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

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

CASE 15307

APPLICATION OF OASIS WATER SOLUTIONS, LLC, FOR APPROVAL OF A SALT WATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

August 6, 2015

Santa Fe, New Mexico

BEFORE MICHAEL McMILLAN, CHIEF EXAMINER
PHILLIP GOETZE, EXAMINER
GABRIEL WADE, LEGAL EXAMINER

This matter came on for hearing before the New Mexico Oil Conservation Division, Michael McMillan, Chief Examiner, Phillip Goetze, Examiner, and Gabriel Wade, Legal Examiner, on August 6, 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

Ernest L Padilla, Esq
Padilla Law Firm, P A
1512 S St Francis Drive
Santa Fe, New Mexico
(505)988-7577
padillalaw@qwestoffice net

For Protester Charles Rand Briggs

Michael Danoff, Esq
Michael Danoff & Associates, P C
1225 Rio Grande Blvd , NW
Santa Fe, New Mexico 87104
(505)262-2383
michaeldanoff@questoffice net

FOR NEW MEXICO STATE LAND OFFICE

Katherine Moss, Esq
New Mexico State Land Office
310 Old Santa Fe Trail
Santa Fe, New Mexico 87504-1148
(505)827-5759
kmoss @slo state nm us

I N D E X

I N D E X (CONT'D)

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

Exhibits Offered and Admitted
OASIS WATER SOLUTIONS

Exhibits Offered and Admitted
STATE LAND OFFICE

E X H I B I T S

Exhibits Offered and Admitted
PROTESTER'S EXHIBITS

(Time noted 1 00 p m)

EXAMINER McMILLAN I call the hearing back to order I would like to call case 15307, Application of Oasis Water Solutions, LLC, for approval of a salt water disposal well, Lea County, New Mexico

Call for appearances

MR PADILLA Mr Examiner, Ernest L Padilla with the Padilla Law Firm in Santa Fe for the applicant in this case

I have one witness

EXAMINER McMILLAN Any other appearances?

MR DANOFF Michael Danoff, here with Randy Briggs, the nearest party who's a protester and he's our only witness

MS MOSS Katherine Moss with the state land office with one witness, Anchor Holm

EXAMINER McMILLAN Thank you Any opening statements?

MR PADILLA No Let me just explain this salt water disposal application In our view, it's an application that's -- it's a standard salt water disposal application

There are concerns, as I understand, from the land office that the proposed well is close to the Capitan Reef And the other protestants in this case, I

don't know what their objection is, to tell you the truth And I have received Mr Danoff's correspondence I think that's a competition type of protest Mr Danoff, he can speak to that

But I think we'll be able to show that there would be no damage to the Capitan Reef and that the integrity of this well -- which is going to be a brand new well, is going to prevent any migration of fluids into fresh water sources

With that, that would be my opening statement

EXAMINER McMILLAN Please proceed

MS MOSS Thank you

Well, as you know, the Commissioner of Public Lands is charged with taking care of the trust, the beneficiaries of which are mostly school children of schools of the state of New Mexico So he has to get money for the trust but he also has to protect the natural resources

While oil and gas produce at over 90 percent of the revenues for the trust, this case is about protecting the natural resources where Oasis has applied to drill a well in protectable waters

MR DANOFF We adopt the position of the land commissioner, we adopt their views But,

additionally, we are concerned about the prior well of the entity before and the fact that it's not been cemented and caution was not taken to not contaminate the environment We have some concerns about that, not taking place In addition to that, my client comes here with that concern not as a competitor but as an individual who has concerns about that

EXAMINER McMILLAN Please proceed

MR PADILLA I want to call my first witness

APPLICANT'S CASE-IN-CHIEF

JAMES CHRISTOPHER WILLIAMS

swore to the truthfulness of his testimony that herein follows

DIRECT EXAMINATION

BY MR PADILLA

Q Mr Williams, please state your full name

A James Christopher Williams

Q Where do you live?

A Hobbs, New Mexico

Q What have you done to prepare for your testimony here today?

A I reviewed all the information that OCD put together, and what I would have normally reviewed for it at OCD when I worked there

Q Let me ask you what your -- what is your educational background?
A I have a bachelor's in petroleum land management I have 1,100 hours of engineering training through Shell Oil And I have NACE training too
Q What is your work experience in the oil and gas industry?
A I worked for Shell Oil for almost ten years
Q Doing what?
A As the gas gathering foreman over at Notreez, was my final job I had done several different things there And then I worked for Hunt Oil for three years And there I was -- my title was an engineer in training
Q Did you work with salt water disposal wells?
A Yes
Q Where did you work?
A In Hobbs mainly We had some in Texas, too
Q When you say "we," who is that?
A I was thinking in terms of OCD and Shell, both
Q Okay You worked for the Oil Conservation Division?
A Uh-huh
Q And what was -- what did you do?
A I was the district supervisor in Hobbs, New Mexico

Q How many salt water disposal applications or -- did you handle?

A Over eleven years there, we probably handled over 4,000 And that includes me and Paul Kautz

Q Who Paul Kautz?

A The district geologist

Q And are you familiar with the location of the Capitan Reef?

A Yes

Q Are you familiar with drilling in the proximity or through the Capitan Reef?

A Yes

Q Can you explain your experience in dealing with the Capitan Reef?

A The Capitan Reef -- over the years, the casing designs have changed in the reef It used to be to drill, you know, two casings in there We went to three when I came down there And it is my understanding now there's a -- we go to four strings through the Capitan Reef

The Capitan Reef, I used to work with Shell on the west Texas water supply system, which is all reef water And the water there was what we termed as brackish It had high chloride concentrations

And the Capitan Reef has pockets of pretty close

to fresh water But then it also has more pockets of brackish water And I assume, because I am not a geologist, that that is due to faulting in the reef

Q Mr Williams, have you previously testified before the Oil Conservation Division?

A Yes

Q In regulatory hearings?

A Yes

Q Did those involve saltwater disposal wells?

A Yes

MR PADILLA We tender Mr Williams as a regulatory specialist in oil and gas

EXAMINER McMILLAN Any objections?

MS MOSS No

MR DANOFF We have no objection

EXAMINER McMILLAN So accepted

Q Mr Williams, let's turn to Exhibit No 1 And I ask you to identify that and tell us what it is

A It's a C-108, application to inject

Q And who submitted this to the OCD?

A Eddy Seay

Q And who is Eddy Seay?

A Eddy Seay is an ex-OCD employee that does a lot of consulting work for different companies

Q Do you work with him from time to time?

A Yes
Q And how did you become associated with this application?
A Eddy is ill and he asked me to come up here and take his place
Q And what did you do to review his work and the application?
A I went through the well file -- the well file on the old well And then I had discussions with the district supervisor in Hobbs -- Maxi Brown and Paul Kautz are geologists there -- to talk about whether we thought the Capitan Reef was connected
Q And did -- let's turn to this first -- let's go to the second page and ask you what that is We are going to take it on a page by page basis
A Okay It's a half-mile radius around where the new drill is going to be And we look for wells where the formation is
Q Okay This is a standard half-mile radius disposal well, right?
A Yes
Q And going to the last -- let's take it page by page And then we will come back Let's go to the next page, and have you tell us what's on that page
A It's basically the well data for the new well

And they have schematics enclosed The injection formation is going to be the lower San Andres, new drill, and the next higher is the upper San Andres at 3,700 And the lower producing is the Glorieta at fifty-one

They plan to drill this well, run, circulate three strings of casing of TV at 4,900 And open hole from 4,170 to 4,900 And then run four and a half tubing inside the casing And then they plan to inject 20,000 barrels a day

Q And that's a lot of water, is that right?

A Yes

Q Do you know if there are any wells that are injection wells now that are injecting at high volumes?

A Yes, there's a few I think Piper's Well is probably injecting that much, Piper Petroleum, that much right now

Q And who is Piper Petroleum?

A The people at the hearing

Q Okay And how far away is their well, do you know?

A About four miles maybe

Q Let's go to the next page What is relevant to this application here?

A It's a casing design and what they're going to

use to shed everything off

Q And is that shown on the following page?

A Yes -- no That just talks about they are going to use the Air Set Packer, just general down hole equipment

Q Is that standard or is that better or --

A For injection wells, yes, we normally use packers with them, because you can treat the back side and help prevent some of the corrosion problems that they have

Q Why is corrosion a problem with injection wells?

A Well, because a lot of the waters that are brought in to be injected, especially on the internal tubing, have high concentrations of H2S -- which turns to basically sulfuric acid

A lot of them have high concentrations of CO2 -- which also makes another type of acid You know, you have to watch the scaling tendencies, because you try not to scale up an injection well

So there's a lot of damage And then inside, you want to protect the outside of the tubing So you run -- you stick it in a packer basically and then you circulate the packer fluid, which is a corrosion inhibitor all the way up to the surface

Q Is this well going to be protected in that manner?

A Yes
Q Where on this page is that said?
A It's not said on this page
Q Where is that said?
A It's not It's what I talked to the district supervisor about And he and I both agreed that that's the way it has to be done
Q So it would still have to pass muster with the district office?
A Right
Q -- as to what the --
A We'll do the -- sorry, the district office will do the pressure test
Q Is that what they did when you were there?
A Yes
Q When you ran the district office?
A Yes
Q The next page, side two, has something up there that is curious to me, Type of packer Stainless steel Arrow Set What does that mean?
A That's a type of packer that you can buy It is not -- it is no different really from like a Baker packer or any other packers They just squeeze off the zone above the formation
Q Okay And the injection formation is lower San

Andres?

A Right

Q What is the ability of the lower San Andres to absorb water, to take water?

A After talking with Paul Kautz at the office, most of that area, that lower San Andres will take fluid on the back end

Q So there's no pressures to worry about?

A No, not to contend with

Q And the name of the pool is the Monument?

A Uh-huh

Q Yes?

A Yes

Q Let's turn to the next page And tell us, this list of wells, what is that intended to show?

A This is the list of wells inside that half-mile radius

Q And how many wells are active?

A Ten

Q And do those produce from the lower San Andres?

A No They produce from the upper San Andres

Q Next page Another schematic, what does that show?

A This is the schematic that was on the other pages before, but just easier to read and see

Q What is shown in red?
A Those are all the casings plus on the outside of the casing it shows cement
Q So this is not like a typical oil and gas well that is cemented at various levels?
A Right
Q This is cemented all the way through on every piece of pipe --
A Yes
Q -- that --
A From top to bottom or bottom to top
Q Is this typical for salt water disposal wells?
A Three strings, not necessarily But two strings is what most of them have been drilled in that area and completed with over the years
Q Is this a better completion than two strings?
A Yes, it is
Q The next page has a list of I think water samples, is that what that is?
A Right
Q Explain to us what that is intended to show
A That is just the chloride concentrations that they've either pulled from other well bores in the area and the chlorides are really -- it's kind of a sticking point for everybody

And the chlorides seem to be pretty high, but those are different -- the problem is those are in different formations And the Key is not the same thing as the San Andres The Grayburg is probably close

It's just a chloride concentration table, just wells in the area

Q So basically what you're saying is that the waters -- this list is a list of waters that may go into that well, is that right?

A Right

Q So what's there in the lower San Andres is not necessarily --

A The same --

Q -- what they may put in there?

A It may not be

Q Is there any reason to worry about that kind of thing?

A Yes Normally, what you would do is before you -- after you drill the well, you will take a water sample, from the formation, take a water sample take a water sample from your tanks that you are going to inject from And you would compare them to see if there were any scaling tendencies between the two different waters The biggest problem is like I said before with injection wells was the scaling

Q If you have waters that are --
A Compatible or incompatible?
Q Incompatible --
A Well, you don't want to take them You would rather them be sent to somebody else who has water that is more compatible with that type -- with the other water
Q So do you know what plans the applicant has, Oasis, with regard to incompatibility of waters?
A No But under the rules, you really need to have that done before it's approved through Santa Fe
Q So what's approved through Santa Fe?
A I'm sorry After the well is drilled -- Santa Fe -- let me rephrase
We used to require that so we could look at the compatibilities of water, and then when somebody came in and said, Okay, we are pressuring up or whatever, we would have an idea that they may be -- they may have just scaled off that interval
So that just means either an acid job or a converter job and an acid job, whatever
Q Who sees, who regulates whether scaling is occurring or not occurring?
A Nobody actually regulates it other than the OCD when they require them not to take that type of water

Q So that is up to the district as far as you know to --

A It used to be, but it is probably now up here They would have to look at it and make that decision

Q Okay So there could be some incomparability, but you can't find out until you take --

A Until you take a sample, yes

Q Is this any different than any of the salt water applications?

A That I've reviewed, no

Q What's the following page, the one that --

A This is from Cooper Water Well No 1 And they took -- it is basically a fresh water sample Whether it is drinkable or not -- it's probably not But it's potable, and it can be used for cattle and horses and stuff But it's just basically a water sample of a water well in the area

Q How far away is this well?

A I don't have any idea right now

Q I take it it is in the vicinity?

A Sorry?

Q It is in the vicinity?

A Yes, it will be close

Q The next page is a map of groundwater Explain to us what that shows

A This shows depths to the top of groundwater in these sections, townships, and ranges

Q There's a circle about the middle of the page colored in red

A That's where the Anderson No 1 is

Q And which well is that?

A That's the original salt water disposal well, which this one will hopefully replace

Q All right And how was the fresh water shown on this map protected from this Anderson well?

A Well, it is not on this map The Anderson still has a surface casing that was cemented to surface a long time ago according to all of our files

Q This indicates that this Anderson well was used as salt water disposal well --

A Right, and it was drilled through this fresh water zone

Q Okay The next page, what is that? It is a letter

A It looks like a letter from Eddy to -- not right -- a letter to himself This probably went with the permit and was attached to it, so that the OCD in Hobbs and the OCD up here would know who to get in contact with as far as information on this

Q And the next page has to whom the notices were

sent, right?
A That's correct
Q And the following page also has a colored map of the ownership?
A In the different sections, yes, sir
Q And that is within a half mile, is that right?
A Yes It is also -- it also has some that are offset from that half-mile radius, too
Q To your knowledge, is Amerada, XTO, Chevron or Apache opposed to this application?
A No
Q And than the others are just simply return receipts of mailings, is that right?
A Right
Q Mr Williams, let's turn our attention to -- before we do that, let's look at the last page, one concern about notice in this case And this legal publication was published in the Lovington Leader?
A Yes, sir
Q Is that in the area?
A Yes
Q Is that in Lea County?
A Yes It is 18 miles north of Hobbs
Q Okay To your knowledge, has anyone responded to this publication legal notice?

A Not to my knowledge
Q Let's turn to Exhibit No 2, and have you tell us what that is
A It's a map of the Capitan Reef
Q Where did you get this map?
A I got this from Eddy Seay And he got it from the Oil Conservation Division
Q How does the Oil Conservation Division use this map?
A This is one of the four string areas, that you have to have four strings inside -- these red lines are mine
Q Let's tell the Examiner what the red lines are on this map
A They are the outer boundaries of the Capitan Reef
Q And where is the reef shown on this map?
A (Indicating) Right through here
Q Is that the dark --
A Yes, the darker part
Q Okay And it looks like there are a number of wells, a lot of wells drilled through the Capitan Reef, is that correct?
A Correct
Q Did those penetrate the reef or are wells drilled

through the reef?

A If you are going to drill in this area, you will drill through the reef and you will protect it with cement and casing

Q Okay So we have a whole bunch of wells that are drilled through the reef?

A Right

Q You have drawn a red spot on this map Is that the approximate location of where this well is going to --

A Yes It is the approximate location of the new, Cooper 17

Q How far away is that well from the outer limit of the reef?

A I am guessing it is probably six miles

Q And how do you determine whether -- let me ask you this This is a structure map, right?

A Correct

Q On top of where?

A This is -- these are like the top of the Yates, is what the structure is actually

Q How does this help us in this case?

A Well, it helps us to know where we are We don't want to drill in the Capitan Reef unnecessarily

And I will point out one thing There are

already injection wells in the Capitan Reef Been there a long time

Q What information do you have that tells us that this well will not affect the Capitan Reef?

A I don't have any information showing that it's hydraulically connected or would be

Q In your investigation of this application, did you find anything in talking with the district geologist that there would be any communication between --

A Yes, I talked to Paul about that And he said they've never seen any there

Q Any what?

A Any communication Once you get passed, say, a mile or so from the reef, never seen any communication

Q In your experience, what is a lateral length for one of these salt water wells, in other words, the lateral extent of where the water spreads?

A That's very hard to determine You have to do some well bore studies and you've got to get a reservoir engineer to take a look at it and say, Okay Permeability and porosity is what would determine how far it could go

Q But did you -- do you know what the porosity is in this area?

A No It's going to be pretty high if it will take

that much fluid Permeability's got to be high, too

Q If we are talking about a six-mile distance from the reef, have you had any experience where an injection well -- a flow from an injection well is going to be six miles?

A Okay

Q Laterally

A No, no

Q What is your best estimate as to what the lateral extent of --

A I could give you an estimate but that's all it is, it's just a guess

Q Okay

A I guess it could go as far as a mile or two

Q Do you know of any faulting in this area?

A The Capitan Reef has areas that are faulted But nobody has ever really done a real inclusive reef study, you know, to -- U S G S did a lot of work, but on where the faulting actually occurs

We just know from drilling wells in it over the years and outside of it that in some areas you have brackish water, some areas you have fresh water or fresh water by those standards

And nobody has really done a study on the faults that are in there

Q Is the water in the Capitan Reef fresh?
A Part of it is, yes
Q In this area in the location of the -- of this proposed well, do you know whether --
A I couldn't tell you without drilling another well down to the reef to find out
Q So you would have to drill --
A It would be either that or I'd have to go through all these well records in here and see if anybody else did drill through the Capitan Reef
Q What is your understanding as to the condition of the water in the Capitan Reef generally?
A Generally, it's generally brackish But certain areas, like I said, are fresh And Jal's city water supply is Capitan Reef water
Q Do you have any reason in your expert opinion to believe that there is going to be migration from injected waters into the Capitan Reef --
A I don't have any reason to believe that
Q Is there any injection into this water and their correlative rights in any way?
A They've notified all their offsets And I'm assuming they've notified the mineral interest and the people who would be involved in the correlative rights issues

Q Would approval of this application be in the best interest of conservation of oil and gas in your opinion?
A I believe it would be
Q Would you explain that?
A Because -- okay, the old well, the Anderson No 1 Well is in no shape to be drilled, recompleted, or anything else And it needs to be finished, plugged out They've already got several plugs in there
But talking to the district supervisor there, he said one of his conditions is you have to plug that well
Q But that's a separate issue?
A Right, right, it is But they -- it has been tied to this one
Q Tied how?
A Because basically what Eddy told me is they've been told that they will plug that well, you know And I don't know whether they are going to plug it before or after That's all I know now
Q Let's go to Exhibit 3 What is that?
A It's an APD, an application to drill
Q And that's pending approval?
A Right
Q And what does the APD show?
A It basically shows the location of the well,

county information, whether it is rotary or cable tool, and new well you know, well type is going to be salt water disposal

And its lease type code is patent And the rest of it is just normal information, like the casing sizes, how much cement they are going to use, where the estimated tops are on those cements

Q And that matches to the schematic that you talked about already?

A Right

MR PADILLA Your Honor, we move the admission of Exhibits 1, 2, and 3

EXAMINER McMILLAN Any objections?

MR DANOFF No

MS MOSS No

EXAMINER McMILLAN Exhibits 1, 2, and 3 may now be accepted as part of the record

(Oasis Water Solutions LLC Exhibits 1 through 3 were offered and admitted)

MR PADILLA And I also have Exhibit 4 which is my affidavit of service on this case -- hearing notice

EXAMINER McMILLAN Any objections to 4?

MR DANOFF No

MS MOSS No

EXAMINER McMILLAN Exhibit 4 may now be accepted as part of the record

(Oasis Water Solutions LLC Exhibit 4 was offered and admitted)

MR PADILLA I pass the witness at this time

EXAMINER McMILLAN Thank you Please proceed

CROSS EXAMINATION

BY MS MOSS

Q Good afternoon

A Hi How are you?

Q You mentioned that you had thousands of hours of engineering training

A Yes

Q But are you a registered professional engineer?

A No, I am not

Q What kind of background do you have in hydrology?

A In hydrology, just what I've learned by doing it

Q So when you were just speaking now about --

A I'm sorry

Q When you were just speaking now about the hydrology -- I just didn't hear you properly -- that was based on a conversation with whom?

A With the district supervisor that is there now

and the local geologist

Q And what is the district supervisor's name?

A Maxi Brown

Q And does Maxi Brown have a degree in hydrology?

A No, he doesn't He just has a lot of years

Q Are you familiar with the work of William Hiss?

A William Hiss?

Q Yes

A On what?

Q Particularly on hydrology and hydrology in this area

A I've seen some of his booklets I've never actually got into one

MS MOSS I think that might be all the questions I have

CROSS EXAMINATION

BY MR DANOFF

Q Sir, you said that the Anderson was related to this well You talked -- I wish you'd elaborate You said -- the two wells were related to each other plugging that well -- but you didn't quite finish -- from the standpoint, is that a prerequisite to the --

A Yes

Q It's a pre-condition to this?

A That's what they've told me

Q And how have you or Mr Seay addressed this? By that I mean have you submitted this or protected that well --

A No Eddy I know has sat down with Maxi, the district supervisor in Hobbs, and they've worked up a plugging procedure which I don't have

Q So you don't know, as we sit here today, what the plugging procedure or the procedures are with regard to this well and what the plans are for that, is that correct, sir?

A That's correct

Q And only Mr Seay would know that?

A Yes

Q And what is the relationship with Oasis to the predecessor well, Cooper Enterprises? What is the relationship, same owners or --

A It's the same owners, just different corporations

Q Does Mr Seay have any fiduciary interest in either of those --

A I have no idea

Q And relative to that also do you agree it is important to plug this well and cement this well for the environment and the surface as well?

A Yes

Q Do you know for a fact, have you observed the well, sir?

A No, I have not been there

Q So you don't really know firsthand whether it is going to be plugged or what remedial steps can be taken then?

A Based on the well file, its -- the plugging procedure has actually started They had to stop at a point because they had water flows through the casing And they are having problems shutting the water flow off So my initial thing would just be to go down 1,100 feet and perforate the larger casing

Q And as we sit here today, you really don't -- you are speculating?

A Right

Q You don't really know that?

A Right

Q What is the -- what happens if the well cannot be plugged or if it's impossible to cement the structure of it?

A The only thing you could do is go below the surface casing and perforate it and squeeze cement all the way to the surface again and the stuff -- squeeze outside of the casing to try to block anything coming back up to the fresh water

Q Would that be the same as cementing or --
A It's a cement job basically
Q How about the salt water? Do you cement all these holes or does it open up?
A I'm sorry
Q Does the salt water always hold with the cement or does it open it up?
A Not always
Q But it does sometime?
A It does sometimes, yes This one doesn't appear to do that, though
Q How long does the process that you described take generally?
A It could take two or three days if you want to do it right It depends on the tools, it depends on the cement, when you can get everybody there
Q Do you know why that hasn't been done, sir, as you sit here?
A No
Q So is there contamination through that well now at this time or you don't know?
A I don't know
Q Is there a pressure --
A A pressure maintenance project, yes, the Eunice Monument deal

Q And could that have an adverse effect on that?
A It depends on where the leaks are The Eunice Monument is going to be about 3,800 feet at max depth
Q But you don't know, as you sit here, whether it's going to have an adverse effect or not?
A No
MR DANOFF I pass the witness
EXAMINATION BY EXAMINER McMILLAN
EXAMINER McMILLAN The first question I got is have you talked -- have you had communications with Patsy and Innervest?
THE WITNESS I have not, no
EXAMINER McMILLAN Is there a barrier between the producing San Andres and your injection zone
THE WITNESS No, you would have to ask Paul Kautz in Hobbs He knows
EXAMINER McMILLAN So you are saying you don't know
THE WITNESS I don't know
EXAMINER McMILLAN Let me ask you a question about your C-108 Why didn't you give a water sample in here of the Grayburg, San Andres when the application that was done by Morris and Smith had one?
THE WITNESS Why didn't I?

EXAMINER McMILLAN Yes

THE WITNESS Well, I didn't because I wasn't asked to take a water sample

EXAMINER McMILLAN Why didn't you supply one in this application?

THE WITNESS What good would that do you to -- you'd have nothing to compare it to

EXAMINER McMILLAN They had a water sample of the Grayburg that was close Why wouldn't you in here?

THE WITNESS Well, they could But my question would be what would you compare it to

EXAMINER McMILLAN Because we could figure out whether -- the TDS out of it

THE WITNESS Oh, total devolved solids

EXAMINER McMILLAN Yes

THE WITNESS Well, never mind You could have done that, you'd get TDS

EXAMINER McMILLAN How would you be sure you are not going to create a pressure sink in the old Monument, San Andres wells? And if we approve of it -- is there a possibility of a pressure sink in there and watering out their production?

THE WITNESS There's always a possibility of a lot of things like that But I have not seen one

in that Eunice Monument field

EXAMINER McMILLAN And I assume the pressure you want is what's advertised?

THE WITNESS Yes

EXAMINER McMILLAN Why are you having an open hole instead of perfs?

THE WITNESS It is cheaper for one thing The other thing is it also -- this zone appears -- from what I've been told by Paul Kautz and some of the other geologists down there is this thing takes water on a vacuum and you don't have to perforate it

EXAMINER McMILLAN Aren't you going to be able to control your flow better?

THE WITNESS With perforations?

EXAMINER McMILLAN Yes

THE WITNESS Not necessarily

EXAMINER McMILLAN Go ahead and ask the questions

EXAMINER GOETZE Do I have an opportunity? Sure At this point the questions I have are not representative here of a person qualified to answer

My questions would be how is the separation of lower and upper San Andres such that we will not see impact to production that's existing there already

I would ask that counsel find someone to

provide that information to both address that issue and give us an idea if we are impacting correlative rights

The other item is that in the application, portion 11, we do have a fresh water well sample -- from where, we don't know where Usually when we do applications, we have a review of the state engineer's office records to see what information is in that one-mile radius and provide that information so we have at least an idea of the ground water in the area as well as if there is an opportunity for water sampling So at this point this application is deficient in that information

Upon looking at historical information provided by Oasis Anderson Well, we are seeing 10,000 barrels of water per day maximum, but we are requesting 20,000 barrels of water

I am seeing at this point it might be somewhat optimistic on the applicant's sight of getting 20,000 down without having some sort of impact

At that I will say I have no other questions because at this point this witness cannot provide me the answers I need

MR PADILLA Okay

EXAMINATION BY EXAMINER WADE

EXAMINER WADE I wanted to clarify,

piggybacking on those statements, that you qualified this particular witness as an expert in oil and gas administration?

MR PADILLA Regulatory practices

EXAMINER WADE Okay But the witness is not a geologist?

THE WITNESS No

EXAMINER WADE And you are not a hydrologist?

THE WITNESS No

EXAMINER WADE So you really can't testify as to whether correlative rights are going to be affected?

THE WITNESS Okay

EXAMINER WADE I am asking you

THE WITNESS No, I don't

EXAMINER WADE And whether fresh water supplies are affected?

THE WITNESS Okay

EXAMINER WADE It sounds to me like you relied on a lot of talk between the OCD district personnel, but you don't have the experience to testify to it

THE WITNESS No, but they do

EXAMINER WADE I guess I have a few more

questions, not for you in particular but for Mr Padilla It look looks like Exhibit 4 are the actual green cards giving notice?

MR PADILLA Yes

EXAMINER WADE And 4 will match with Exhibit -- I think it might be 3 that has the notices that were sent?

MR PADILLA Exhibit 2 Exhibit 2 was the administrative application notices and we matched those with --

EXAMINER WADE I think you are talking about Exhibit 1

MR PADILLA Sorry Yes, Exhibit 1

EXAMINER WADE So those should match

And then this question would be for both your witness and yourself The application was actually reviewed by you but prepared by Mr Seay?

THE WITNESS Right

EXAMINER WADE Did you personally check that all parties within that area of review --

THE WITNESS No, I didn't I assumed he had

EXAMINER WADE That's just an assumption you made?

THE WITNESS Right, right

EXAMINER WADE Mr Padilla, did you personally check that all parties --

MR PADILLA No

EXAMINER WADE So we don't really know that notice is sufficient?

MR PADILLA I notified every one of them in the half-mile circle as I understood the ownership to be

EXAMINER WADE Did you do the work to actually identify who should have been identified in that --

MR PADILLA No I did not do any title examination I relied on the administrative application

EXAMINER WADE On Mr Seay's work?

MR PADILLA Right

EXAMINER WADE I don't have any further questions

EXAMINER McMILLAN I have no further questions

EXAMINER WADE Would you like an opportunity to redirect?

MR PADILLA No I'm fine with the questions I asked, and I don't need to redirect I will pass

EXAMINER WADE May this witness be excused then?

MR PADILLA He may be excused

THE STATE LAND OFFICE'S CASE

MS MOSS The state land office would like to call Anchor Holm

EXAMINER WADE Did you indicate that you were wanting to enter the actual exhibits, in other words, the large exhibit?

MS MOSS That is okay

EXAMINER WADE I am trying to think how that would work logistically

EXAMINER McMILLAN I think it would be easier just to have this as a record (indicating)

MS MOSS Anyway you would like, I would be happy to introduce it I wasn't sure exactly and the difficulty I had is that the person who copied that can actually read it But since I can't read it, I thought we might need this

EXAMINER McMILLAN If we scan it, we can increase and decrease the size

MS MOSS It is already scanned and I can forward it to you I will just do it all at once, if that is okay

EXAMINER McMILLAN That is fine Thank

you

MS MOSS Thank you very much

ANCHOR E HOLM

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

DIRECT EXAMINATION

BY MS MOSS

Q Good afternoon Would you please state your full name for the record

A My full name is Anchor E Holm

Q And where do you work?

A I work for the New Mexico State Land Office as a petroleum and geological engineer

Q And did the state land office give you a copy of the application that Oasis made in this case?

A Yes, I did receive a copy of it and have reviewed it

Q And were you asked to give an opinion on whether or not the drilling of the proposed well was appropriate?

A Yes

Q And what was that opinion?

A My opinion was that the waters that they are going to inject into are protectable waters of the U S and the state of New Mexico and that they are brackish

water, less than 10,000 total, dissolved solids

EXAMINER WADE I didn't hear a protest as to giving an opinion, which I'm assuming is an expert opinion But can you lay a little bit more foundation as to Mr Holm's qualifications

MS MOSS I am just about to do that

EXAMINER WADE Okay

MS MOSS Okay

Q Because my next question is before you give your full opinion, I would like to talk a little bit about your experience and education Could you tell me a little bit about your education?

A I have a bachelor's of science in geological engineering which included a major, a dual major in engineering, both civil and in geology, with a minor in groundwater hydrology from the University of Arizona

Q And have you testified before the OCD as an expert witness in petroleum engineering?

A Yes Early in my career, in 1975, I testified for El Paso Natural Gas as a petroleum engineer

Q Since that time, would you tell us briefly about the main points of your experience which would be relevant to this case

A At that time I was a drilling engineer for El Paso Natural Gas, and prior to that, I'd worked for

Texaco as a production and a reservoir engineer

And later, I worked as a reservoir engineer for El Paso Natural Gas in El Paso I also worked as an evaluation engineer and a reservoir engineer is Midland, Texas, as well as in Denver, Colorado

And then I became a consultant after my first 18 years working for the Oil PAC, I started providing consulting services to them, mostly in reservoir evaluation work and then environmental work related to groundwater issues in the oil fields

And I expanded in my background on that, and I testified in New Mexico State Courts in Carlsbad regarding a salt water case that was in the Rustler Formation

Q Can I ask you if you recognize this?

A Yes This is a copy of my curriculum vitae which has the basis of all the work I have done in the last 45 years

MS MOSS I would like to introduce this into evidence

EXAMINER WADE And you are going to mark that as Exhibit?

MS MOSS As Exhibit 1

EXAMINER WADE I'm not sure how much we need to get into qualifications --

EXAMINER McMILLAN I don't think we need to --

EXAMINER WADE Maybe we can ask if you are --

MS MOSS I'm just going to ask the question I would like to have him qualified as an expert in petroleum engineering, geology, and hydrology

EXAMINER McMILLAN Any objections?

MR PADILLA No

MR DANOFF No objections here

EXAMINER McMILLAN So qualified

MS MOSS Thank you

Q Mr Holm, when you formed your opinion about this case, did you use other publications or refer to any other materials?

A Yes I have been working in the Permian Basin since 1988 on groundwater issues, both fresh water and brackish water

And I have looked at several different reports over the years, and, in particular, I've looked at Mr Hiss's work that he has done in the Capitan Reef and the water quality of the reef and the connected back reef aquifer that discharges into the Capitan and also has the Capitan Reef discharge into the back reef

And Mr Hiss in his studies demonstrated that

quite clearly

Q Can I ask you if you recognize this?

A Yes This is a copy of the article that is currently handled through the New Mexico Geological Society It was originally published in 1975 I believe -- or 1980, is when this was published

It's written by Mr W L Hiss, and it describes a movement of the ground waters within the Capitan Reef that has occurred during this geologic history, and explains why there are certain areas on the back reef that contain protectable waters of the U S

MS MOSS May I introduce this document as evidence?

EXAMINER WADE I don't have an objection at this point Mr Padilla?

MR PADILLA No, I don't have an objection

MR DANOFF No objection

EXAMINER WADE So what exhibit were we going to mark this as?

MS MOSS That's the question the court reporter was asking

EXAMINER WADE Oh

MS MOSS And it wasn't clear to me whether they were going to make Exhibit 1 the resume

EXAMINER WADE I think that would be fine

as well So this is Exhibit 2

MR DANOFF Both Exhibits 1 and 2 have now been received into evidence?

EXAMINER WADE That is correct

(New Mexico State Land Office Exhibits 1 and 2 were offered and admitted)

Q (By Ms Moss) So as part of what you looked at with Mr Hiss, can you identify this exhibit?

A This exhibit actually was prepared five years earlier than the paper that is presented here And it is included in his list of references as the reference number 1975-B under his name, chloride iron concentration in ground water in the Permian Guadalupian Rocks, South East New Mexico

EXAMINER WADE Can I interrupt you right there real quick Just so we can make the record clear You're currently referring to a map that is now on a board, a large scale map But we also have a smaller scale that we might as well mark as an exhibit so we can understand what we are referencing to

THE WITNESS Yes Because this is just an attachment to this document, but it is not actually included in the document right here

MS MOSS I think if this was called Exhibit 3, it would be great And the reason for that

is that all of the larger exhibits that Mr Holm will use are based upon this, but they come closer and closer with more and more detail

EXAMINER WADE Okay

Q (By Ms Moss) So before you speak about it, Mr Holm, if you would use your pen just to show where the well we are talking about is in case there's any --

A Just generally in the area here, up behind the reef, in the back reef area (indicating) So it is located southwest of Hobbs and northeast, as previously testified, about six miles or so, northeast of the back reef edge of the Capitan Reef

That's the -- that's the rock called the Capitan Reef It's not an aquifer

Q And what is it specifically that you found useful for this particular picture of the Capitan Reef and the surrounding area in reaching your conclusion?

A Mr Hiss was preparing his thesis on water quality in the Capitan Reef aquifer system and it is a multi formation system

He found that he had water samples in the back reef area and water samples within the Capitan Reef and water samples in the forereef area That would be on the Delaware Basin side

He found there was very little hydraulic

connection or flow between the Capitan Reef and the Delaware Basin deeper side And this edge is marked on this map as a solid line, which means it's generally a flow to ground water It's an aqui-tard It does not allow ground water to flow across it very easily

And that is pretty well demonstrated in all formations that are on the Delaware Basin side In fact, it's very consistent However, on the back side, it demonstrates that you have a dashed line And that dashed line that Mr Hiss put in there represents the back edge of the reef rocks that is permeable and ground water can flow from higher saline areas into the less saline areas over the Capitan Reef or it can flow out of the reef -- which would be moving fresh water which is coming in from the mountains, the Glass mountains down to the south in Texas It flows north up into southeast New Mexico

And it also comes from the Pecos River near Carlsbad and flows over the same area, and the hydraulic head here in southeast New Mexico is the low point in the high potentiometric surface of the Capitan Reef And water always flows from high to low

If it is not flowing into here, then why would it naturally go somewhere else? Well, before it discharged, it has done this over geologic time It

discharges up through the area underneath Hobbs and on out to the east, eventually daylighting somewhere near the west of the little town of Sweet Water, Texas

So it's a natural system that flows from the reef in the subsurface to other areas to the east And that is because you got higher elevations here and the river is higher also and so everything flows down hill to this point and then it exits to back reef

Q If I could use this --

A And Mr Hiss in his paper was very careful to point this information out And, in particular, on Exhibit 2, if you go to what they have listed as page 291 --

MS MOSS That is the other that I handed --

A It's about the second to the last page or so And you can see on the first -- on A and B, you can see how the water flowed from near Pecos

EXAMINER WADE If I can interrupt you, I am looking at 291, and I am not sure that it looks like what you're showing me right now in your hand This is -- what I have is 291

EXAMINER McMILLAN It's 293

THE WITNESS It's 293, you are correct I need my trifocals cleaned Sorry You are absolutely

correct

A But in figure A, it shows that your ground water is flowing from this area (indicating) going over and discharging out underneath what is currently today Hobbs

And both of them -- both A and B show that it's continued to flow up from the south and discharged into the same area And that's the natural system that we are within

Q So I would like you to look at what is now page 2 of Exhibit 3 and to just identify for me what this is

A This red triangle is the approximate location of the Cooper 17 No 1 Well

Q And what is it that you learned from this well bore chloride data?

A What this is is a blow-up of the previous exhibit looking only at what's in New Mexico, this southeast corner of New Mexico

So we are zooming in to see what has happened within this water, this discharging from the reef, and going out to the east as well as coming from Pecos River and discharging out

And you see that there's two lines on there One says five and the other one says ten And that's the

parts per million chloride content that Mr Hiss measured from various groundwater samples for both producing wells and water wells that he collected all his data from But I focussed only on the ones that are ten or less And I put them on this map

Q Would you repeat for the record why you focused on ten or less?

A The reason I focused on five and ten, at 5,000 chlorides the water is definitely less than ten thousand parts per million total dissolved solids

At 10,000, it's obviously a little bit over that, because chloride content can be as much as 7- or 8,000 chlorides in a sample that has a total of dissolved solids of only 10,000 So it varies depending on what ions are present

But what it demonstrates is there's a whole flow back in here of protectable waters of the U S that we are now obligated to protect this resource And it is a pretty good value to the state land office beneficiaries to protect that water And that's the reason we want to

Q Could you just define "protectable water"?

A Protectable water is anything less than 10,000 parts per million total dissolved solids as defined by the U S E P A and the Memorandum of Understanding with

the State of New Mexico

Q And what do you believe is the significance of that Memorandum of Understanding?

A It says that we are obligated to protect all water that we can use for potential fresh water sources and anything less than 10,000 back in the seventies was considered to be potentially usable for fresh water And that is the reason Mr Hiss did his study That's the reason he got involved in it

He looked at the geology, and then he looked at the aquifer to see what was happening And he did a very fine job of defining that, of what is the current situation in this portion of the rig and it's representative for probably the last 2- or 300 years or maybe 500 years as being representative of the water quality in this area

Q So for the record, even though you perhaps just said this, why is it that data from the 1970s is what you can use for today?

A The ground water flow right here is probably less than a 150 feet per year And so there is very little change in the water quality over time And there is no real new solutioning going on right here Otherwise, you'd would be getting much more chlorides

So, obviously, it's water that is flowing because

otherwise this water has permeability This formation is -- outside of this want to flow into there if this is lower pressure And we know it is lower pressure because that's where the flow path is So it is continuing to flow and flush the area to maintain it at geologic speed, which is not fast

It's not like a river But it works like a river Like the Pecos River itself, it dissolved the salt, and that's the reason that river has moved steadily to the east And that is also the reason it went up to Pecos, New Mexico, and stole the Canadian River from Texas and sent it south So that's how it works over geologic time

As the salt was dissolved by the river, then we went forward And, obviously, over there, the Pecos River is really good water quality until you get south of the Capitan Reef From that point on, it starts going down hill

And at Malaga Springs we have natural brine springs discharging into that river from primarily the Rustler Formation, which is the rock about the salts that collapsed down, and that's what causes it to move

And the reason there's very little salt water within ten miles of the Pecos River is the salts have been dissolved out So there are no more salts to

dissolve But it's continuing to move eastward And that's what this concentration map shows you

Q So I put up another exhibit while you weren't looking, which would actually be page 4 of Exhibit 3, because you were discussing the Rustler Formation

A The Rustler Formation overlies the Salado, which is a salt And when you get out into the Delaware Basin which is the south side of the reef generally, then you have Castile salts And these are all bedded salts, but they're -- two separate formations

Q Is this showing how the water can flow and mix between the different formations?

A Yes Over here, somewhere at the top of the Yates, might be somewhere around 11,800 feet in the proposed well The top of the Yates matches up with the top of the system at that particular location in southeast New Mexico, but compared to the elevation of the Pecos River, it's down hill It is down slope from the Pecos River so the flow is coming down the reef and out into the back reef at this particular point

So that's how it works This is also -- a structurally low area of the reef is where this discharge is going on into the back reef And that water flows down at high permeability

The Capitan Reef, if you dump water into it, it

will take it on a vacuum, thousands of barrels a day No problem at all By the way, you can do the same thing in the Yates

But if you get far enough removed from the reef, the Yates is not as connected as well to the Capitan But anytime in these back reef areas, if you got high permeabilities, you're connected to something with high permeability

And this by a factor of ten or more is the highest permeability rock out there And water always flows to the easiest pathway And then when it has to get away, it found a pathway and it took off under Hobbs and went east

Q I am just going to use page 3 of Exhibit 3 to help you conclude with how you reached your conclusion that the proposed well by Oasis will damage protectable water

EXAMINER WADE Can we clarify real quickly, because, in my packet, at least, and maybe mine is just different, that blow-up that you identified is page 2, and you were referring previously to something that you called as page 2, that I have as page 3

MS MOSS Thank you very much for clarifying that

Q So looking at page 2 of Exhibit 3, can you use

this to just summarize or conclude what you --

A You can see that the area between this line and that line, which are both 5,000 chlorides, the area in between is less than 5,000 chlorides And that's definitely protectable waters of the U S

When you look at the previous exhibit, that had the numbers on it, you can see --

EXAMINER WADE For the record, we are now on page 3 of Exhibit 3

THE WITNESS Okay Yes, sir And here is the location of the proposed salt water disposal well And Mr Hiss reported the condition of the aquifer at that point And you've got an area right here to the north, is 2,700 chlorides To the northwest is 2,400 chlorides, to the southwest is 3,500 chlorides, to the south is 5,400, and to the east, 7,200 So there is some variability within that

And you got to remember that the oil field has been operated in this area since about 1930 And this is 1970 data, in that vintage, is the data that he worked with, because he had to have studied it, gathered it, and then published his path in 1975 So it had to have been that 1970 vintage

And that says this was a condition of the Capitan Aquifer, and the aquifer includes everything

that's inside that ten line as far as waters that we should think about protecting And we are required currently to protect within the dark blue line of 5,000 And this is clearly within that area And it's clearly protectable water

MS MOSS I have no further questions

EXAMINATION BY EXAMINER WADE

EXAMINER WADE I would like to clarify again for the record that you were pointing to a red triangle, and that would be the location of the proposed well

THE WITNESS Yes, sir, the Cooper 17 No 1 as plotted by our GIS system, certainly much more accurate than I am plotting

EXAMINER WADE I think Exhibits 1 and 2 have been entered, and this would be Exhibit 3 so would you be moving --

MS MOSS I would move to have this packet --

EXAMINER McMILLAN -- which is Exhibit 3 --

MS MOSS -- which is Exhibit 3 introduced into evidence

EXAMINER McMILLAN Any objections?

MR PADILLA No

MR DANOFF No objections

EXAMINER McMILLAN Exhibit 3 may now be accepted as part of the record

(New Mexico State Land Office Exhibit 3 was offered and admitted)

EXAMINER McMILLAN Cross-examination

MR PADILLA Yes I have a few questions

CROSS-EXAMINATION

BY MR PADILLA

Q Mr Holm, as I understand your testimony relies strictly on the work of Mr Hiss, is that right?

A He has done the most recent and thorough study of the aquifer system that I'm aware of, yes

Q What is the most recent date of this work?

A The most recent study that I have seen done was done by Daniel B Stevens in late 2006 for the Texas Water Development Board, which had basically the same conclusions It had more detail into the geology but different --

Q You don't have that work here today, right?

A No, I didn't bring it

Q My question was whether you were relying strictly on the work of Mr Hiss?

A Yes, I am relying on this because it was specific as to formation that he got his water samples from and this was Grayburg, San Andres within the vicinity of

this well

MS MOSS I need to object because this witness has already testified that he was relying on his expertise and education and work experience It is already in the record And it wasn't just on this (indicating)

EXAMINER McMILLAN The objection is actually overruled Continue

Q (By Mr Padilla) So all your exhibits are based on the work of William Hiss, correct?

A That's correct

Q Did you provide any independent well data, fluoride content information on those exhibits that you yourself performed?

A No, I did not

Q So it's fair to say that you took Mr Hiss's information and you -- and that's what you are presenting here?

A That is correct, because in the past they used this particular map for the geology, and not the hydrogeology And hydrogeology is critical when it comes to protecting protectable water

Q Did you know if there are any fresh water -- whether anyone is using fresh water from this area, the area of where you pointed out between the two inner blue

lines on that exhibit that's up?

A There are several water flows going on where they are using Grayburg water and San Andres water in water floods They're taking the same quality water and putting it back into the same quality water, so that doesn't create any protectable issues

Q My question is whether anyone is using water as a fresh water source for, say, municipal purposes or any of that sort of thing?

A I know that the City of Hobbs gets their water primarily from the El Dolala Formation, which is a very shallow, 200-foot deep, or less And they are looking at possibly using these waters for a little bit of a clean up, like convert them to potable water

And there are several industries both oil and potash who want to use this water for water supply because it is not as high total dissolved solids as most back reef wells are compared to this

Q To your understanding, industry types like the potash people want to use some of this water, but are they using it now?

A They are in the process of getting permits from the state land office to do that, yes

Q And is the state land office charging for those permits?

A I believe there are fees associated, but I am not involved in that side They are called saltwater easements or water easements

Q And the land office receives royalties or payments for the use of this particular water, is that right?

A That is correct It is a resource that can provide benefits to beneficiaries

Q Has the state engineer permitted obtaining water from this area?

A I know the state engineer has looked at several things, but so far their rules are focused heavily on potable water They recognize that they need to expand them into brackish water, but I don't know whether they have gotten that done or not

Q So, when you mentioned earlier about the state engineer, the state engineer's jurisdiction is strictly on potable fresh water that is shallow water, right?

A That's what the state engineer's have done historically But they're looking to expand it to the 10,000 milligrams per litre

Q Do you know whether they have -- the state engineer has jurisdiction to regulate water sources in this area currently?

A Yes, he does He handles all ground water,

that's outside of being reused by the oil field

Q Does the state engineer regulate the re-use by the oil field?

A If it is used within the same producing zone, the oil field -- the OCD I believe has that responsibility

Q You mentioned in describing I believe with regard to the first page of Exhibit 3, you deferred to the deeper side I'm not sure what that deeper side is Is that the portion on the left here?

A Okay When the I say "deeper side," that is considered to be the four reef area That is the area within -- that would be -- the reef was formed here in ocean waters and the formation is behind it, deposited behind it while it was being built

And this portion is the Delaware Basin, and that's the portion that's disconnected from the reef hydraulically

Q And you are saying that the back side, the opposite side of the reef is what is connected hydraulically?

A Is hydraulically connected, in other words, ground water flows through all rocks It's a question of how fast

And part of the reason when you look at the water quality within the reef, you see there's lower water

quality on the back reef portions, everywhere except over here where it's discharging

Q And that's the only place that the reef discharges?

A It appears to be the only place that has been -- could be defined as being a discharge point and the water has to be going somewhere, because that's the low point in the hydraulic hit, and water always flows down hill

Q You also talked about geologic age or geologic time What kind of time are we talking in terms of flows of water?

A For the water to flow 1,500 feet, it is going to probably take probably about ten years or longer to naturally flow there Because the rate of flow on ground water is much, much slower than a flow of a river River's feet per second And here we are talking about feet per year

The Capitan Reef is an anomaly And there are places within that reef where it can flow as fast as it flows in the river That's because some of it is cavernous And it's like flowing through that underground river

Q Do you have anything that separates the proposed well geologically from the reef?

A I don't see anything that demonstrates that other than your injection, your proposed injection interval is just a little bit over 300 feet below the nearest offset production that I could find, oil production

So there is an interval in there, but I didn't evaluate it as far as whether it's an aqui-tard between the injection zone and the production zone, because OCD has the responsibility to look at that I have to look to protect the resource

Q I understand that

But you are here challenging this application But you didn't do any specific geologic studies that there's a connection geologically between the reef and the proposed well in the injection zone?

A Not this particular site, no

Q In looking at the colored exhibit, which is this one with -- it is page 4 of Exhibit 3 Where is the San Andres in relation to that?

A The San Andres is the lowest member of the back reef formation, and it's down here in this lower portion The red is the proposed open hole injection completion on the Cooper 17 Well

Q What is the reason that you colored the -- is this your exhibit? This is your exhibit, right?

A Yes, I had this prepared

Q Why did you color that portion in blue?
A That's a real good question You notice over here where you got grays are the salt formations?
Q Right
A And the Rustler typically has a lot of gypsum in it That's generally pretty salty These areas can be salty or can be fresh, so I colored them blue
The Delaware Basin, the Delaware Formation is considered to be a separate entity all together, so I showed it down here separately Quite frequently, this will have sulphur in it
Q Would the Delaware Formation be on the deep side?
A Yes, because the deep side is defined by this contact right in there (indicating)
Q Does the water around -- let me see Your Exhibit No -- page 3 of Exhibit 3, I think I may have asked this question -- correct me if I have -- but you have some chloride contents in there Is that water considered potable? You went through a series of wells surrounding the proposed well And my question is is that water currently potable?
A The nearest well that I would consider potable would be one that has like 1,600 chlorides that's located about a township to the south
Q And that is about six miles away, right?

A Yes It appears it is potable at that point And I had no way of getting there other than the two recharge areas, so you have to have potable water to at least that point

Q And that's approximately how far from the reef?

A That's about a mile from the reef

Q So in this area, the proposed well is about 7 miles from the reef, is that right?

A That's correct

MR PADILLA I pass the witness

EXAMINER WADE Cross-examination

CROSS EXAMINATION

BY MR DANOFF

Q Yes, Mr Holm, you gave your professional opinion in the middle of stating -- where we were qualifying you Did you give your total professional opinion on this or was there more you were going to add? The reason I ask that question is we stopped to go back and qualify you as an expert, so I want to make sure you get your total expert opinion in

A My expert opinion is focused on the water quality in the area of the proposed injection well as being within the area that is definitely protectable water to the U S That's in my opinion

Q And you think it would be in the best interest to

deny this application?

A Yes

Q Is that your professional opinion, sir?

A Yes, sir

MR DANOFF Thank you I pass the witness

EXAMINATION BY EXAMINER McMILLAN

EXAMINER McMILLAN Based on your experience and knowledge, could these less than 10,000 parts per million water source come from anywhere else other than the reef?

THE WITNESS No, sir They could not because above this zone, right here, (indicating) you have the Salado, is above you on the back reef That's a salt layer In fact, we are mining potash out of portions of that And that's impermeable Any fresher water would have had to go through that salt And there is no other source for it All the other sources are salt water because the rocks were deposited in marine conditions

EXAMINER McMILLAN So, basically, you are saying through meteoric dysgenesis you're getting a flow of water?

THE WITNESS That's exactly what's happening Yes It is all connected to surface water It is all one system It's really pretty spectacular

EXAMINER McMILLAN It is Carbonates are fascinating

THE WITNESS To say the least

EXAMINER WADE I have questions

EXAMINER McMILLAN Okay Please proceed

EXAMINATION BY EXAMINER WADE

EXAMINER WADE Is there anything about the well construction of this particular application that leads you to believe that this protectable water will not be protected?

THE WITNESS The proposed injection interval is close to oil production And that could be considered to be within an area that could become damaged by injection, especially injection of higher total dissolved salts, waters Most of those examples he gave are at least in an order of 92 or higher in chlorides and what's there presently And that definitely has a possibility of doing that

The open hole, whether it's open hole or perforated, I think that's a call that you all can make But I think either way they're in good -- you'd get good connection to the formation, but are you going to get a containment zone above it to separate it from production? I don't know

EXAMINER WADE I have no further questions

EXAMINER McMILLAN I haven't either Any redirect?

MS MOSS No

EXAMINER McMILLAN Let's take a five-minute break

(Brief recess)

PROTESTER CASE-IN-CHIEF

EXAMINER McMILLAN We are now back on the record, and you have one witness

MR DANOFF That's correct We call as part of our protest Randy Briggs

EXAMINER McMILLAN Swear him in for sure

(WHEREUPON, Charles Rand Briggs was administered the oath)

MR DANOFF For the record, we're adopting the position that land management put on with regard to the matters We are not going to go back through that, of Mr Holm and his testimony So we are adopting that position as part of our presentation

EXAMINER McMILLAN Okay

MR DANOFF And I also talked to both counsel, and I move for the admission of Exhibits 1 through 8, our attachments to our protest as well

EXAMINER WADE So you would want to enter --

MR DANOFF In the court of law, it would be judicial notice as part of the protest, but if it's not here, I want to make sure that it's part of this record

EXAMINER WADE The way it works here at the OCD is this will become part of the case file You letter is already in there It's probably been scanned If it hasn't been, it will be So are you asking that this also be an exhibit?

MR DANOFF I want the exhibits to be in, but if they are considered in that capacity, that's fine

EXAMINER WADE I think the only difference in what we are talking about is the record that will go with the court reporter, it would have to be entered as an exhibit into the hearing record

MR DANOFF Then I offer it as an exhibit

EXAMINER WADE No objection?

MR PADILLA No

EXAMINER WADE So accepted assuming what I have in our case file is the same

MR DANOFF It's the same It's a letter dated --

EXAMINER WADE February 16th --

MR DANOFF Inadvertently dated February

16th It's the second letter, the amendment That's what we are admitting

EXAMINER WADE And you have eight exhibits attached to that?

MR DANOFF Yes

(Protester's Exhibit 1 with eight attachments offered and admitted)

EXAMINER WADE And I think we'd also like to know, as Hearing Examiners, is a condition if this application were to be granted would be that the existing well which I believe the majority of your concern is with would have to be properly plugged and abandoned So with that in mind --

MR DANOFF That's what we are going to argue That's the thing he's testifying to right now

EXAMINER McMILLAN That's going to be part of the record

EXAMINER WADE If you would like to --

MR DANOFF Let me embellish on that, he's the only person who has actually seen it Nobody here has seen it That's why I wanted him to say -- to identify it --

EXAMINER WADE The issue that he --

MR DANOFF It will be very brief

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

DIRECT EXAMINATION

BY MR DANOFF

Q Please state your full name

A Charles Rand Briggs

MR DANOFF And we're calling Charles Rand Briggs as a fact witness We are not trying to establish any expertise here

EXAMINER WADE Okay

Q And where do you reside?

A Los Ranchos, New Mexico

Q And what is your business? What do you do by way of business?

A A number of businesses But among them is Piper Energy, LLC It's a salt water disposal business in the San Andres in Lea County

Q How long have you been in that business?

A Two years

Q And during the course of that two years, have you been an active participant in that business?

A Yes, sir I'm the manager

Q And are you familiar with Anderson No 1 Well?

A Yes, sir

Q And how are you familiar with that?

A Well, I've been on site and once -- once they -- apparently, whatever happened with the casing, et cetera, and they pulled the string of three-and-a-half-inch tubing, a number of us witnessed the condition of that tubing as well as the condition of the general property

And so the tubing was laid out on racks there And I can tell you that the tubing that was inside that well that's not supposed to be exposed to corrosion had holes in it, literally from top to bottom, the size you could put a golf ball through

Q Were you concerned about -- we heard testimony about the plugging of this well and the cementing of it, will that protect the environment?

A Absolutely I mean -- I mean I was struck by the lady who was here earlier But this well obviously down below, the casing is obviously compromised from bottom to top And, you know, there has been no proof that anything that they have done in cementing has integrity We don't know if their bridge plug is any good

This plug well needs to be plugged from the bottom to the top, because there is cross-contamination of fluids and water from all zones in this -- through this casing

Q And relative to that, are you also concerned

about the surface as well?

A The way this well was -- or this tank battery was configured from the get-go is that there -- where the trucks unload there's no containment system, so the soil -- every time a truck unhooks from the tank battery, it contaminates the soil with water if you don't have a containment system

And I know it's not really part of what you guys do here But this soil has been contaminated for decades And the tank battery -- the well needs to be plugged, the tank battery needs to be removed, and the soil needs to be remediated

EXAMINER McMILLAN To go back to the question, you are not an expert witness, you are a fact witness?

MR DANOFF He's talking about the facts

THE WITNESS The fact that I have observed --

EXAMINER McMILLAN Yeah, but he's not an expert witness

THE WITNESS I understand that But I just want that on the record, sir

EXAMINER McMILLAN Okay

MR DANOFF But he's testifying to a factual basis as to his observations --

EXAMINER McMILLAN But he is not an expert witness

MR DANOFF We offered him as a fact witness

EXAMINER McMILLAN That's my point And be advised, there are environmental inspectors who go out and inspect

MR DANOFF We are aware of that

EXAMINER McMILLAN And we can all -- remember, we have the authority, if this is approved, to say that you're going to plug into the OCD specifications And we can also turn around and we can also require then that the environmental inspectors sign off on it

THE WITNESS That's all I'm after

MR DANOFF And we are saying that this application -- and we will say it by the way of closing since we are done, that this application is now moot until that's done

I appreciated Mr William's testimony on that He admitted when I asked him, he said that it was contingent approval, it was contingent upon plugging this well properly So I think the cart was before the horse

THE WITNESS I am just concerned not only

down below but the surface --

EXAMINER McMILLAN Right Do you see where we are coming from?

MR DANOFF Yes

EXAMINER WADE Before we get to closings, would there be any cross-examination?

MR PADILLA Yes I have some questions

CROSS-EXAMINATION

BY MR PADILLA

Q Mr Briggs, I don't understand why you're concerned about the Anderson well

A I would love to answer that question

Q Do you have production --

A Yes, sir

Q In the area?

A Yes, sir Approximately, 16 miles away

Q And do you operate a salt water disposal well?

A I already said I did

Q And where do you operate that well?

A It's 16 miles south and east of Anderson No 1 It is about three-and-a-half miles north of Eunice You asked me why I am concerned or why is this my concern?

Q Yes, sir

THE WITNESS Can I answer that?

MR DANOFF Yes

A I spend a lot of time and money protecting the environment Where I'm at, I have concrete pads for unloading I do many, many things in terms of time, effort, and money and everything to protect and do this right

From the time this started, this has not smelled good to me First of all, he legally published in Lovington That's a long way from Monument And I know it is legal there and everything, but the people around this area in Monument will read the Hobbs newspaper, not the Lovington newspaper

The second thing is -- so at the end of the day, you said this was a successor well, but he changed the name of the company so that it wouldn't be associated with the train wreck that's there now in my mind, and so on and on

You know, I just -- as this goes on -- and then he doesn't plug the well, the casing that came out of there is corroded and rotted and yet the MIT tests went right forward, you know -- you asked me to answer and I am answering

EXAMINER WADE If I may, this is beyond the scope of the direct So do you have any questions on cross as to factual information that he has provided?

Q (By Mr Padilla) Did you prepare your exhibits?

A Yes, sir
Q Mr Danoff wrote a letter dated July 29, 2015 Who was the one who gave him the information for that letter?
A Me
Q Did you write the items 1 through 8?
A Did I write it?
Q Yes
A Yes, sir
Q Did you hire anyone to assist you with compiling the information for Mr Danoff's letter?
A No, sir You know, I will say this I will qualify that by saying I do have people that work with me and for me and everything, and I may have collaborated and asked some questions and stuff, but I didn't hire anyone to write this letter
Q Mr Briggs, what is your profession?
A I am an optometrist
MR PADILLA That's all I have
EXAMINER McMILLAN The state land office?
MS MOSS No, I don't have anything
MR DANOFF I just want to correct the record That's the July 29th letter that we sent and not the February --
EXAMINER WADE Okay Speaking of

clarifying the record, the court reporter is going to need a copy of what you want entered into the record as an exhibit Do you have that today?

MR DANOFF Yes, I will have to make copies

MR PADILLA I will give you one

EXAMINER WADE And what will you be marking that as?

MR DANOFF I would mark it Protester Briggs Exhibit 1, I guess

EXAMINER WADE That would probably be fine And that is going to include -- I mean, this one has been marked as something already So it would probably be best if you make a copy

MR DANOFF I just gave --

EXAMINER WADE This is marked OCD case 15307, Oasis Water Solutions

MR DANOFF I can put the stamp over that

EXAMINER WADE Okay Anything further?

MR DANOFF No

EXAMINER WADE Closing statements

EXAMINER McMILLAN Have we accepted his as part of the record?

MR DANOFF I moved for it It has been admitted, is that correct?

EXAMINER McMILLAN Yes I wanted to make sure Closing statements

MR PADILLA I go first

EXAMINER McMILLAN Yes

MR PADILLA Okay There's been no testimony or evidence that shows that there's going to be communication from the proposed well to the Capitan Reef I am impressed with Mr Holm's presentations, but he's basing it on somebody else's report

There's no independent study of this area that he made He did not present anything that would indicate that there would be communication between the proposed well and the outer limits of the Capitan Reef

Now, he did talk about water flows and that sort of thing But the fact of the matter is that no one is using this water for potable purposes for any use that is beneficial

His admission also, Mr Holm's testimony was that the state engineer is not really regulating They may have jurisdiction, but they are not regulating this water because it's not a potable water source

Now, as far as I can see, the land office probably has an ulterior motive by bringing this case and that they are going to permit water, sales of water here, and they don't want any injection

And so we are here listening to protection of water sources, but the fact of the matter is is that the map that we presented has been used by the OCD And it's prepared by the Bureau of Land Management or a federal agency And that's been pretty much the Bible

As far as knowing where to drill within the Capitan Reef and -- at the end of the day, there is just no water to be protected Mr Holm did not cite any federal regulation or any state regulation other than generally saying we have to protect -- these are protectable waters

There's no testimony about the sources of authority for protecting this water I think the only source -- the only authority is the Oil Conservation Division And Dr Briggs came up as far as his testimony is that he has -- he's in the business of salt water disposal He does not want the competition

You can color it anyway He said I want to protect the environment and that sort of thing, but the Anderson Well is a separate deal

I think the Oil Conservation Division according to even Mr Williams's testimony was that that well needs to be plugged And the authority is going to come down if Oasis does not plug that well or whoever is responsible for plugging it

Whether or not the applicant is using another entity matters nothing I mean, I would advise this lawyer to use a different entity every time you have one of these businesses, just for liability purposes So that doesn't -- you are not -- Oasis is not trying to hide anything

Simply form a corporation or an artificial entity for liability reasons But, again, I don't see any connection between the proposed well where it is located and the Capitan Reef

Now, there are rules for the Capitan Reef And just by our Exhibit No 2, the map, companies have drilled through the Capitan Reef forever, but you have to cement through that reef But there's -- there's no evidence here that says that there's going to be communication between the proposed well and the aquifer

Now, the only credible question here is the question that Mr Goetze brought up, saying you did not bring geologic information to show that the upper and lower San Andres are -- is -- well, that the upper San Andres is going to be affected by injection into the lower San Andres

I think that's a credible issue, and we would be glad to provide that information through either a continued hearing or where we get a geologist to

testify as to -- as to that issue

But other than that, I don't see any reason why this application should not be approved

EXAMINER WADE Closing

MS MOSS The evidence that was presented through Mr Holm strongly supports his conclusion that this injection well which is proposed by Oasis will contaminate a protectable water source

Looking at the well location, the chloride levels in that area and the hydrology and geology of the Capitan Reef, the only reasonable conclusion is that the injection of salt water in this area will contaminate protected water

EXAMINER WADE Mr Danoff

MR DANOFF Thank you, Mr Hearing Officer for allowing us to be here and appear today as a protester

I think the dispositive thing we need to understand here is the testimony of Mr Williams, which was not refuted Relative to that, they talked to district supervisor in the office of land management and as a condition or prerequisite to granting this approval or even considering it, the well had to be plugged, the predecessor well

And I submit to you that that has not been

done and that this would be moot at this time and this should be remanded until such time as the Anderson Well is plugged or taken care of

His first testimony, I understood was, he didn't know whether he could do it simultaneously, he later said it was a condition of that

And I submit to you this application, we are adopting the aspects relative to the -- what Mr Holm testified for land management, but our issue is a different issue with regard to that We feel that that's a condition to proceed, and that should be met before this application is even considered

I realize there was a statement made by the Hearing Officer with regard to this, being tied to it or whatever However, I think until that is done, that this matter should not even be considered And that that's a pre-condition and prerequisite to filing for this

In a court of law, I would have moved to dismiss on that basis But I realize this is an administrative agency, and I am treating it accordingly But, again, I think that would be in and of itself either summary judgment material or motion to dismiss material I think you have to meet the conditions precedent before you go and file for an application

EXAMINER McMILLAN Okay Case No 15307 shall be continued until September the 3rd And at that time, we expect a geologist to testify whether or not there's going -- whether or not a barrier exists

MR PADILLA Okay

EXAMINER WADE And, actually, I think we would like to see some clarification as to notice to make sure that the area review did include all affected persons and that they were all notified

MR PADILLA All right

EXAMINER WADE And we will require publication obviously or notice again if that's not the case

MR PADILLA All right

MR DANOFF I have a concern with regard to procedurally speaking If they get a geologist, are we going to be able to know who it is before or whatever, so if we need to get a rebuttal witness -- I mean it's very difficult just to come here and not know what the geologist is going to say In courts we get at least a report or a summary of an opinion It's very difficult --

EXAMINER WADE We could require --

MR DANOFF I think we would need that to know whether we need to bring --

MS MOSS It also isn't clear to me whether we would be able to put on additional evidence

EXAMINER WADE Outside the scope of what was originally --

MS MOSS No Just if we needed to be any clearer about the barrier

EXAMINER WADE I think that you would have the opportunity to rebut anything that the geologist that the applicant brings says

MS MOSS Can we know that in advance?

EXAMINER WADE I think what we can do is follow loosely our rules as far as filing a prehearing statement

MR DANOFF You know, disclosure --

EXAMINER WADE Of course, we don't follow the rules of civil procedure

MR DANOFF I'm not saying you do But I am saying fair notice that I would work with counsel on it, we could even, in view of the fact that this is an administrative hearing, I could even get on a phone and do it We don't need a formal deposition to know what's going to be said

EXAMINER McMILLAN I want something on the record

EXAMINER WADE Yes, it's going to be on the

record If you look at our adjudicatory -- that's 1954 -- what we can do is follow that in that you need to file your prehearing statement, I think the rule says specifically the Thursday before the hearing date

MS MOSS That doesn't give us time to get a rebuttal

MR DANOFF That doesn't give us time to get a rebuttal

EXAMINER WADE You'd have three weeks to do that, that would not be enough time?

MR DANOFF The Thursday before the hearing you said

EXAMINER WADE We asked for four weeks from now that the geologist be brought, so you would have three weeks to get a witness That wouldn't be enough time?

MS MOSS Since we don't know what exactly -- it's not close enough to what we're --

EXAMINER WADE That's what's in our rules That's a problem with these rules Other than that, I mean what specifically would you need?

MS MOSS To know two weeks before what their witness is going to say would be a minimum for us to be able to -- I don't know how to make this argument but I am going to do it anyway

There is a sense in which due process is triggered here, because when they come and testify if you rule against us, we are losing protectable water on state trust land And so we need a little bit of time to know what this person is going to say in order to be able to hire someone, get someone, to do a study

EXAMINER WADE Just so we have it on the record, how soon do you think, Mr Padilla, you can find a geologist?

MR PADILLA Let me put it this way A geologist is easier than a petroleum engineer I can probably -- by Friday, I should have someone

EXAMINER WADE And how soon before they could generate a report, a statement of some sort?

MR PADILLA The business is sort of slow so I think that -- probably two weeks

EXAMINER WADE So roughly two would weeks, within two weeks time which would put us at -- if we said -- it would be the 20th, that's a Thursday, the 20th If we said that you would provide the information by Monday the 24th, August 24th, that would give roughly two weeks Would that be enough time for --

MR DANOFF The 24th is really -- that is ten days It's not two weeks time

EXAMINER WADE Is that enough time?

MR DANOFF I would ask that it be the Friday before And I am sure if counsel gets it done before then, he'd want to disclose it

EXAMINER WADE So let's disclosure will take place on August 21st of the applicant's geologist's report

MR DANOFF When you say "disclosure" -- not to be picky here -- "disclosure" means to a lot of people the name and address and telephone number of the expert And so we are on the same plain, the disclosure would entail a brief summary of the witness's proposed testimony in an expert capacity

EXAMINER WADE I would like to see whatever report is generated, opinion be shared We are trying to streamline this This is not civil court This is a rather informal according to the rules

MR PADILLA I understand that but what puts me at a disadvantage of, if they show up with new geologic information that I haven't given to my expert

MR DANOFF That's my concern We'd have to do the same thing reciprocally, in return, but a four-week window is pretty quick That's the problem, a four-week window is a quick window to do that

EXAMINER WADE Business is not slow for the geologists apparently?

MR PADILLA Assuming I can find one quickly But I think it's easier today than it was a year ago I see John Maxey testifying, and I called him to testify in one of my cases, and he called right back About six months ago, he didn't have time So it is, you know, I think -- I think I can get a geologist fairly soon And, then, by the 21st give some summary of testimony

MR DANOFF And to be fair to Counsel here, we in turn can give it to them in two weeks -- I mean, we're rushing and he wants to see what our guy is going to say, too That's a disadvantage he's going to have, so

EXAMINER WADE Now that I am sitting here and thinking about this, Mr Danoff, I am not quite sure how much testimony we'd consider when you have not raised specific geologic protests in your initial letter that I see

MR DANOFF No, we didn't

EXAMINER WADE You have a different issue It seems like your issue is factual regarding the Anderson --

MR DANOFF You're right, that is our issue But I am just trying to be fair to everybody We obviously have an interest in this, though And we

adopted their position (indicating the state land office)so that's --

EXAMINER WADE Okay

MR DANOFF But I will do whatever you decide --

EXAMINER WADE We can go to six weeks These hearings are held every two weeks And I just don't want to put it out there forever

MR PADILLA I think six weeks is more realistic

MR DANOFF When is the date of that? I am in a pretty big trial during part of that

EXAMINER WADE That would be September 17th That still doesn't --

MR DANOFF I guess you don't really need us here even

EXAMINER WADE If you are just adopting the state land office's position, no

MR DANOFF The other concern I have is, are you taking under advisement our --

EXAMINER WADE Your concerns regarding the Anderson well?

MR DANOFF Yes, and whether that's a pre-condition here

EXAMINER WADE Yes We're taking that

under advisement

MR DANOFF You don't need further argument on that?

EXAMINER WADE We do not

MR DANOFF That ruling will be part of the overall ruling or you may make that preliminary to the overall ruling?

EXAMINER WADE Likely it will be with the overall ruling

MR DANOFF I am just trying to find out the procedure

EXAMINER WADE So we could still have an exchange of --

MS MOSS We can go on the 6th, which is your first suggestion -- right?

EXAMINER WADE September 3rd

MS MOSS September 3rd, and on the 21st we would get the written report

EXAMINER WADE At this point, the state land office would be leading the charge as far as the geologic --

MS MOSS I would rather have more time, but I don't think --

EXAMINER WADE We can give you six weeks That's not a problem We will leave the exchange of

information as to August 21st because it sounds like you could do that, Mr Padilla, and then we will put the hearing out until September 17th, which should give plenty of time to review and Mr Padilla will have plenty of time to review whatever issues you raise

MS MOSS That is fine

EXAMINER WADE Is that okay?

MR PADILLA That's fine

EXAMINER McMILLAN So the case is continued until September 17th Okay?

MR DANOFF And then I might waive my appearance since it's more their issue for -- so I may not be here for that, because I do have a trial, so I want to make sure I am excused and not expected to be here

EXAMINER WADE We don't expect you to be here

MR DANOFF Thank you

(Time noted 3 24 p m)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 15307 heard by me on August 6, 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, August 6, 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 Allanic

ELLEN H ALLANIC, CSR
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