STATE OF NEW MEXICO
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

ORIGINAL

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE 15398

APPLICATION OF BC OPERATING, INC. FOR AUTHORIZATION TO INJECT, LEA COUNTY, NEW MEXICO.

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

OCTOBER 29, 2015

Santa Fe, New Mexico

BEFORE: PHILLIP GOETZE, CHIEF EXAMINER
GABRIEL WADE, LEGAL EXAMINER

This matter came on for hearing before the New Mexico Oil Conservation Division, Phillip Goetze, Chief Examiner, and Gabriel Wade, Legal Examiner, on October 29, 2015, 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: ELLEN H. ALLANIC
NEW MEXICO CCR 100
CALIFORNIA CSR 8670
PAUL BACA COURT REPORTERS
500 Fourth Street, NW
Suite 105
Albuquerque, New Mexico 87102

A P P E A R A N C E S

For the Applicant

SETH McMILLAN, ESQ.
and
J. SCOTT HALL, ESQ.
Montgomery & Andrews Law Firm
325 Paseo de Peralta
Santa Fe, New Mexico 87501
(505) 982-3873
smcmillan@montand.com
shall@montand.com

FOR AMTEX ENERGY, INC. (Pro Se)

WILLIAM J. SAVAGE
Amtex Energy, Inc.
P.O. Box 3418
Midland, Texas 79702
(432)-686-0847

I N D E X

E X H I B I T I N D E X

BC OPERATING, INC.

Exhibits Offered and Admitted

MR. SAVAGE'S EXHIBITS

(Time noted 1:33 p.m.)

EXAMINER GOETZE: All right. All folks ready? We are now back on the record.

And at this point we will proceed with case No. 15398, Application of BC Operating, Inc., for authorization to inject, Lea County, New Mexico.

Call for appearances.

MR. McMILLAN: Mr. Hearing Examiner, Seth McMillan, Montgomery & Andrews on behalf of BC Operating, Inc.

EXAMINER GOETZE: Any other appearances?

MR. HALL: And Scott Hall. He forgot to mention me.

MR. McMILLAN: I thought you could take care of yourself.

EXAMINER GOETZE: And I believe I have a pro se appearance. Please stand and identify yourself.

MR. SAVAGE: William J. Savage. I am the owner of Amtex Energy. And we have the tract under lease, the BLM tract under lease, which the well is located on which is proposed for injection, the Pearson No. 1 SWD.

EXAMINER GOETZE: Very good.

MR. WADE: If I may?

EXAMINER GOETZE: Yes.

MR. WADE: Is it anticipated that Mr. Savage will make a statement only?

MR. McMILLAN: Yes.

MR. WADE: Do you want to address that now and make objections if that's going to happen or do you want to do that at the time he's going to make the statement? I was thinking that we would go ahead and allow you to put your case on and then comments can come after.

MR. McMILLAN: That sounds fine. We would just object to his presenting exhibits, events, testimony, anything like that, given that Amtex did not file an appearance nor a prehearing statement. So it is not entirely clear in advance what kind of objection they might have.

MR. WADE: So maybe let's just deal with it now. Mr. Savage, if you could just come up here so you can be closer. And I do understand that you do want to give comments?

MR. SAVAGE: Yes.

MR. WADE: But you did want to enter some documents into the record as well?

MR. SAVAGE: That's correct.

MR. WADE: And can you give a copy to counsel and you said you had an extra for us as well?

MR. SAVAGE: Yes, I did --

MR. WADE: -- to let us know what those are.

MR. SAVAGE: These are four sundry notices which are specific to this well. These are from 1974, when the well was drilled, and the last one is when the well was plugged. And that was in 1976.

And these sundry notices are on specific record at the OCD and can be obtained and reviewed at the website www.emnrd.state.nm.us/OCD/.

And so these are a public record, and that is why I want to enter these.

MR. WADE: We will leave it at that for now. So you won't give your comment for now. Does your objection stand?

MR. McMILLAN: Well, ordinarily under the rules of the Division our objection would stand, but what we are seeing here, I believe, is actually in our exhibit packet, so, given that, we will be relying on these --

MR. WADE: And it is a public record and so we will go ahead and allow the admission when the time comes.

MR. McMILLAN: (Nodding.)

MR. WADE: Okay. Thank you.

EXAMINER GOETZE: Do you have witnesses?

MR. McMILLAN: We have three.

EXAMINER GOETZE: Please stand and identify yourself and be sworn in.

(WHEREUPON, the presenting witnesses were administered the oath.)

MR. McMILLAN: May we call our first witness, Billy Moore.

BILLY MOORE

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. McMILLAN:

Q. Mr. Moore, if you would, please state your full name and place of residence.

A. Billy Moore and I live in Odessa, Texas.

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

A. I worked for BC Operating as a petroleum engineer.

Q. Are you authorized to testify today on behalf of BC Operating?

A. Yes.

Q. Have you previously testified before the Division or one of its Examiners and had your credentials accepted and made a matter of record?

A. No.

Q. Can you please provide for the Examiners a brief summary of your educational background and your work experience.

A. Yes. I graduated from the University of Texas of the Permian Basin with a bachelor's of science in petroleum engineering.

I have one year experience as a lease operator. And I have one year experience as a petroleum engineer, both stints with BC Operating.

Q. Are you familiar with the application filed in this case?

A. Yes.

Q. And are you familiar with the lands that are the subject of this application?

A. Yes.

MR. McMILLAN: Mr. Hearing Examiner, I tender Mr. Moore as an expert petroleum engineer.

EXAMINER GOETZE: One year and one year, well, we will say that he's qualified for expert witness in this case.

MR. McMILLAN: Thank you.

Q. Would you briefly state what BC Operating is seeking by its application?

A. We seek an order authorizing the injection of

water for disposal in the Cherry Canyon member of the Delaware Mountain Group formation and the Pearson No. 1 SWD well, API No. 3002524438.

It is located 1,980 feet from the north line, 660 feet from the east line, Section 33, Township 21 South, Range 33 East in Lea County, New Mexico.

We propose to reconfigure the well at the above location and utilize it for injection of produced water at depths of 5,790 feet to 6,970 feet subsurface.

Q. Did you assist, Mr. Moore, in the preparation of the original C-108 application that was provided to the Division?

A. Yes, I did.

Q. And have you prepared certain exhibits for introduction in this case?

A. Yes, I have.

Q. Let's start with -- let's get oriented. Let's take a look at Exhibit 1. Could you please identify for us the location of the subject well?

A. Yes. We are going to be in section 33 of 21 South, 33 East.

Q. And can you identify on this exhibit the name of the well -- as identified on this exhibit?

A. It is the Pearson SWD No. 1.

Q. And how is it named on this particular exhibit?

A. On this exhibit is the Brunson E. McKnight Leggett.

Q. And that's an old name?

A. Yes. That's an older name. This is a 1970s well.

Q. And is the proposal to reconfigure and ultimately rename the well the Pearson Well?

A. Yes, that is the intention.

Q. Let's take a look at Exhibit No. 2. Is this a C-102 plat?

A. Yes. This is for this well.

Q. Can you identify for us the surface and the bottom hole locations?

A. They are the same at 1,900 from the north line and 660 feet from the east line.

Q. Let's take a second look there at the distance from the north line.

A. 1,980 feet from the north line.

Q. Great. Is this an existing well or a new well?

A. This is an existing well.

Q. And what is the source of the disposal fluids?

A. The source for most of the injection fluids should be coming from our own wells which is Bone Springs' water.

Q. Is Exhibit 3 a copy of the C-108 application that

was filed with the Division for this injection well?

A. Yes, it is.

Q. Let's take a look at Exhibit 3. Let's begin -- let's take a look at pages 13 and 14. Are these a current wellbore schematic and a proposed wellbore schematic for this well?

A. Yes. Page 13 is the current wellbore schematic and page 14 is the proposed wellbore schematic.

Q. Let's talk about the casing and cementing program for this well.

A. Okay.

Q. Can you kind of lead us through that?

A. Yes. Let's start with the casing. You can go in -- let's start with before this well was abandoned.

Q. Sorry to interrupt. Is Exhibit 4 related to the pre-abandonment status of the well?

A. Yes, it is.

Q. Maybe you should look there for purposes of your discussion.

A. Okay.

See, these are all public record of which is before the abandonment process, and they are all sundry notices beforehand. You can go through and look at them. And there is no evidence of this casing being cut pre-abandonment, which led us into the post

abandonment -- abandonment to see if it was cut as well which --

Q. Is that Exhibit 5?

A. Yes, it is.

Q. Can you tell us what we are looking at here?

A. Exhibit 5 is post abandonment and the plugging procedure that was sent into the New Mexico OCD with the approval and also the final sundry with the approval as well. And that is post. And that's when they were abandoning the well. Once again, no evidence of cutting the casing.

Q. And what are BC Operating plans with respect to casing and cementing?

A. So for the casing aspect, we plan on running a preliminary CBL, as we go through and we go through each plug when we drill it out, testing the casing to 500 psi and moving on through each plug until we get to the final plug.

When we get to that, we are going to run a 30 minute chart testing casings as well. And that will be sent to BC Operating and then it will also be sent to the New Mexico OCD.

Q. And are those steps reflected in the procedure laid out on page 15 of Exhibit 3?

A. Yes. It is going to be steps 4 through 10, and

that's in our procedure.

Q. Will this be a perforated completion?

A. Before we go on. Also the cementing --

Q. Sure. Sorry.

A. So that is the casing.

The cementing, if you want to continue to look at page 13 and 14 in there, there is not cement behind pipe for what is said in any of the sundry notices back in the 70s. And so BC plans on doing two squeeze holes and going through and cementing up the back side all the way to surface, essentially. And that's a suicide squeeze, because there is some cement that shows up top.

And after all that is completed, we also do plan to do a second CBL to make sure we adequately block the zone and isolate the zone of injection interest.

Q. Moving on, will this be a perforated completion?

A. Yes, it will be.

Q. Will the liquids be injected under pressure?

A. Yes.

Q. What are the average and maximum daily injection rates?

A. Well, the average injection rate, which is on Exhibit 6, is going to be daily around 2,000 barrels. And the way that is figured by me is our wells in the area, the three wells that we plan to take our disposal

water to in this area, and that's what all this data is, the oil, gas, water showing the averages here. And this is within the last month averages of the wells that would be going in, which is 2,000 barrels a day.

And for the maximum daily injection rate, we are asking for 20,000. And the reason we are asking for that much is because we want to be allowed to get as much water in and not be limited by the maximum daily injection rate when the factor is going to be -- maximum injection pressure is what is going to be the limiting factor.

Q. Okay. Will this be a closed or a commercial operation?

A. We plan to have it as a commercial operation. But, first of all, it is going to be a priority for BC Operating to produce water.

Q. And back to injection pressures, what are the anticipated average and maximum injection pressures?

A. The anticipated average -- which I am basing off of 4,000 barrels per day -- will be around 900 psi. And the way I get that is we have an SWD well due north of us, the Barry SWD, in the exact same zone and right around the same depth. And it's averaging at 4,000, 5,000 barrels a day at 900 psi.

And then our maximum injection pressure is 1,158

psi.

Q. Are these injection pressures within the Division's .2 psi for the depth requirement?

A. That is exactly how we figured it, so yes.

Q. Let's take a look at page 9 of Exhibit 3, the C-108. Would you discuss for us the chemical analysis for the injection fluids?

A. The basic piece here is the chlorides, which is 112,000 parts per million. And the water that we'll be injecting to is significantly higher, around 160- to 165,000 chlorides parts per million. And so that's really the piece here.

Q. In your review of the chemical analysis for the injection fluids is, it your opinion that the fluids are compatible with the injection interval?

A. Yes.

Q. Let's take a look at page 18 of Exhibit 3. Is this a list of all wells and their locations within your area review?

A. Yes.

Q. And, for the record, what is your area of review?

A. One-half mile.

Q. And looking at page 18 here, it looks like there's only one well within the area of review and then it's been plugged?

A. Yes, correct.

Q. Turning now to Exhibit 7, in particular to the last page of Exhibit 7.

First of all, was Exhibit 7 retrieved from the records of the OCD?

A. Yes. This is from the OCD website.

Q. It is a public record?

A. Yes.

Q. That fourth and final page of the exhibit, is this a wellbore schematic for the well listed on Exhibit 7?

A. Yes, it is.

Q. Sorry -- not Exhibit 7, but page 18 of Exhibit 3.

A. Yes, this is a schematic of it.

Q. Okay. Does this well penetrate the injection interval for the Pearson well?

A. Yes, it does.

Q. Does Exhibit 7 show the casing depth and the cement top to bottom?

A. Yes, it does. On the schematic it shows it and then also on the front page it shows the size of the hole, 26-inch, and then also it says, Cement to surface with the red mix.

In the 17-and-a-half J55, 13 and 3/8ths liner, setting depth is to 600 foot with 650 sx circulated to

surface.

The 12-and-a-half hole is a J55 9 and 5/8ths casing to a setting depth of 5,280 feet with 1,200 sx of cement circulated to surface. And then the 8-1/2 hole with what I believe is S95 7" casing down to a same depth of 12,000 feet has 540 sacks with the top of cement being at 12,000. And then there is a P-110 liner, 4 and 1/2, from 12,000 to 15,200 in feet. And it looks -- it has the top of cement at 12,000 feet as well.

Q. In your review of the evidence concerning this other well, is there any evidence of casing leaks?

A. No. There was not.

Q. Are you satisfied that the conditions of this well are such that it will not act as a conduit for fluids for an injection interval to freshwater aquifers?

A. Yes, I am.

Q. Let's take a look at freshwater aquifers within the area of review. Let's turn to Exhibit 3 on page 7. And under VIII, it looks like there's a kind of narrative description of the aquifers within the area of review. Can you lead us through that?

A. Yes. In this area, they have the Alluvium, Bolsum, Ogallala shallow water zone. And it is dry in this part of the county, so this is not a concern for BC

Operating.

Below this shallow zone is the Dockum Group Redbeds that produce fresh water, a near by well which you can see which is attached, has a total depth of about 1,100 feet. And it is fresh water.

This well is probably the Santa Rosa Sandstone, and not the Rustler as suggested on the formation tops.

And BC Operating has fresh water at 1,100 feet, more or less. I think the deepest is 1,127. I could get more accurate if we need to.

And then it's the Dockum Group Redbeds. Below these redbeds is a salt and anhydrite which do not yield freshwater.

Q. So are there any known sources of fresh water below the injection interval?

A. No, there's not.

Q. Have you examined the available engineering data for evidence of open faults or any other hydrologic connection between the disposal zone and any source of underground drinking water?

A. Yes.

Q. Are you satisfied, in your review, that there are no known faults or connections?

A. Correct. There is no known faults.

Q. And will BC Operating be putting on a geologist

to also discuss this subject?

A. Yes.

Q. Let's look at page 8 of Exhibit 3, XI. Is this for what it's -- is this a description of all known water wells within your area of review?

A. Yes. And both are BC Operating's.

Q. And how many are there?

A. Two.

Q. Pages 10 and 11 of the same exhibit, Exhibit 3, are these chemical analyses of fresh water from the two freshwater wells within the area of review?

A. Yes.

Q. And are the dates of the samples and the well locations reflected on these analyses?

A. Yes.

Q. While we are in Exhibit 3, let's address at page 16 -- if you could turn to page 16. We had noticed, I think in our prep for today's hearing, a typographical error. If we look at that chart titled Pearson SWD -- on the lower half of the page, do your see the chart I am referring to?

A. Yes.

Q. Where it says "Wolfcamp," what formation should that actually reflect?

A. This should be changed to Cherry Canyon.

Q. Mr. Moore, do you foresee any need to request a higher injection pressure from the Division in the future?

A. At this moment, based on this well, no, I do not foresee needing to ask for a higher injection pressure.

Q. In your opinion, can this project be operated so that the injection fluids will remain contained within the injection formation?

A. Yes. By abiding by OCD's rules of .2 psi per foot or staying at roughly one-third of the fractured grading in this area.

Q. In your opinion, can this project be operated so that public health and safety and the environment will be protected?

A. Yes.

Q. And what's the basis for that?

A. We are making sure, we are double-checking our work with two casing bond logs. We are adding cement to make sure we are behind pipe. And, in the end, like I said just before, we are staying 1/3rd of the fracture gradient to stay in the zone.

Q. And in your opinion, will injection operations interfere with the drilling or operation of new wells that penetrate the injection interval in the immediate vicinity of the Pearson No. 1 well?

A. No.

Q. And what is the basis for that opinion?

A. Standard practice with offset operators. They will call us when they are drilling. When they get to this area, we'll shut down our injection station. We'll let them drill through the area, get their casing, cement, sand, a two-, three-day process.

Once they call and let us know and they are through this interval and they've done everything they need to, then we will go back to injecting.

Q. And in your opinion will granting BC Operating's application promote the interests of conservation and result in the prevention of waste and the protection of correlative rights?

A. Yes.

Q. Were Exhibits 1 through 7 either prepared by you or at your direction or were they retrieved from the public records of the OCD?

A. Yes.

MR. McMILLAN: Mr. Hearing Examiner, I would move the admission of Exhibits 1 through 7 at this time.

EXAMINER GOETZE: Exhibits 1 through 7 are so entered.

(BC Operating, Inc., Exhibits 1 through 7

were offered and admitted.)

MR. McMILLAN: I just want to also at the same time tender the notice affidavit which appears as Exhibit 20 in your packet. And original has been provided to the court reporter.

EXAMINER GOETZE: Exhibit 20, the affidavit of notification, is also entered.

(BC Operating, Inc., Exhibit 20 was offered and admitted.)

MR. WADE: Are there green cards as well regarding -- or a copy of the letter that was sent to the operators?

THE WITNESS: Yes. That will be followed up with my landman.

MR. WADE: Okay.

MR. McMILLAN: All of the C-108s were sent via certified mail.

MR. WADE: Okay.

MR. McMILLAN: That concludes my direct examination of Mr. Moore. If the Hearing Examiner has any questions.

MR. WADE: I don't.

EXAMINER GOETZE: You have nothing. Very good.

One thing we will have to clear up in

procedural is in the C-108 application, I have the affirmation statement as being made by BC Operating.

I need a person who is qualified to verify and make that affirmation statement. So we've heard it in testimony. Are you going to use that as a substitution?

I can't call BC Operating up to ask. I have to have a qualified person.

MR. McMILLAN: I see. Yes, if that testimony will suffice, then that will be substituted.

EXAMINER GOETZE: It will, okay.

MR. McMILLAN: Thank you.

EXAMINATION BY EXAMINER GOETZE

EXAMINER GOETZE: And let's see. At this point, did you look at the injection being done by COG's wells in this area?

THE WITNESS: No, I did not.

EXAMINER GOETZE: I think 20,000 is somewhat of a very strenuous limit to reach for this formation for the interval that you have. But my understanding is that you will continue to operate using the standard gradient that we offer and in the future will request an increase based on a step rate test?

THE WITNESS: Based on a step rate test, but I don't see it happening.

EXAMINER GOETZE: I am glad you have confidence in the rocks. I think at this time most of my questions are for the next witnesses. So I am done with this witness.

Thank you very much.

THE WITNESS: Thank you.

MR. McMILLAN: At this time. I call Mike Moylett, senior geologist.

MIKE MOYLETT

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. McMILLAN:

Q. Mr. Moylett, if you would kindly state your full name and your place of residence.

A. My name is Michael Moylett, and I live in Midland, Texas.

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

A. BC Operating, a senior geologist.

Q. Are you authorized to testify today on behalf of BC Operating?

A. Yes.

Q. Have you previously testified before the Division or one of its Examiners and had your credentials

accepted and made a matter of record?

A. Yes.

Q. And are you familiar with the application filed in this case?

A. Yes.

Q. Are you familiar with the lands that are the subject of this application?

A. Yes.

MR. McMILLAN: Mr. Hearing Examiner, I would tender Mr. Moylett as an expert geologist.

EXAMINER GOETZE: We certainly do agree with that. No problems. He is so qualified.

MR. McMILLAN: Great. Thank you.

Q. Let's see. Let's get ourselves oriented underground, so to speak. Mr. Moylett, is Exhibit 8 a strat column for the vicinity of the Pearson well?

A. Yes. It shows in the Delaware Basin the Delaware Mountain Group and in the Delaware Mountain Group the three formations, the Bell Canyon, Cherry Canyon and Brushy Canyon formations. Highlighted in yellow is the Cherry Canyon formation which is the zone we are seeking to inject into.

Q. Can you give the Hearing Examiner a brief overview of the -- I guess you just did that. Let's strike that question.

Let's look at Exhibit 9, please. Can you tell us what we are looking at here, Mr. Moylett?

A. Exhibit 9 shows in section 33 of 21 South, 33 East where the BC Operating Pearson SWD No 1 is located. It also has a circle around it. It's a two-mile radius where I did most of my area of review under.

In blue there, we will see a three-row cross section that runs from north to south of section 28 through the OXY JFD Well, and then over to the Pearson well.

Also it shows there are three Delaware producers on this map. One of them falls right on the two mile AOR. It's actually a shallower sand. It was in the upper Bell Canyon sand.

The perforations were from 4,951 feet to 4,985 feet.

The cumulative production on that, the line that runs through it was roughly 3,000 oil and 95,000 barrels of water.

There's a well in section 31 of 21 South, 33 East. It also produced in the Bell Canyon Sand sitting above the Cherry Canyon. It had a cumulative production of 731 barrels of oil and 37,908 barrels of water.

On this map, the green is the cumulative oil production and the blue is the cumulative water

production.

And in section 8 of 2,233, there's a lower Brushy Canyon well that made a cumulative production of 254 oil and 1,705 barrels of water. All three of those wells are plugged and abandoned. So there is no active Delaware Sand production on this map.

Also the two wells in section 33 are plugged and abandoned currently.

Q. Can you explain to the Hearing Examiner generally how this interval of the Delaware formation was selected for injection?

A. Yes, it was selected since -- we did a petrophysical analysis -- we will go through that -- with some Archie's Equations on that. Cherry Canyon is not productive in the area. And through a petrophysical analysis it calculates over an 80, 85 percent water saturation calculation.

So there is no Cherry Canyon production on this map. And it calculates high water saturations. And also it says very good permeability, based on a separation that we will see on a cross section on the resistivity logs. And it has very good porosities, porosities averaging over 20 percent, you know, neutron density cross block porosity.

So it is not productive in the area, and it is a

very good reservoir for porosity and permeability.

Q. Great. To the extent this isn't already in the record, what is the vertical extent of the injection interval within the Delaware?

A. So, 5,790 feet to 6,970 feet, approximately 1,200 feet. The top of the Brushy Canyon out here is approximately -- you'll see on a cross section -- 7,000 feet. The nearest -- I mean the Cherry Canyon. The top of the Brushy Canyon is around 7,000 feet.

The producing Brushy Canyon out here is around 1,400 feet below the top of the Brushy Canyon. And we'll look at the red tank field next.

Q. Let's talk a little bit more about the geologic criteria you utilized to evaluate the injection formation. Let's turn to your Exhibit 10, and why don't you take us through this exhibit.

A. Exhibit 10 is a larger view of the area. It is outside the two-mile AOR. Up into the right part of this map, in section 33, I've noted where the Pearson SWD No. 1 is.

As we go to the southwest, you'll see in sections 31, 5, and 8, those are the three wells that we talked about in a previous map. When you get to the red tank field, it's approximately four or five miles to the southwest. It's a lower Brushy Canyon field.

And I have noted some of the perforations on the wells there. Everything in brown on the legend is a Delaware well. It's a cumulative production.

There is one well in section -- on the edge, in section 10, the Concho Emerald Fed No. 1 on this entire map that I can find that actually ever produced from the Cherry Canyon. It is almost 7 miles, you know, 6 miles southwest of the Pearson SWD No. 1.

And it has a cumulative production of 60,000 barrels of oil and 1.1 million barrels of water, which is about a 5.6 percent oil cut.

And through the -- I have a log on that well and also in the area of the Pearson SWD. And the sand that produces in that Concho Emerald Fed No. 1 in the lower Cherry Canyon is not present in the area of the Pearson SWD.

Q. Will we be looking at those logs shortly?

A. Yes.

Q. Okay. Let's turn to your Exhibit No. 11. Can you explain this exhibit to us.

A. Yes. It shows the Pearson SWD No. 1 up in the top right part of the map. What I've used was -- which is in published data -- in the bottom left part of the map is the Texas American Well there. I had the RW or the SPE book. So I'll show you where I got the RW.

And that well was a deep well, so I couldn't actually get a correct bottom hole temperature for the published Cherry Canyon RW on that well.

But if you go in the center of the map, there are two OXY wells that the bottom hole temperatures on the TDs of those wells match the TD of where the water sample was taken on the Texas American Well.

And also to the right there I say chlorides. OXY was going to -- was disposing of some Delaware Sand wells and a disposal well. And I had to show some water samples. So I have two water samples that show that.

The chlorides out there with 150- to 160,000 parts per million chlorides, which would support the RW that I came up with, the .035 that we'll go through the calculations next.

This will show you just a general area of where I pulled the data from. And that is the nearest data by the Pearson SWD No. 1.

Q. Mr. Moylett, why don't you go ahead and read us through those calculations --

A. Okay. Exhibit 12 is an SPE publication. It is a survey of resistivities of water from subsurface formations in west Texas and southeast New Mexico. Published in 1982. So that is the cover.

And then of note part two, it says, All

resistivities published in this report were taken at 75 degrees Fahrenheit. And that's page two.

Page three is a Texas American well in Eddy County. There's the API number. That matches the one that is on the map, 3001522042. It gives you the location. It gives you the depth, which is the Cherry Canyon. It gives you -- and the DST was the source. A water resistivity .052 ohm meters. So that's the only known Cherry Canyon RW reported in the area.

And then the next page, I show the RW at 6369 at 75 degrees. I show those two OXY wells with a bottom hole temperature of 111 degrees. That's 6533 and 118 degrees at 6598. And then the RW from the DST was 6369, so that's fairly close to the depth there. And we are going to figure 13.

But the next thing is the equation taken off of a published report in figure 13 showing how to calculate the RW in the formation using the RW of the reported DST at 75 degrees.

And using both those bottom hole temperatures, it comes out to .036 ohm meters and .034 ohm meters, so it averages out to .035 ohm meters, which is an RW that is fairly well established in the Delaware Sands in Eddy and Lea County. And that well again was a Texas American Oil well where the DST sample came from.

Q. If you refer to Exhibit 13.

A. Exhibit 13 is a book published by George Asquith called Basic Well Log Analysis for a Geologist. That's the cover page of the book.

The second one is just where it was published, if anyone wants to order one.

And then the third page is -- page 5 is the equation we use and it actually goes on to page 6 to explain it. So it is the published form to calculate RWs to correct it for bottom hole temperature.

Q. And what, Mr. Moylett, is your Exhibit 14?

A. 14 just shows in that area that OXY well was actually bought from Pogo. The red tank field, which shows on No. 12, a 1993 -- it was in January -- had chlorides of 151,230 parts per million.

And the next page was taken in March of 1994. And it was 160,815 parts per million chloride. And this is a Delaware water sample. So it shows it's 150-, 160,000 parts per million chlorides, which is salty water, which kind of verifies the .035 RW we calculated on the previous two exhibits.

Q. Good. Thank you.

Have you prepared a structure map in cross sections that will demonstrate the horizontal and vertical extent of the injections?

A. Yes. Exhibit 15 will be the structure map. Exhibit 16 would be the gross isotope map for the Cherry Canyon.

So Exhibit 15 is the top of the Cherry Canyon structure map. In brown is just all the known -- is all the Delaware production in the area.

I have highlighted the Pearson SWD No. 1 in the top right of this map. The ~~contra~~ Contour interval is 100 feet. If you look at the Red Tank field, it's approximately a subC depth of minus 2,000 feet. And the Pearson No. 1 is a minus 2,200 feet. So they were about structurally 150, 200 feet lower than the red tank field where the Pearson SWD No. 1 is. So it just shows you the general structure. It's a fairly regional dip out there, you know, roughly a degree or a degree and a half a mile, similar.

Q. Exhibit 16.

A. Exhibit 16 is a Cherry Canyon gross isopach map. The contra interval at one inch is 50 feet. It basically shows not a lot of change in structure out here.

The Red Tank field has a thickness of around 1,250 feet. You come up to the Pearson SWD, there actually is a value underneath, is around 1,300 feet, 1,250, 1,300 feet. So we are going to have similar

thickness, you know, in the Cherry Canyon through the area. So there's not a lot of thinning or thickening out here. It's just a pretty regional thickness out here, which is around 1,200, 1,300 feet for the Cherry Canyon.

Q. Moving right along, let's take a look at your Exhibit 17.

A. Exhibit 17 --

Q. Let's take a moment to get this folded out.

A. Yes, I will. 17 will be the three-well cross section around the Pearson SW No. 1. And Exhibit 18 will be bringing in that Concho well that produced the 60,000 barrels and 1.1 million barrels of water from the red tank field and correlated over to the Pearson, Cherry Canyon.

Here is the north to south cross section. I colored it up. And in tract 1 on the left is the gamma ray. And everything colored in blue is an indication of actually some of the carbonate members that you find in some of these Delaware sands.

Tract 2 is the neutron density, porosity. I just colored everything over 12 percent. And tract 3 is the resistivity, colored everything over five percent -- just for the visual, so you can actually see the packages a little better.

But, for the most part, the porosities run 20, 22 percent and your resistivity is about 1 and a half ohms.

The first hole in the cross section is the current Amtex Unit No. 1. It has a mud log on there. And from the mud log -- there are no sample shows on that mud log.

I go to Well No. 2, the Devon Energy JD 33 Fed No. 1. It also has the gamma ray on tract 1, neutron density, tract 2, resistivity in tract 3, very similar to the Amtex well.

And then the third well in the cross section is the BC Operating Pearson SWD No 1, previously the Brunson McKnight Leggett No. 1. I note the injection interval on there, from 5,790 to 6,970, the proposed injection interval.

This well only had -- excuse me -- it just had a sonic log and an old resistivity, conductivity log on it. So it is a little dissimilar to the modern logs. But you can still see -- on the sonic log, you can see the porosity code, over 12 percent. And that's -- the resistivity is everything under 10 ohms.

Conductivity averages around 700 ohms. And if you convert it to conductivity using, you know, Archie's 1,000 divided by conductivity, it's about 1 and a half

ohms of resistivity, which matches the same resistivity on the modern logs, 1 and 1/2, 1 and 1/2.

Of note in here, in the base of the Cherry Canyon, you will see that there is a gross, a 150 feet lime member in there. But if you look at the Amtex well and then look at the Devon well -- the one in the center -- it's a solid 80 feet of dense limestone in there. And that also correlates over to the BC Operating, Pearson No. 1. So that route should be an adequate barrier in that dense limestone.

And then as we go up to the top of the Cherry Canyon, the base of the Bell Canyon, there you'll see there is also some limes on top there. So you get limestone barrier on the top, limestone barrier on the bottom or at the proposed injection interval.

And, also, like previous testimony, you were injecting at, you know, one-third of the frac pressure or .2 psi per foot.

If you calculate the bottom hole pressure here using a .42 psi gradient, like I said, you are about a third of what it would be. So we should be able to stay in zone.

So I am just showing you what the consistency of it is and you still have that nice limestone member there sharing the injection interval and...

Q. Mr. Moylett, before we move on, just to note, I'm picking up a couple of looks from our court reporter, you'll want to slow down in your testimony.

MR. McMILLAN: (Addressing Court Reporter) I apologize for not saying something earlier.

THE WITNESS: (Addressing Court Reporter) Kick me.

Q. Where are we? Exhibit 18 I believe is next.

A. Exhibit 18 is the Cherry Canyon I could find that produced in that red tank field, and it is about seven, eight miles southwest of the Pearson.

If you look at my key there, what I show is a day completed, the initial potential, the current production, the cumulative production. And then in the left part of that well bore -- once again, tract 1's a gamma ray, tract 2 is a neutron density and tract 3 is the resistivity, colored in same cutoffs there.

In green, I noted the perforations from 6,894 to 6,907. So it is in the bottom part of Cherry Canyon. And above the perforations there, you will see a little limestone member in there. But it's a lower Cherry Canyon Sand on top of the Brushy Canyon.

And that well was included in March of 1995. And that's the well that produced 60,000 barrels of oil, almost 1.1 million barrels of water; still making

approximately four barrels of water [sic] and 168 barrels of water a day.

If you lay that down to any well in the previous cross section, you will see that sand is not present in our Pearson well. And I only bring that up because I wanted to find the nearest Cherry Canyon well in the area. And it is a different sand and it is outside the two-mile AOR.

Q. And for the assistance of our Hearing Examiner, can we maybe take a look at a previous exhibit and identify the location of the well shown on Exhibit 18, just remind us where --

A. It is about eight miles to the southwest in Section 10 of 22 South, 32 East.

Q. And let's take a look at Exhibit 19. Can you tell us what we're looking at here.

A. Okay. Exhibit 19 has Schlumberger take the Brunson McKnight Leggett No. 1 well, take the data, the LSA data on it, and had them do their log analysis on it.

And I had them use the RW .035 and I had them use an aggressive cementation factor of 1.8, which is actually an optimistic cementation factor for -- I said, find me some oil on this in the Cherry Canyon section up in there.

So I color copied the original log. And it came out a little yellow.

But as we start -- one of the light bulbs was broken -- but as we start with it, if you look at the log header, there is a lot of stuff to look at. But I am going to start off with on the left and work my way over to the right.

On the left, where it says "reservoir" in blue and "pay" in red, that is their pay flags for the interval in question.

Skip over to where you see RXOZ, the third column over, you are going to see the relative permeability to water and the relative permeability to oil.

And then we go to the next column, where it says, Bound water, residual hydrocarbon, flushed hydrocarbon. And in there also at the bottom of that legend there, you will see the SW going from 100 percent and the middle will be zero percent, going to be negative 100 percent to the right.

So there's ten chart divisions. So it goes from 100 percent water saturations on the left to basically zero in the middle.

And the residual hydrocarbons out here, the scale on that is zero to five. So in the middle of that scale you'll see a 25 percent residual hydrocarbons -- which

is typical of residual hydrocarbons in reservoirs. You don't produce below 25 percent residual hydrocarbons.

And then a column on the right, it just shows some of the moved hydrocarbons, moved water. It shows some of the lithologies in there.

So focusing on this log, every once in a while, you will see a little residual oil, you'll see a little pay flag, but that's associated with some of these little limestone stringers in there, carbonate stringers, because we are using a cementation factor of 1.8 in the Archie's Equation versus two or two-and-a-half, which is more common to some of these dense carbonates up in there.

So the only time you are going to see a little bit of residual hydrocarbon in there is when we get these carbonates, get into these carbonates.

So starting on this, going from top to bottom, you'll see I marked the top of the Cherry Canyon that correlates to the top of the cross section at 5730.

As you run down this log, you will just see the permeability of water is very high. You don't see any residual hydrocarbons at all. You don't see any pay flags for oil on this. And I'm down to 5,859, 6,000 feet.

You go to the next page. You see a little bit of

residual oil at 10 percent, around 6,100 to 6,104. It's roughly four feet thick, but it has a water saturation, you know, over 75 percent and no pay flags on that also.

So as we scroll down this a little further, you will see 6,200 feet, 63-, 64-, 65-, just showing absolutely no residual hydrocarbons; all permeable to water in there, no pay flags.

At 6570, you get what looks like -- not looks like, it is approximately 17 percent residual hydrocarbons, but it is in that 4 foot limestone stringer in there. And the calculated SW is 80 percent.

And then as we come down to the bottom of the log, you start seeing at 6950, that's that thick limestone section on the base of the Cherry Canyon.

So you start seeing some residual oil up in there but still no pay flags. So you're looking at about 15 to 18 percent residual oil at the highest in the base of that limestone up in there. But you see the permeability to water to SW is very high.

At the top there, at 6,950 to 7,000 feet, the calculated SW still averages around 80 percent higher water saturation calculation. That's in the carbonates because it's using that cementation factor of 1.8. If you used a more carbonate one, it would be a lot higher water saturation calculations.

So the point of this log is you don't see any residual, you know, oil in the sand; you don't see any movable producible hydrocarbons in the sand. You see no pay flags in the sand. So it truly looks like an unproductive hydrocarbon reservoir.

And that's also borne out that there's no production around you at all. None of those plugged wells never make anything in the Cherry Canyon.

So the Cherry Canyon, in my opinion, is a good disposal interval for disposing of water without production hydrocarbons.

Q. So, in summary, are you satisfied that the injection fluids will remain contained within the disposal intervals?

A. Yes.

Q. Also, in summary, is this particular interval in the Delaware formation productive of oil or gas in this area?

A. No, not in the AOR.

Q. And also, in summary, is there currently any non-Delaware production in the AOR above the injection interval?

A. No.

Q. Below the injection interval?

A. Yes. There's a horizontal Second Bone Spring and

Third Bone Spring in vertical Wolfcamp and some upper production in the immediate vicinity.

Q. We asked this of Mr. Moore, but I will ask you, with respect to the geologic data, have you examined the available geologic data for evidence of open faults or any other hydrologic connection between the proposed disposal zone and any source of underground drinking water?

A. No. There's no proven faults at all in the area between the Leonard and the -- the Leonard formation and the above drinking water up in the Santa Rosa.

Q. In your opinion, will injection operations pose any threat of impairment of correlative rights or waste of hydrocarbon resources?

A. No, it won't.

Q. In your opinion, can this project be operated so that public health and safety and the environment will be protected?

A. Yes.

Q. And, finally, in your opinion, will the granting of BC Operating's application promote the interests of conservation and result in the prevention of waste and the protection of correlative rights?

A. Yes.

Q. And were Exhibits 8 through 19 prepared by you or

at your direction?

A. Yes.

MR. McMILLAN: Mr. Hearing Examiner, I would move for the admission of Exhibits 8 through 19 at this time.

EXAMINER GOETZE: Exhibits 8 through 19 are so entered.

(BC Operating, Inc., Exhibits 8 through 19 were offered and admitted.)

MR. McMILLAN: And that concludes my direct examination. If the Examiner has questions.

MR. WADE: I do not have any questions.

EXAMINER GOETZE: At this time, do you still have a landman to go?

MR. McMILLAN: We do.

EXAMINATION BY EXAMINER GOETZE

EXAMINER GOETZE: Let's see. Since you are back here again and doing everything with the production side, did you have any hand in the preparation of the C-108 with regards to aquifers in the area?

THE WITNESS: No. But I know the Capitan Reef is not present in Lea County. You have to go over to Carlsbad and western Eddy.

EXAMINER GOETZE: Well, Hiss would say differently.

THE WITNESS: A little bit. Okay.

EXAMINER GOETZE: So we do have Capitan precedent. And I think this is one of the concerns I had in the original review of the document, is that we had this well, in its construction, had a situation where it was reamed out with the original casing.

Let's see. We may have Mr. Moore come up and have comment on this. But in reviewing the case history of the well, we have sundry notices where the -- give me a moment.

We have a 9 and 5/8ths being reamed out and then a liner run and cemented in place. Here we go: 12574 we TD'd to 9 and 5/8th, loss returns -- I think I'm more interested in 32774, We had to ream the 9 and 5/8ths to 4,900 feet. Then we ran 4,945.97 feet of N-80 to 7 and 5/8ths.

Having said that, they put 125 sacks plus 100 sacks of Class C.

So we have here, essentially, a 9 and 5/8ths with a 7 and 5/8ths liner in it with no idea of its current status. And my concern is this, is the interval in the aquifer. And at this point I hear a discussion that being done with CBLs is to run the cement bond log after attempting to do the squeeze. How are we going to determine the shape of that squeeze if we have double

casing and double cement?

MR. McMILLAN: That's a fine question. Mr. Moylett, would you care to address that?

THE WITNESS: I would have to give that to Mr. Moore. It's not designed to frac, I mean the completion program.

EXAMINER GOETZE: Okay. Then I have no other questions for the geologist. Thank you.

THE WITNESS: Okay.

EXAMINER GOETZE: Let's bring Mr. Moore up. The geologist ran away very fast --

THE WITNESS: I didn't --

EXAMINER GOETZE: No. Your presentation was very thorough. And, in many cases, this is what we're looking for when we do get an application. Unfortunately, bringing you in here to do it is an indication of maybe somewhere along the line the applicants will get the message that we do have to look at the Denver Mountain group. And you've been here enough to know about that.

THE WITNESS: I'm not trying to leave early. I just heard the school bell ring and it's recess.

BILLY MOORE

having been previously sworn, resumes the stand:

EXAMINATION BY EXAMINER GOETZE:

EXAMINER GOETZE: Mr. Moore, you are back in the seat. You have been sworn in. Let's discuss the old casing of this well and what we are going to do to determine whether we've had a successful squeeze.

THE WITNESS: Okay. I believe that with the second CBL we should -- the second cement bond log we should definitely be able to determine that with cement behind pipe and holding that injection interval.

And the basins that we came up for with that platform was discussed with Randall Hicks, and, if we needed to, in time we could get that. And he was the one who assisted in making sure that we knew that the Ogallala Basin was there and that our Redbed group was there, from which we're producing our fresh water out of as of now.

EXAMINER GOETZE: That still leaves me with this problem of having had a top squeeze and a squeeze through the DV and a ream-out and a liner run, having a reflective surface that is not going to give me a very good cement bond log, regardless of -- my penetration may not be there to differentiate how successful your remediation has been, your remediation squeeze. This leaves us in a little conundrum as far as being able to assess that squeeze in its success, especially in light of its location.

MR. McMILLAN: Is there, Mr. Hearing Examiner, additional evidence that the Division would like to see in this regard?

EXAMINER GOETZE: I don't know. I have gone through this exercise with some other operators, and we are pushing the limits of sensing with a CBL the effectiveness of a squeeze job on this to make sure that the aquifer is sealed off. But at this point, we really don't have anything more to offer as far as that.

THE WITNESS: At what depth are you seeing that the aquifer comes through?

EXAMINER GOETZE: Even in your own well, to the north. Let's see. Where are we at? 2133, Section 29, you've even put it in your C-105 with regards to the top of Capitan at 3878. So I imagine it's pretty much in the same area, the same proximity.

So a 9 and 1/2 production casing, we have a calculated top of cement at 8314, and we are hoping to reach surface from that -- at least from the area which you are going to have injection, which, I believe, based on your diagram in 2899, is roughly in that neighborhood.

So we also saw a squeeze of the 9 and 5/8ths -- so we have a little bit of -- your diagram has a little bit of an issue here so we're not showing the

liner that was put in to patch the hole identified in, I believe, it's 74.

THE WITNESS: In the bottom half?

EXAMINER GOETZE: Yes, that's correct.

I would recommend you folks address that issue. At this point, I have concerns that we may not see the success or failure of your remedial cement work without having an alternative determination method or some sort of plan from you folks to show that placement has been done and done correctly.

And I would hate to have to rely on an MIT done every five years to find out if I do have a casing issue or if the cement was not properly placed.

MR. McMILLAN: Mr. Hearing Examiner, in light of your comments, perhaps the best thing to do would be to ask that the hearing be continued two weeks and that we supplement the record with appropriate evidence?

EXAMINER GOETZE: I would appreciate that. And I would give you the opportunity to think about this and I would also ask you to clarify your AOR well diagram. It is quite congested.

I didn't have one in the original application, I think, but that may be an error on my part. But we will take a look at that one again in more

detail and if I have any questions on that -- again, making sure that we are cemented across interval or at least top/bottom, so that we do not have behind casing issues. So at this point we will defer this to the next hearing as far as addressing this issue.

MR. McMILLAN: Given that our landman made the trip --

EXAMINER GOETZE: Oh, yes. I mean I'm not going to send him away. He made the trip. He could have come twice, but you took that away from him.

MR. McMILLAN: He will find another reason to come to Santa Fe.

EXAMINER GOETZE: So go ahead, Mr. Moore, take a look at that and see what you can come up with. Meanwhile, bring your landman up.

BRIAN HALL

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. McMILLAN:

Q. Mr. Hall, would you please state your full name and place of residence.

A. Brian Hall and I live in Odessa, Texas.

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

A. BC Operating as a landman.
Q. Are you authorized to testify on their behalf BC Operating?
A. Yes.
Q. Have you previously testified before the Division and had your credentials accepted or made a matter of record?
A. No, I have not.
Q. Can you please give us a brief summary of your educational background and work experience.
A. I graduated from Stanford University in 2004 with a double major in political science and sociology. I have been working at BC Operating for three years and nine months. And I have been working in southeast New Mexico exclusively for the last three years.
Q. Are you familiar with the application filed in this case?
A. Yes.
Q. And are you familiar with the lands that are the subject of this application?
MR. McMILLAN: Mr. Hearing Examiner, I would tender Mr. Hall as an expert landman.
EXAMINER GOETZE: We don't get many people from Stanford, so you are so qualified.
MR. McMILLAN: He can tell you about his

experiences playing baseball at Stanford, too.

EXAMINER GOETZE: No, we don't want that. I just showed my age. Proceed.

Q. Please identify for us the surface ownership of this location.

A. The surface ownership is owned by the Merchants Livestock Company, Inc.

Q. Have you had communications with Merchants Livestock, Inc.?

A. I sure have, yes.

Q. And have you come to an agreement with the surface owner with respect to this wellbore?

A. Yes.

Q. Can you describe for us, in broad strokes, the contours of that agreement?

A. The surface use agreement is an agreement -- I mean the saltwater disposal agreement is an agreement that is in place for a period of twenty years for this specific wellbore. It will allow us five acres to conduct our saltwater disposal activity.

As part of that agreement, we will pay him a specified royalty based on the injection of water and skim oil recovered, and we also pay him a minimum royalty if the injection numbers are not met.

Q. Do you have a copy of the saltwater and

nonhazardous oil and gas waste disposal agreement with you here today?

A. Yes, I do.

Q. And have you redacted that agreement; and, if so, can you tell me what was redacted generally and for what reason?

A. The agreement was redacted due to the fact that we did not want to put into public record the terms of the agreement as to the royalties that are agreed to and as well as the minimum payment amounts. Everything else is still in the agreement as originally...

MR. McMILLAN: May I approach with copies of that agreement?

EXAMINER GOETZE: Please.

MR. McMILLAN: Again, it is the redacted copy.

MR. WADE: It's marked as Exhibit 21?

MR. McMILLAN: Yes.

MR. WADE: And this is just being tendered to show that obviously --

(Interruption.)

MR. McMILLAN: I would ask at this time to -- I ask for the admission of this exhibit.

EXAMINER GOETZE: Exhibit 21 is so entered.

(BC Operating, Inc., Exhibit 21 was offered

and admitted.)
BY MR. McMILLAN (resumed):
Q. Mr. Hall, is it your understanding that by virtue of this agreement you secured the right to use this well for injection purposes?
A. Yes.
Q. With respect to notice looking at Exhibit 3, the C-108 -- this is following up on the Hearing Examiner's question regarding notice -- let's look at the 22nd page of Exhibit 3, is this proof of notice that was submitted with the C-108 filing?
A. Yes.
Q. What form of notice was sent?
A. It was sent by certified mail. It was the entire C-108, and it was received by each of the offset operators.
Q. And the C-108 checklist requires notice to offset operators, correct?
A. Yes.
Q. And each of these entities reflected on page 22, those are the offset operators of the location?
A. Yes.
Q. Did you receive any objections to the application pursuant to the notice that was provided?
A. Yes.

Q. Which entities objected?
A. Devon Energy sent in an objection as well did Amtex Energy.
Q. Did Devon withdraw it's objection?
A. Yes.
Q. Did Amtex enter an appearance in this case and file a prehearing statement?
A. Not to my knowledge, no.
Q. As of the date of today's hearing, are you entirely clear as to the specific objections Amtex might have?
A. No.
Q. To the extent necessary -- let's see. Page 22 of Exhibit 3, that's a true and correct copy of those return receipts, correct?
A. Yes.
MR. McMILLAN: And to the extent necessary, I would tender Exhibit 3 as an exhibit, Mr. Hearing Examiner.
EXAMINER GOETZE: I think we covered 3 already. We are just highlighting the notice portion of it.
MR. McMILLAN: Yes, sir.
EXAMINER GOETZE: Okay.
MR. McMILLAN: That concludes my direct

examination of Mr. Hall.

MR. WADE: Well, the only concern I have regarding notice is I believe you referred to these operators as offset operators.

THE WITNESS: Or on the lands, yes, sir.

MR. WADE: The lands within the one-half mile radius area of --

THE WITNESS: Yes, sir.

MR. WADE: And these are everybody?

THE WITNESS: This is it.

MR. WADE: Okay.

MR. McMILLAN: But I guess I should clarify. BC Operating also owns the west half of section 34, so we didn't give notice to ourselves.

EXAMINER GOETZE: I have no questions for this witness. So at this point, is there anything else you would like to present?

MR. McMILLAN: That's it.

EXAMINER GOETZE: Okay. We did have a petition for pro se --

MR. WADE: Who will comment --

EXAMINER GOETZE: At this time, Mr. Savage, please come up.

MR. HALL: Mr. Examiner, did you receive the petition --

EXAMINER GOETZE: No. Just a request.

MR. HALL: Just a request?

EXAMINER GOETZE: Just a request. I used the term loosely.

MR. WADE: And for the record, we are going to admit the documents that Mr. Savage -- we already discussed this prior to beginning, we are going to admit the documents, but we should mark them in some way.

And I understand that these are already within your exhibits anyhow, but we will go ahead and mark the four pages as I guess Mr. Savage's Exhibit 1.

MR. SAVAGE: Yes.

(MR. SAVAGE EXHIBIT 1 MARKED FOR IDENTIFICATION.)

MR. HALL: For the record, Mr. Examiner, we have no objection to Mr. Savage making his statement; we do object to technical testimony. We'll have a standing objection throughout his comments; to the extent commentary becomes technical testimony, we would object.

EXAMINER GOETZE: So noted.

WILLIAM SAVAGE

having been first duly sworn, gave the following comments under oath as follows:

STATEMENT OF WILLIAM SAVAGE

MR. SAVAGE: Before we go into the two

things I'm objecting to, there was an Exhibit I brought that I have not presented but because of a statement made previously, I think it would be pertinent to point out that the United States Department of the Interior or Geologic Survey Map shows clearly that the proposed Pearson No. 1 SWD Well is in the Capitan Reef.

And it is directly shown by this map (indicating). That is where it is.

And would you allow me to present this as a second exhibit?

MR. HALL: We would object to that.

MR. SAVAGE: This is a U.S. Geologic Survey map by the Department of Interior.

MR. WADE: You probably don't have extra copies of that, do you?

MR. SAVAGE: I don't. But I can send more --

MR. WADE: I'm sure they've seen this map --

MR. SAVAGE: The Capitan Reef is well defined and a known geologic structure. And its outlined and specifically shown on this map and recognized in all geologic circles as such.

MR. WADE: And if you will allow, Counsel, they already objected. But if they can take a look at it and then you'll take a look at it.

MR. McMILLAN: We have a standing objection, but I don't see how this is anything but technical testimony at this point.

EXAMINER GOETZE: Well, the only thing we are going to do is make reference to it. I believe this is -- let me see the document. We will just make it -- yes, it's the -- this is 1976 map and at this time it was the New Mexico Bureau of Mines and Minerals Resources, Resource Map No. 6. And it will it be noted in discussion in testimony.

MR. WADE: So in other words, rather than be entered as an exhibit, it is a well-known document.

MR. SAVAGE: Yes, it's a public record.

Mr. Examiner, do you want me to state my name and credentials or anything?

EXAMINER GOETZE: You want to make a statement and that's what we are going to put in the record. And as long as we are not dealing with technicalities, you're going to make your peace here right now.

MR. SAVAGE: Okay. I am William J. Savage. I am owner of Amtex Energy, and Amtex Energy is the lessee of section 33 where this well is located and proposed to be re-entered and implemented as an injection well.

I am an engineer. A graduate of Texas A&M in 1980. Worked for Amoco seven-and-a-half years. And in 1987, I founded Amtex Energy. And we have been in business for 28 years. I do all the engineering work for Amtex Energy.

What I am going to specifically focus on today is I'm concerned that the mechanical condition of this wellbore is -- poses a significant risk to the Capitan Reef Aquifer and other potential risks for shallower aquifers than the Capitan.

And I am specifically going to state for the record that that risk is interpreted from the four sundry notices that we are going to go through that are of public record at the OCD.

These sundry notices began with the sundry notice dated February 25th, 1974. And in that public notice, it is where they set a 7-and-5/8ths-inch liner. That operation was done with the drilling rig on the hole while the well was drilled.

In that operation, the top of the liner was approximately 4,939 feet, which put it overlapping the 9 and 5/8ths intermediate casing by 74 feet, because the 9 and 5/8ths casing is set at 5,035 feet.

So we have a liner set and then -- approximately, 42 days later, thereabouts, some 40 days

later, they have come in and had to run a scab liner on top of that liner, which was cemented in place.

Now, one thing about that first liner set February 25th, in the middle of the commentary, it talks about they tested the top of the liner and it would not hold. So they squeezed the top of the liner with 150 sacks, so that would have gone over the top of the liner and outside the 7 and 5/8ths, between the 7 and 5/8ths and 9 and 5/8ths casing, and shut off any communication at that point from above, because after they did that squeeze, they then tested the liner top again to 2,000 pounds and it held.

Then we move 40 days later, the drilling rig has been drilling much deeper. And it states clearly that the running scab liner, in order to repair a hole which developed in the 9 and 5/8ths casing, that the following 7 and 5/8ths liner was run.

Now, when you have a drilling rig on the hole and you've had a rotation of the drill pipe going on for many days like this, it is not uncommon for a hole to develop in the 9 and 5/8ths liner. It is simply the tool joint of the drill pipe wears holes in the casing itself.

So this is not an uncommon occurrence, and it did occur. And that occurrence prompted them to run

another liner of 7 and 5/8ths from the top of the previous liner at 4939 all the way back to surface, and then cement it in place, and thereby further shutting off any communication tract to be able to circulate on the outside of the 7 and 5/8ths to surface and between the 9 and 5/8ths.

And then there is a third sundry, which basically reiterates and recaps the liner sets and the dates of February 15, 1974, and then March 27th, of 1974, some 42 days later.

And then the third sundry notice goes on and it talks about where the plugs are set in the plug and abandonment procedure. And it goes through that. And when you get down to step No. 8, they pulled the tubing and perforated the 7 and 5/8ths inch liner at 615 feet. They reran the tubing and they circulated between the 9 and 5/8ths and 7 and 5/8th inch liner because they had not gotten cement previously to surface.

They then squeezed between the 13 and 3/8ths surface casing and the 9 and 5/8ths casing annulus 50 sacks of cement. And then they cemented inside the 7 and 5/8ths, between the 9 and 5/8ths and 7 and 5/8ths annulus with 615 feet of cement all the way carried to surface. And then they set inside the 7 and 5/8ths inch liner at 615 feet a 75-sack cement plug.

And based on the exhibit that I was sent by certified mail from BC, their exhibit shows the perforation of what -- the perforations were placed inaccurately in that the perforations for that 650-foot depth are actually showing to be perforated in the 9 and 5/8ths casing. And the squeeze job goes on outside the 9 and 5/8ths casing; whereas, the actual perf should have been put in place and shown in the 7 and 5/8ths casing and circulated all the way to surface at that point.

And because of the fact that there is a first liner set, February 15, 1974, a scab liner all the way back to surface set, March 27th of 1974, and then at plug and abandonment circulated cement from 615 feet all the way to surface on the outside of the 7 and 5/8ths inch casing, the cement of the 7 and 5/8ths casing has totally been blocked in both at the bottom, near the intermediate shoe, and at the top, but that leaves a void in the middle of the 7 and 5/8ths.

And the 7 and 5/8ths was put in place to seal off a hole in the 9 and 5/8ths, the immediate casing that is most likely somewhere in the vicinity of potentially one of these aquifers.

And there was no mention in the record of the sundry notices of the 9 and 5/8ths ever being

squeezed or any attempt to find the hole exactly where it was and squeezing it off.

So my concern here is that the condition of this wellbore and the placement of the cement in the current wellbore poses a very significant risk of future unknown contamination by the casing failing in the 7 and 5/8ths and then injection water going out through the intermediate casing through the hole that is documented of record in the sundry notices that occurred when the well was drilled.

The final concern is the block squeezing. There is no path to be able to circulate outside the 7 and 5/8ths casing fluid is incompressible and the squeezing of cement on a well that's been plugged since 1976, 39 years, is most likely going to just be pushed into the formation and frac the formation and not effectively go where everybody wants it to go, because it is sealed off above by these various liners and cement jobs that are done while drilling.

So I believe that the mechanical condition of the casing in this wellbore poses a significant risk to the Capitan Reef and other aquifers above. And that's the reason I oppose the Pearson Saltwater Disposal Well as being utilized for saltwater disposal purposes.

Thank you.

EXAMINER GOETZE: You're welcome.

MR. HALL: And we would renew our objection and just point out because of Mr. Savage's failure to abide by the Division's rules, that his comments do not constitute admissible evidence that you may base a decision on.

EXAMINER GOETZE: Counsel has noted in our rules that we can make a determination that a --

MR. WADE: -- somebody entitled to notice --

EXAMINER GOETZE: -- and in good standing and has a technical background can provide this type of evidence or type of testimony that we can consider.

I would say in total that it is redundant of what I see in review of your application, and it only reinforces what I think you folks need to take another look at and see that if we cannot determine the ability for you to successfully remediate the well, what alternative you can present that will demonstrate to us that we have a well that will protect what is probably our biggest aquifer down there.

MR. HALL: We will do that. We will supplement the record with that evidence.

EXAMINER GOETZE: Go and look at -- I would ask you to also include a proper well diagram reflective

of what we're seeing in the sundries.

MR. HALL: All right. And would presenting this by way of affidavit be satisfactory? Would you prefer a live witness?

EXAMINER GOETZE: No. Let's do this for real. This is a big effort on you folks. You have long term plans. You want to make this a commercial well. And when you say commercial, you want to make sure because -- not only for you but this is a commodity that can be sold and we want to make sure the next guy also has a good well.

MR. WADE: That being said, do you think two weeks is enough time?

EXAMINER GOETZE: We can give you --

MR. HALL: Seth's doing the work.

MR. WADE: Let's take a step back. Was there an answer as to whether two weeks continuance is enough time?

EXAMINER GOETZE: Yes, it is.

MR. McMILLAN: I'm sorry. With the caveat, I just want to make clear that we would be permitted to bring an additional witness with us next time. Are we bound by the set witnesses?

EXAMINER GOETZE: No, no. You have been requested by us to provide a better understanding. And

if you have more qualified people and better information, by all means bring it.

MR. McMILLAN: Okay.

EXAMINER GOETZE: The concerns raised by Mr. Savage have been noted by OCD in its review. So there is a redundancy here. And, again, we want you to be able to provide us a solution that is practical and you want to do.

We don't want to break the bank, but, at the same time, we don't want to come back here in five years and have a situation where you failed an MIT and I am asking, Where is that water going -- that we'll have a situation that both parties will be embarrassed to hear.

So let's go back to the drawing board and go back to your technical experts. You've done the very good side of demonstrating resources and our concerns about oil and gas and hydrocarbon potential.

Now let's look at the rules about the UIC Program, and that is a well that is protectable, of protectable waters. It's not a drinking -- it's something 10,000 parts per million or less TDS.

So let's schedule, bring what you can, and provide us with your best explanation as to how you think you can make this work.

MR. HALL: One additional question. Do you

need us to address whether or not this well is located within the Capitan Reef Aquifer Complex?

EXAMINER GOETZE: If you can't read Hiss's map, this geologist is not going to show up here. He's going to make you come down.

I plotted it on Hiss. And that's the first thing I do, when I do the screening of these wells, is to look at what aquifers I'm going to deal with.

I have no doubts. They are on the four reef area. And we're going through it. We have a lot of things that go through the reef and are still confident and good. And the problem is you have a reentry and we have to make sure that reentry is solid.

So let's come back in two weeks. If you have any questions, do contact us.

This is not a contested case per se, but let's make sure you got something that you feel comfortable with. And if you have any other questions for us, please inquire.

So we will go ahead and schedule this for the November 12th hearing.

And with no any further comment or questions from anybody in this case, we will take it as a continued case. And this so ends the docket for the day.

Thank you very much for your patience and staying around late.

(Time noted 3:10 p.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 15398 heard by me on October 29, 2015.

_____, Examiner
Oil Conservation Division

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

REPORTER'S CERTIFICATE

I, ELLEN H. ALLANIC, New Mexico Reporter CCR No. 100, DO HEREBY CERTIFY that on Thursday, October 29, 2015, the proceedings in the above-captioned matter were taken before me, that I did report in stenographic shorthand the proceedings set forth herein, and the foregoing pages are a true and correct transcription to the best of my ability and control.

I FURTHER CERTIFY that I am neither employed by nor related to nor contracted with (unless excepted by the rules) any of the parties or attorneys in this case, and that I have no interest whatsoever in the final disposition of this case in any court.

ELLEN H. ALLANIC, CSR
NM Certified Court Reporter No. 100
License Expires: 12/31/15