhead Unit. We reconstructed the history of each one of those water supply wells. We know the cums that were pulled out of each area. And what we're seeing is that this large porosity interval that is at the upper part of the section and then transitions down into the middle part of the section as you move north is massively pressure depleted from extraction, and then that creates a wonderful opportunity that we can put hundreds of millions of barrels back in the ground before we ever get back to normal pressure.

We have three wells that have tested and proven this concept for us. One is a well we purchased. We call it the Piper. It is located in the M lot of Section 18, 21 South, 37 East. We operate that well -- or we can operate that well from 8- to 12,000 barrels a day on vacuum. Water pours into the formation without a pump. We find that to be obviously a very favorable situation.

We drilled the well that we call the Rhino in Section 17 of 21 South, 36 East. When we penetrated the upper and middle porosity members of the San Andres, we lost circulation massively in both intervals. We drilled with a very lightweight native water and clay to gradually make our way through it because we were unable to establish circulation for quite a long period of time as we got through those depleted intervals.

And then we drilled a well named the Ted, which is down in Section 28 of 21 South, 36 East, and the Ted experienced the exact same problems. This one surprised us because it's over three-and-a-half miles away. So what we see in here is an extremely large area that is pressure depleted by the previous water extraction.

Q. So you've -- you've identified this zone based on your long-term study of withdrawals in the area?

A. Correct.

Q. And you've also prepared a larger-scale cross section as well?

A. Yes, I have.

Q. That helps kind of fill out this picture. If you turn to Exhibit D in your exhibit packet, Mr. Drake, will you review for the examiners this larger-scale, broader-area cross section, what it shows?

A. Okay. The first page behind the tab is a map that shows five wells. They are identified by yellow circles and connected by a black line. The three wells that are to your right or to the east are saltwater disposal wells that have been in place for more than a decade, some of them for more than two decades.

The well that's in the center near the top of the map is an injection well where water was injected into the Penrose and Grayburg in order to maintain pressure.

And then the well to the far left or west is also a saltwater disposal well in the San Andres.

If we flip the page to the cross section, what we see there are color bars going left to right across the page. Those are identifying porosity intervals. The yellow identifies the porosity interval in the Queen. The pink, which is not showing up very

well in the reproduction, identifies the porosity interval of the Penrose. There are two intervals which I call the Grayburg stratigraphic, which is a debris flow on top of the Grayburg Carbonate. Those were the primary oil-producing intervals. The well in the middle of the cross section was a pressure maintenance injection well into those two intervals.

And then we move down to the blue porosity interval. And you'll see that there is a black number in bold by each one of the disposal wells. That shows the amount of water that has been injected into that well to date and that we've put over 40 million barrels of water -- almost 50 million barrels of water in the ground in the three wells to our far right, and yet the Piper, which is the well in the middle, still can inject without a pump.

Q. And in addition, does this cross section also identify geologic seals that would help maintain the injection fluids within the San Andres?

A. That is correct. You will see that there is white paper separating the color bars or porosity intervals. Each one of those is marked as anhydrite. And we see on our sonic logs over to the right a decrease in porosity in those intervals for the neutron density log in the middle of the page where those

intervals show porosities less than 3 percent.

Q. And those zones are consistent across the area where you're proposing to inject?

A. Yes.

Q. In your opinion, will they provide an efficient seal both above and below the injection zones to maintain the fluid within the area?

A. Yes. I believe that is also proven by the fact that we have put 40 million barrels in the ground, and we have not seen any damage to the production immediately above those wells.

Q. And has Goodnight Midstream included a statement from the geologist, from yourself, that you've reviewed the available geologic and engineering data and are satisfied that there is no evidence of a hydrologic connection between the proposed injection interval and any underground surface drinking water?

A. That is correct.

Q. Has that been included at Tab Number 11 in the exhibit?

A. Yes.

Q. And in your opinion, then, based on all this, the San Andres Formation in this area will be able to contain the injection fluid in zone?

A. Yes.

Q. Now, is the San Andres prospective for hydrocarbons in this area?

A. In general and at large, it is not. The San Andres is pooled with the Grayburg as the name of the unit for the South Monument -- Southeast Monument Unit. The proper name, I may not have said it correctly. But the San Andres is pooled with it so that they could manage the source of water to create the flood, as well as the hydrocarbon interval which was the Grayburg and the Penrose.

Since the unit has passed from its flood stage now into depletion recovery, there are a couple of wells where there are perforations now in the very top of the structure where they have commingled some San Andres production with Grayburg. It's commingled, so it's not -- separately. We would have to judge that it is a fairly insignificant amount of oil that's been recovered.

Q. What's the separation -- lateral separation from where your proposed well is?

A. To where there would be production?

Q. (Indicating.)

A. It's close to four miles.

Q. Now, talking about the zones, you mentioned -- what zones are prospective, generally speaking, the

areas, the Grayburg and the Queen; is that right?

A. The Queen and the Seven Rivers, produced gas; the Penrose and the Grayburg, produced oil.

Q. Those are above your injection zone?

A. Correct.

Q. Are there any prospective zones below your injection interval?

A. On the structure, at the crest of the structure, the Tubb, the Drinkard and the Blinebry have produced in -- I'm trying -- I don't know a well count, but there are producing wells.

Q. Those -- those are several miles away from your --

A. That is correct.

Q. -- from your proposed injection?

There is no current production in those zones within a mile or two of your well?

A. Correct.

Q. In your view, will injection in the San Andres impair any production of oil in the area?

A. It will not. And we feel the three existing wells are a very good example that the record in the past will continue in the future.

Q. Let's talk about fresh water. Are there freshwater zones -- freshwater-bearing formations within

the area?

A. The shallow Rustler Formation does produce fresh water down to about 200, 220 feet.

Q. Is that the only zone you're aware of that is capable of producing -- bearing fresh water?

A. Yes. That's correct.

Q. And nothing below the Rustler, to your knowledge?

A. There is nothing that I'm aware of where anyone has exploited with successfully recovering fresh water.

Q. How about the Ogallala? Is it in this area at all?

A. It's about four miles off to the northeast.

Q. Now, how about other freshwater wells? Did Goodnight Midstream undertake an evaluation to try and identify any freshwater wells?

A. Yes, we did.

Q. And are those marked behind Tab 10?

A. That is correct.

Q. This is a map, and it shows the location of some of the wells that Goodnight identified. How did they find these wells?

A. From the water database utilized for locating the saltwater -- or freshwater wells.

Q. The State Engineer's database?

A. Yeah. I said the name wrong. Sorry.

Q. Now, was Goodnight Midstream able to collect a stamp from any of those freshwater sources?

A. Yes, we did.

Q. And is that sample result obtained behind that Tab Number 10?

A. Yes, they are.

Q. And in your opinion -- Mr. Drake, based on your testimony about the geologic seals and the containment of injection within the zone, is it your opinion that there will be any impairment to any freshwater zones -- protective of freshwater zones as a result of the injection in the San Andres here?

A. There would not be.

Q. And is that -- and tell me a little bit more about why that -- why that should be.

A. Our injection zone is 4,000 feet below the surface of the earth and water is 200 feet. We're separated by 3,000 feet and including the massive oil field operations that have gone on for over 40 years which are occurring above us and have not affected the fresh water either.

Q. Now, let's talk about the source of your injection. What are some of the formations -- formations that will be providing the source -- sources

for your disposed water?

A. The majority of the water will come from the Wolfcamp and the Bone Spring in the Delaware Basin, transported by our pipeline system, but we could also be receiving water from virtually any other formation that's producing. It could come from Grayburg, Penrose, San Andres, or it could come from Queen, Yates, any of the formations out in the basin that the operators have collected water in that battery and send us the water.

Q. Have you collected water analyses -- chemistry analyses for potential sources of the injected fluids?

A. Yes, we have.

Q. Are those behind Tab 6?

A. Yes, they are.

Q. And have you also collected an analysis of the injection zone formation for the water in that zone?

A. Yes.

Q. Are those behind Tab 7?

A. Yes, it is.

Q. Based on those water chemistry analyses and your experience and prior history of injection and commingling of those fluids, do you expect that there will be any compatibility issues, scaling or other chemical issues, that would impair your well in any way?

A. No. We're not experiencing any in the wells we

have now.

Q. In your opinion, Mr. Drake, will the granting of this application be in the interest of the conservation of resources, the protection against waste and the protection of correlative rights?

A. Yes, it will.

MR. RANKIN: Mr. Examiner, with that, I would move the admission of Exhibit D and pass the witness for examination.

EXAMINER GOETZE: That's just D?

MR. RANKIN: That's just D because we did the others.

EXAMINER GOETZE: Any objections?

MS. ANTILLON: No.

EXAMINER GOETZE: Exhibit D is so entered.

(Goodnight Midstream Permian, LLC Exhibit D is offered and admitted into evidence.)

EXAMINER GOETZE: Would you like to question the witness?

MS. ANTILLON: No questions.

EXAMINER BROOKS: No.

EXAMINER GOETZE: I guess it's just up to me.

CROSS-EXAMINATION

BY EXAMINER GOETZE:

Q. Welcome.

Let's see. Where do I want to start?

So have you looked at the performance of the Parker well, Parker Energy?

A. Yes.

Q. And also you're going to be sharing the same neighborhood as Rice Engineering --

A. Yes.

Q. -- who has been there for some time?

A. Correct.

Q. Do you feel that you're going to end up competing probably with Rice Engineering, or do you think there is enough capacity where we're all going to be able to cooperate and have very few issues?

A. We have a very unusual advantage here that 500 million barrels has been taken out, and I think it will be a large number of years, possibly a decade, before we will see the reservoir start to return to normal pressure. I think that everybody will be competing for pore space over time, and as a result, we would eventually see -- like every other reservoir, that we will see pressures increase some point out in the future.

Q. And I would make one request. In your Exhibit 8A, though we have a very nice diagram of where the edge of the Ogallala is, could we have the source of that presentation so it can be referenced? Your lawyer can provide it at a later time.

A. Yes.

MR. RANKIN: You just want to know --

EXAMINER GOETZE: A big blue blob on a piece of paper is not really a very good exhibit, so -- and particularly with the USGS interpretation and Maddis' [sic; phonetic] work. So let's clarify that, please.

MR. RANKIN: Okay.

Q. (BY EXAMINER GOETZE) And then I'm going to throw out one more conversation. With regards to the interaction between the San Andres and the Capitan Reef, any conjecture as to any possibility of this having an impact farther downdip to the reef structure?

A. I believe we're six miles away from the reef, if not more, at this location. We're going to talk about other sites today. I don't think we have a hydraulic communication to the reef or that we will be affecting it at this point in time.

Q. Well, there's already been a billion barrels of water put in this area, the stuff I've come up with in

our records with Rice Engineering alone. So we do have concerns, and that's typically why we request the water sampling, so we can see what we do have is considered protectable and nonprotectable. So if you are going to move forward with this well, we would certainly ask that water sampling be done. We have that obligation.

But other than that, your presentation is good.

EXAMINER GOETZE: I have no further questions for this witness.

MR. RANKIN: Mr. Examiner, just to clarify, you're requesting to collect water samples at the injection interval zones, spots?

EXAMINER GOETZE: Yeah. What we're going to do is any -- you have the HESS paper, the outflow -- the Hobbs outflow, and it's changed direction, I'm sure. And we've been looking at it because we promised in our primacy that we would monitor the water quality. HESS map's at less than 10,000. It is the Division's opportunity to revisit it. And when we drill new wells, we've moved away from open hole. We don't like that anymore because we know at some point, we're going to have to cap these wells. And we're also sampling so that when the EPA comes back to us, through our exempt aquifer program, that we have successfully looked at it

and have qualified locations.

There's an SPE paper on overpressurization of the San Andres. So we're looking at a large-scale operation here, and we understand there is a depletion, and we're moving things around. So it is best to collect data at the beginning of the story and not have regrets later, especially when they come and ask us to shut the program so that we can go back and look at the exempt aquifers, as what happened in the state of California.

So your presentation is good, and we have a better understanding about what you're doing, but this is something you're going to have to get familiar with. Okay?

MR. RANKIN: I'm sure they will.

Thank you, Mr. Examiner.

With that, no further questions. Call our next witness.

EXAMINER GOETZE: Please.

MR. RANKIN: Call Mr. Tomastik.

THOMAS E. TOMASTIK,

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

DIRECT EXAMINATION

BY MR. RANKIN:

Q. Will you please state your full name?

A. Yes. Thomas E. Tomastik.

Q. By whom are you employed?

A. ALL Consulting.

Q. In what capacity?

A. I'm a senior geologist and regulatory specialist.

Q. Will you review what that job entails?

A. Yes. Currently, I've been with ALL Consulting for approximately a little over four-and-a-half years. I've been involved in Class 2 injection well drilling and completion and permitting across various states of the United States, Class 1 feasibility studies for nonhazardous waste for landfills, Class 3 salt solution mining operations, and involved in stray gas mitigation cases, groundwater investigations, induced seismicity, seismic monitoring and seismic mitigation.

Prior to my employment with ALL Consulting, I spent six years as a consultant in the oil and gas industry, drilling and completing oil and gas wells and Class 2s, saltwater disposal wells, doing all the cementing, perforating, stimulation, logging of those wells.

And then after that, I spent 25-and-a-half years as senior geologist for the Ohio Department of Natural Resources in the underground Injection Control Section where I oversaw all aspects of the Underground Injection Control Program, including the permitting, enforcement of Class 2 and Class 3 wells in Ohio and also conducted over several hundred groundwater investigations relating both to oil and gas injection and mining dewatering operations. And during that tenure, I served seven years on the U.S. EPA UIC National Technical Work Group, and I was a member of that work group involved in the U.S. EPA UIC Class 2 Induced Seismicity Report that I worked on.

And I've also served as an expert witness for the State of Ohio on numerous cases before commissions and county courts. And with ALL Consulting, I've been an expert witness on a number of cases, including the last three years ongoing as an expert on the induced seismicity in Oklahoma.

Q. And your educational background?

A. I have a bachelor's in geology and a master's in geology from Ohio University.

Q. And you're familiar with the C-108 that was filed in this application?

A. Yes.

Q. And you've conducted a study of the engineering and the design and operation of this well?

A. Yes.

Q. As well as the well in the offsetting areas?

A. Yes.

MR. RANKIN: With that, Mr. Examiner, I would tender Mr. Tomastik as an expert in petroleum engineering.

EXAMINER GOETZE: Is that all?

MR. RANKIN: And petroleum geology.

EXAMINER GOETZE: Very good.

Ms. Antillon?

MS. ANTILLON: No objection.

EXAMINER GOETZE: And having had instruction from him at the Groundwater Protection Council, yes, he's so qualified.

MR. RANKIN: Thank you.

Q. (BY MR. RANKIN) Mr. Tomastik, let's -- let's kind of get into this quickly here. Turning to Tab 3, is this an area of review that shows the acreage in the surrounding one-half-mile area of review?

A. Yes.

Q. And you conducted an analysis of the wells that are in this area?

A. Yes.

Q. And the next page is the same map that shows the wells that are within that half-mile area of review?

A. Correct.

Q. The second to the last page of that tab, is that a list of all the lessees and operators within the area?

A. Yes.

Q. And to jump to the next tab -- sorry -- Tab 4, is this a tabulation of the well data that's required by the C-108 --

A. Correct.

Q. -- identifying each of the wells that you've identified within the area of review?

A. Correct.

Q. Are there any wells that actually penetrate the injection interval in this table?

A. No.

Q. Other than the Parker?

A. Oh, the Parker, yes.

Q. Right. That one.

Now, other than the Parker, are there any P&A'd wells that penetrate the injection interval?

A. No. There are no plugged and abandoned wells penetrating the area of review.

Q. And have you concluded a wellbore schematic of

the Parker SWD well in this exhibit?

A. Yes.

Q. Will you review for the examiners just the structure -- construction for that well and any concerns you have with the -- with that construction as it relates to the injection that's proposed in this well?

A. Yes. The well construction of the Parker SWD shows 8-5/8 surface casing set to a depth of 1,304 and cemented to surface, and then 5-1/2 production casing set to a depth of 4,329 and cemented to surface. And then the well was drilled open hole from 4,329 to 4,675 in the San Andres. And then tubing and packer were set inside the 5-1/2 at a depth of 4,303.

Q. And this well is just within the half-mile area of review?

A. Correct. It's approximately a little over 2,000 feet away from the proposed Nolan Ryan well.

Q. And included in this packet also is the wellbore construction for the one PA'd well that's in the area of review, but it doesn't penetrate the injection zone, does it?

A. It penetrated initially just in a few feet into the top of the San Andres, and that was plugged back with cement.

Q. And that's why it was included here, just to

demonstrate it was adequately protected across that zone?

A. Correct.

Q. Now, in your opinion, do either of these wells or any of the wells within the half-mile area of review present any problems in terms of their location, their wellbore construction or require any additional remedial work in order for you to inject through this proposed well?

A. No.

Q. And they don't create and give you a risk of creating a conduit between the injection zone and the other intervals above to the surface?

A. No.

Q. Let's talk about the operational -- the well design for this well and its operations. Is all the well data and operational information necessary included in this application?

A. Yes.

Q. Let's look at Tab Number 2. And if you would, just review for the examiners -- if you flip to the second page after the C-102, there is a well data sheet. Will you review for the examiners the well construction as its proposed?

A. Yes. The proposed wellbore construction for

the Nolan Ryan SWD will be drilling a 12-1/4-inch hole and setting a 9-5/8 surface casing to a depth of approximately 1,350 feet and cementing back to surface. The surface casing in the Underground Injection Control Program is critical to protect all underground sources of drinking water down to 10,000 milligrams per liter total dissolved solids but also serves -- the surface casing serves to protect the potable and freshwater zones.

And then the well is drilled to total depth, and 7-inch production casing is set at 4,800 feet and cemented to surface. And then the well will be perforated in the porosity zone within the San Andres, and the well will be completed with tubing and packer.

Q. And what are the perforations proposed here? What depths?

A. Looks like 42 -- 4,100. Kind of small. 4,100, 4,700 feet.

EXAMINER GOETZE: Thank you for making the comment.

(Laughter.)

Q. (BY MR. RANKIN) And what is the tubing diameter that you're proposing for this --

A. Four-and-a-half injection tubing.

Q. Okay. And the next page. After you get

through the wellbore is the injection well data sheet. Is there a wellbore diagram for this well?

A. Yes.

Q. Does that reflect the construction we just reviewed?

A. Yes.

Q. Now, let's see. Let's get to the operations. Looking at Tab 5, what are -- let's talk a little bit about the operational parameters. What are the surface -- maximum surface injection pressures proposed for the well?

A. The maximum surface injection pressure proposed is 820 psi, and that's based on the regulatory requirement of .2 psi per foot.

Q. And do you feel like that's a conservative gradient pore pressure?

A. Yes.

Q. And what are the expected average injection rates going to be?

A. The average injection rate is 15,000 barrels a day.

Q. And in your opinion, will those volumes be achieved within the pressure limitations here?

A. Yes.

Q. And if Goodnight requires an increase in

operating pressure, will it perform an OCD-witnessed step-rate test?

A. Yes.

Q. In your opinion, will this casing design and cement plan, as you just reviewed, be protective of freshwater sources in the area?

A. Yes.

Q. How will Goodnight Midstream monitor the integrity of the well during injection activities?

A. Monitoring will be performed with an electronic SCADA system, which will record the injection pressures and the annulus pressures, which basically is considered continuous monitoring for mechanical integrity. It is one way that is very positive to demonstrate that the well is maintaining continuous mechanical integrity.

Q. And how about prior to injection? Will Goodnight Midstream do anything to ensure the integrity of the cement job prior the injection?

A. Yes. A cement bond log will be run to demonstrate the cement integrity of the production casing.

Q. Is there any plan to stimulate the well prior to injection?

A. There will be, most likely, an acid stimulation to clean up the perforations and a little bit of the

stimulation in the formation.

Q. In your opinion, will the granting of this application be protective of freshwater resources, protect against waste and will protect against impairment to correlative rights?

A. Yes.

MR. RANKIN: Mr. Examiner, at this time I would pass the witness.

EXAMINER GOETZE: State Land Office, questions?

MS. ANTILLON: No questions.

EXAMINER GOETZE: Mr. Brooks?

EXAMINER BROOKS: No questions.

CROSS-EXAMINATION

BY EXAMINER GOETZE:

Q. And I really don't have any questions. It's too thorough.

I would throw out there that Parker Energy did run a step-rate test on their well.

A. Okay.

Q. You might want to take a look into that. And as my memory serves, it didn't show anything. It was open-ended because of the fact that the capacity of the well exceeded their ability to pump it up.

A. Yes. I've seen that happen.

Q. Yeah. But it is possible to get a higher approval out here.

MR. RANKIN: Okay.

EXAMINER GOETZE: At this point, no questions for this witness?

MR. RANKIN: Mr. Examiner, at this time we would ask the Division take this case under consideration -- advisement, and that concludes our presentation.

EXAMINER GOETZE: At this point we offer the State Land Office the opportunity to make a statement.

MS. ANTILLON: Thank you.

The State Land Office just wants to say it is reviewing this application and has concerns with the saltwater disposal well spacing and proximity to State Trust Lands.

EXAMINER GOETZE: With that, Case Number 20555 is taken under advisement.

Thank you.

MR. RANKIN: Thank you, Mr. Examiner.

(Case Number 20555 concludes, 10:32 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 27th day of June 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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