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:	)	
AMENDED APPLICATION OF DKD, LLC, FOR AN ORDER REVOKING THE INJECTION AUTHORITY FOR THE GANDY CORPORATION STATE T WELL NUMBER 2, LEA COUNTY, NEW MEXICO	)	CASE NO. 13,686

ORIGINAL

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REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: WILLIAM V. JONES, JR., Hearing Examiner

April 27th, 2006

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, WILLIAM V. JONES, JR., Hearing Examiner, on Thursday, April 27th, 2006, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

April 27th, 2006
Examiner Hearing
CASE NO. 13,686

(Continued...)

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A P P E A R A N C E S

FOR THE DIVISION:

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* * *

WHEREUPON, the following proceedings were had at 10:00 a.m.:

EXAMINER JONES: Okay, let's go back on the record this morning and call the next case. Next case in this docket is Case Number 13,686, amended Application of DKD, LLC, for an order revoking the injection authority for the Gandy Corporation State T Well Number 2, Lea County, New Mexico.

Call for appearances.

MR. HALL: Mr. Examiner, Scott Hall, Miller Stratvert, PA, Santa Fe, appearing on behalf of the Applicant, DKD, LLC, and we have two witnesses this morning.

EXAMINER JONES: Okay, other appearances?

MR. DOMENICI: Mr. Hearing Examiner, Pete Domenici, Jr., and Charles Lakins on behalf of Gandy Corporation, and we have two witnesses.

Any other appearances?

Will all the witnesses that intend to testify today please stand to be sworn?

(Thereupon, the witnesses were sworn.)

EXAMINER JONES: Okay, I think we'll have opening statements, maybe, from both sides. Are you guys prepared to do opening statements?

MR. DOMENICI: We'd like to reserve ours, if we

could, until we put on our case. We are prepared to do it, though. Either way.

EXAMINER JONES: Okay, that's fine.

MR. HALL: We'll just proceed with our first --

EXAMINER JONES: Okay.

MR. HALL: -- witness, Mr. Examiner, and at this time we'd call Mr. Danny Watson.

EXAMINER JONES: We had -- Gail and I talked earlier about giving everybody a chance to do an opening statement, maybe summarizing a little bit about their case and any jurisdiction issues you might see in this case. And maybe we should have a few brief comments by each side on that.

MS. MacQUESTEN: Perhaps it would help if I alerted both sides to our concerns, and then if you have any comments you'd like to address to those concerns now, that might be appropriate.

In reviewing the amended Application in this case, it appeared to me that what DKD is asking for is essentially a compliance action against Gandy Corporation. They're asking for things that normally would be asked for in a compliance action brought by the Division. They're asking to revoke an injection permit, they're asking that the company be brought into compliance, they're asking that the well be plugged and abandoned, and they're asking for

other corrective action.

On December 12th of 2005, a new Rule took effect for the Division that described the procedures to be followed in bringing compliance actions. That Rule states -- describes compliance actions as actions brought by the Division and then describes the very kind of action that DKD is bringing in this case.

My question is, what authority does the Division have to hear what amounts to a private compliance action? And I would like both sides to consider that and give me your thoughts.

I also wanted to direct your attention to a statute in the Oil and Gas Act that does appear to provide an avenue for an operator who feels that the Division is not taking appropriate action to bring another operator into compliance, and that is Section 70-2-29. And in part it states that, In the event the Division should fail to bring suit to enjoin any actual or threatened violation of this State with respect to the conservation of oil and gas or of any provision of this Act or of any rule, regulation or order made thereunder, then any person or party in interest adversely affected by such violation and who had notified the Division in writing of such violation or threat thereof and has requested the Division to sue, may, to prevent any or further violation, bring suit for that

purpose in the district court of any county in which the Division could have brought suit.

So looking at the Division Rule that talks about compliance actions being brought by the Division, and looking at the Statute which allows a private suit in district court if an operator feels another operator is in violation, my question to both parties is, could you address whether you believe the Division has the jurisdiction and authority to consider a compliance action brought by a private party.

MR. HALL: Yes, if I might proceed, Ms. MacQuesten, I don't think there's any question that the Division does have that authority and that jurisdiction. In fact, I think it has exclusive jurisdiction for purposes of implementing the provisions of the Oil and Gas Act and the Rules and Regulations that are promulgated pursuant to the Act.

I neglected to bring my correspondence file, but I did submit a letter to the Division pursuant to Section 70-2-28 and -29, indicating on behalf of the Applicant that we believe that there was a violation of provisions of the Act, the Division's Regulations, and earlier orders entered by the Division.

Now, the Application we brought in this main case is certainly consistent with past administrative actions on

this same subject matter, in fact involving the operator, the same operator of the State T Well Number 2, the injection well that's at issue here. And in those previous cases we provided you with a complete chronology in our exhibit books of all the past actions that the Division has taken and asserted jurisdiction over the subject matter.

In addition, I would say to you that I think perhaps the most instructive authority of the Division's own construction of its jurisdiction and the scope of its regulatory authority is perhaps set forth in Order Number R-11,573-B. That was from Case Number 12,601, and that was the Application of Bettis, Boyle and Stovall to re-open compulsory pooling Order Number R-11,573, to address the appropriate royalty burdens on the well for purposes of the charge for risk involved in drilling said well, Lea County, New Mexico.

That very question was put to the Division in that case. What is the scope and extent of the Division's authority? The Applicant in that case was seeking, I thought, extraordinary relief. It was asking the Division to enter an order reducing or eliminating an overriding royalty interest created by virtue of private contract between individuals, individual parties. And the Division found it had authority to do things like that within the purview of the Oil and Gas Act.

And in the conclusions of law in that Order, the Commission found -- the Commission concludes that the authority expressly conferred on the Division and the Commission by the Oil and Gas Act is cumulative and not exclusive. So I think you have broad authority.

And in that case they also found you can -- you have the power to issue any order that is fair and reasonable, do whatever is necessary to protect correlative rights and prevent waste. And that is the scope of relief we sought in our Application. And again, I think for purposes of that specific relief, separate and apart from damages-type relief, I think the Division has exclusive jurisdiction to grant that sort of relief.

MS. MacQUESTEN: Mr. Domenici?

MR. DOMENICI: I had some of the same questions on jurisdiction and standing also, because what is proposed here is basically, in other laws, a citizen-suit-type of claim where a private party is saying, We can enforce a regulatory requirement between the regulating agency and my client, which is -- and you phrased it slightly different, but it's -- and in looking at the allegations I was concerned, because the allegations appear to state that specific violations of regulatory requirements, either in permits or in regulations that implement that permit, had been violated and that a private party -- and they are

adjacent, and they have some interest adjacent, so I would concede that -- went well beyond trying to state that interest as a basis.

They tried to -- or may be trying to argue other interests as a basis for their standing that they don't control, that they don't own.

And then they are arguing essentially that simply because you have the authority to do things as a Division you should have the jurisdiction as a Hearing Examiner to hear these issues. I think those are two different things. I would agree, the Division has broad authority to enforce orders or enforce regulations as they apply to an order or a permit. And so I don't think there's a dispute on that.

The question is, can a private party come in and initiate the case as a private party, basically, and say, We are going to step into your role as the Division, as an inspector or an enforcement unit and bring a hearing in front of the Hearing Examiner and call that jurisdiction into place. There's no assertion of that set forth in the Application, the amended Application or the emergency request, there's no specific statement grounding or establishing this jurisdiction.

So we would content that there is no basis for an order that we would enter as a result of the hearing, and it would be unenforceable, because it's beyond your

jurisdiction.

So we have the same concerns -- they are somewhat broader, in fact -- that not only is there lack of jurisdiction, they have gone well beyond the standing that they might have based on their specific interest and actually try to assert standing on behalf of the Division, is how it appears, in trying to assert standing on behalf of other property owners and request relief that would possibly affect those other property owners and require the Division to then do things relative to my client's permit, essentially asking the Hearing Examiner to put the Division under injunction is, in effect, what they're asking to be done here, without clear statutory authority on that or clear regulatory authority. I think that can lead to a lot of improper results.

And I think, frankly, what the comparable or analogous situation is, my client, or Mr. Hall's client, can look at any permit in New Mexico and look at the requirements of that permit and can file the same kind of proceeding that they're proposing here, saying, I think there's a permit a hundred miles away that has pressure requirements or reporting requirements, and I'm going to file an action that that permit be revoked because they're violating this section, this section and this section.

That is basically a private compliance action,

and I think that's fairly dangerous to go down that path. Most citizen-suit-type requirements are very specific, they're limited, they have notice requirements to put some limits on that, and there's nothing proposed here that would limit that in terms of what evidence can come in, in this hearing, what would be the basis, what would be the scope of your decisions to parties that would possibly have standing or the issues that would be involved or limited to that.

MS. MacQUESTEN: Mr. Hall, did you have any follow-up?

MR. HALL: I did. I would simply say, I don't think there's any question about DKD's standing in this case to bring the Applications before the Division. I think the evidence will be clear that DKD has an interest affected, and under the Division's Rules defining interested parties, DKD will squarely fit within that definition.

I think the -- issues of standing are rarely asserted here. Where it has come up, I think there's no question that the Division has asserted jurisdiction.

The most closely analogous case that comes to mind preceding this case, I might refer you to the Pendragon case series of orders. In the Pendragon case, we had a somewhat similar situation where two adjoining

operators were both contending that each other's respective frac jobs resulted in the escape of fluids out of zone into adjoining properties.

In that case as well, letters were sent to the Division under the two statutes, 70-2-28 and-29, requesting that agency action, and the agency handled the matter by hearing the applications brought by the applicants, the private parties in those cases. They were countervailing applications filed on behalf of all interests, and those cases lasted, I think, in excess of two years, so there's really no question about the Division's authority to assert jurisdiction over matters of that sort.

MS. MacQUESTEN: Mr. Hall, is it your reading of the statutes that an action needs to be brought before the Division Examiner before a private party could bring suit under 70-2-29, or is that just an option under that statue?

MR. HALL: You know, it depends on the subject matter. I mean, I think the Division may sue to enforce its orders in court, but at the same time I think any interested party -- party with a property interest affected, pursuant to a violation of the Division's statutes, regulations or orders, certainly has standing to bring the matter before the Division.

There's a question whether it could do so in a court. I tend to think not, because it's my view that

where it comes issues of prevention of waste and protection of the environment, protection of correlative rights, then the agency would have exclusive jurisdiction in that matter. And then as a matter of first course, the Application must be heard by the Division.

MS. MacQUESTEN: Could you after the hearing provide us with the letter or letters that you sent --

MR. HALL: Yes.

MS. MacQUESTEN: -- pursuant to these statutes?

MR. HALL: Yes, indeed.

MS. MacQUESTEN: I'm not sure, we may have them in the record already, but I didn't find them.

MR. HALL: We'll get those to you.

MS. MacQUESTEN: Okay, thank you.

EXAMINER JONES: Okay, let's --

MR. DOMENICI: Well, I would say based on this, I make a motion to dismiss, based on lack of jurisdiction.

EXAMINER JONES: So you have a motion to dismiss?

MR. DOMENICI: Yes. I think the arguments don't go to establishing authority -- or establishing jurisdiction, they don't actually establish your jurisdiction, Mr. Hearing Examiner, to hear a private compliance order.

(Off the record)

EXAMINER JONES: Okay, I've been advised to --

and I agree, that we should take the motion to dismiss under advisement, and if the Applicant and the opposing party wish to provide written arguments for or against the motion to dismiss, please do so after the hearing.

And with everyone here, we'll go ahead and hear the case, and we'll -- the motion to dismiss will be taken under advisement.

Any other --

MR. HALL: For the record, we would just state that we would oppose the motion. And then if you like, we'll certainly be glad to brief that to you.

EXAMINER JONES: Okay, in written document after the --

MR. HALL: Yes.

EXAMINER JONES: Okay. Okay, let's go ahead and have the Applicant present their case.

MR. HALL: Mr. Examiner, for our first witness we'd call Danny Watson to the stand.

DANNY R. WATSON,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, sir, please state your name.

A. My name is Danny R. Watson.

Q. Mr. Watson, where do you live?

A. I live in Tatum, New Mexico.

Q. And how are you employed, Mr. Watson?

A. I'm self-employed.

Q. And what do you do for a living?

A. I run a hot-oil business, and I also own several disposals in Lea County, New Mexico.

Q. All right. And are you familiar with the subject matter of the Applications that have been filed in this case?

A. Yes, I am.

Q. And are you familiar with the lands that are also the subject of the Applications in this case?

A. Yes.

Q. And have you previously testified before the Division and had your credentials accepted as a matter of record?

A. Yes, sir.

Q. And were you qualified in the past as a practical oilman, based on your experience and background?

A. Yes.

Q. Would you briefly provide the Hearing Examiner a brief summary of your background and experience in the industry?

A. Over the years I've worked in gas plants, I've

worked basically in oil reclaiming, I've run a hot-oil business for several years, vacuum trucks, transports occasionally. Also now, I run four disposal wells at the current time, along with my hot-oil business, treating wells and the hot-oil business, well maintenance.

Q. And are you the owner of DKD, LLC?

A. Yes, I am.

Q. And does DKD, LLC, own the Watson 6 Number 1 disposal well?

A. Yes, it does.

MR. HALL: Mr. Examiner, we would offer Mr. Watson as an expert practical oilman.

EXAMINER JONES: Objections?

MR. DOMENICI: No objection.

EXAMINER JONES: Mr. Watson is qualified as an expert practical oilman.

Q. (By Mr. Hall) Mr. Watson, if you would, the exhibit book and take out Exhibit Number 1, our area map, and if you would orient the Hearing Examiner with the area that we're talking about today.

A. I'm sorry?

Q. Would you refer to Exhibit Number 1 and identify that, please?

A. Yes, this is just a geological-type map that -- where all the wellbores are in and around my disposal well.

Q. Now on the map, does the map have the location for the Watson 6 Number 1 disposal well on the field?

A. Yes.

Q. And could you tell where in proximity to your well is the State T Number 2 well, owned by Gandy Corporation?

A. Approximately maximum 400 yards from my disposal is Gandy State T Number 2, kind of to the northwest of my disposal.

Q. And are these wells located in the west half of Section 6 of 16 South, 36 East?

A. Yes.

Q. Mr. Watson, I understand you did not prepare this exhibit, another witness will identify and authenticate this for us?

A. That is correct.

Q. Would you locate also on the map the Snyder A Number 1 well?

A. The Snyder A Number 1 is also my well. It's approximately 300 yards from my Watson 6 Number 1, to the southwest.

Q. All right. And what is the status of that well?

A. Currently it's TA'd.

Q. Okay. Would you briefly give the Hearing Examiner some background on your authorization to inject

fluids through the Watson 6 Number 1 well? How long have you operated that well?

A. Oh, I've operated it since July the 2nd, 2002.

Q. All right, and it's permitted by the Division for that operation?

A. That is correct.

Q. And what are your current average monthly injection volumes?

A. I estimate around 2400 barrels a day.

Q. All right. And are you injecting under pressure?

A. No, it's on vacuum.

Q. All right. Now let's give the Hearing Examiner a little bit more background on the Snyder A Number 1 well. When did you acquire that well?

A. I acquired it in the early part of 2002, built all the system up, put in plastic-coated tubing trying to follow all regulations, and we finally got it kicked off, like I say, July the 2nd, 2002.

Q. All right. Now let's talk about the Snyder A 1 well.

A. Okay.

Q. When did you acquire that well?

A. I got it in 2003, the fifth month of 2003, from Energen Resources.

Q. And did you acquire all depths when you bought

that well from them?

A. Everything but the Strawn.

Q. So you got from the surface to the top of the Strawn formation?

A. That is correct.

Q. And do you have depths below the Strawn formation?

A. No.

Q. Okay. And why is the well TA'd right now?

A. Because it's got a tremendous amount of pressure on the casing and tubing, saltwater flow.

Q. All right. Tell us what you know about the State T Number 2 disposal well?

A. The State T Number 2, Gandy's received -- well, at that time it was Pronghorn, they went through and got the permit. Marks and Garner was involved in it, and then recently it went to Gandys.

Whenever they started injecting in it, I believe the well was on a vacuum, it wasn't any problem at that time. But then they started putting pumps on it and trying to pressure it up, and almost immediately after they did that, I noticed that my water rate come up on the Snyder A Number 1.

Q. Okay. Let's refer back to Exhibit 1, and if you'd look at the location for the State T Number 2, does

that indicate when first -- when disposal operations first commenced?

A. Yes.

Q. And when was that?

A. I'm sorry?

Q. When was that? When did disposal operations first commence in the State T Number 2 well?

A. They started about -- about April of --

Q. Let's look at Exhibit 1, if you'd refer to the State T Number 2 well.

A. State T Number 2, okay.

Q. Does that indicate when first disposal occurred?

A. Yes, 9-03, I'm sorry.

Q. Okay. Now let's refer to Exhibit Number 2, if you would, please. What is Exhibit Number 2?

A. It's the Application for authorization to inject by Gandy Corporation.

Q. That was their original C-108 Form, application to the Division?

A. Yes, for Gandys, yes.

Q. Okay. Now Mr. Watson, you've been involved in more than one proceeding before the Division and, in fact, the Commission concerning the State T Number 2 well, haven't you?

A. Yes.

Q. Let's look at Exhibit Number 3. Is Exhibit Number 3 a compilation of all the administrative orders that you're aware of that the Oil Conservation Division and Oil Conservation Commission have issued concerning the State T Number 2 well?

A. As far as I know, this is correct, yes.

Q. Okay. And on top of that compilation is a chronology of those administrative actions; is that right?

A. Yes.

Q. And among those various administrative actions, was DKD involved in the Division proceedings commencing with Case Number 12,905, the Pronghorn application?

A. Yes, I was.

Q. And why did you get involved in that case?

A. Basically because I felt like the notification and everything wasn't properly done, even though they had visited with me on location a time or two, I felt like the notification wasn't quite right.

Also, I had a deep desire to try to protect my San Andres zone.

Q. All right. Let's talk about the interests you were trying to protect here. First, you were trying to protect your Watson 6 Number 1 facility?

A. Also, yes.

Q. And in addition, were you trying to protect the

mineral interest you acquired along with the Snyder A well?

A. Yes.

Q. Now did you acquire the Snyder A Number 1 for the purposes of restoring it to production?

A. Yes, I did.

Q. And what formation were you interested in?

A. Well, it's completely -- currently down in the upper Permo-Penn, and whenever I acquired the well we tried to blow it down. It had quite a bit of gas on it, and we spent about three hours out there and couldn't blow the gas down on it. So I acquired the well and hopefully going to put it back production currently where it was at. Took a little process, I was trying to cash-flow everything, so it did take a little process, little time for me to get it put together.

I was successful in selling about 7 to 8 MCF of gas, which there's no record because Dynegy didn't want to pay for any of that. But I was successful at paying -- or getting some of that gas out. I was successful in retrieving a minute amount of oil out of that well.

And then it loaded up on me. We wound up finally getting a pumpjack and all that stuff and everything, and I thought it just loaded up with fluid. We tried to pump it down and we couldn't get the gas to come back through a process of elimination, and we went ahead and tried to -- I

found out that we had other problems coming in on us.

Q. Now that small amount of gas production you had, was that from the Permo-Penn?

A. Yes, it was.

Q. All right. And how large of an investment did you have in the well?

A. I had about $180,000 invested in it.

Q. Okay. Were you interested in evaluating any other zones for production?

A. Yes, I was very interested in the San Andres zone.

Q. All right. And at the time did you believe that the San Andres could be produced economically?

A. Very possible. Because I had the SWD, even if the thing made two to three barrels of oil a day, I felt like I could probably make it work, to where a lot of people couldn't, I could keep my costs down and everything, even if it was a high cut in water.

The reason I was interested in that is, there was another well straight to the north of me that they had plugged after I acquired all the land and everything, and I did see some oil there that I felt like it was worth looking into this zone before we plugged the well.

Q. Now -- So then was the purpose of your involvement in Case 12,905, the Pronghorn proceeding, for

purposes of protecting your San Andres reserves?

A. That is correct, yes.

Q. Now these -- do you still believe that the San Andres has the potential to produce?

A. I really doubt that it is. I really feel like that they've gone in there and probably washed it away and flooded it with water now. I rather doubt that it's a substantial zone --

Q. All right.

A. -- at all.

Q. Is the well damaged, if you know?

A. Yes, as far as I know, whenever I took it over I had no casing leaks on it, and somehow or another we're washed out with a tremendous amount of water.

Q. By the way, how old is that wellbore and the casing in the Snyder A 1?

A. I believe it was drilled in '66.

Q. All right. Do you know who drilled that?

A. Charles Gillespie.

Q. All right. And are you trying to protect your saltwater disposal well from damage?

A. Yes, I am, that's the main purpose of this. All I'm trying to do is protect my stuff.

Q. Can you elaborate on how you think the Snyder A 1 might have been damaged?

A. The Snyder A 1, as you noticed, that -- Gandys was injecting water, and at the time we noticed it severely is, they were injecting water and they were pumping around 1450 pounds, that appeared that it was coming straight to my well. Again, it flooded it all out. I just -- I just believe that there's more ongoing damage to the Snyder A 1 at the current time.

But in reflection of that, it's not very far from my Watson 6 Number 1, and what I'm really afraid of is -- all records show that I do have cement around my Watson 6 Number 1. But my problem with it is, I don't know if some of the pipe may be laying against the wall of the hole, and it may not be cement totally covering the full amount of the casing.

And so what my idea is, is if we're already in a corrosive zone and already know that it had casing problems in that area, with this pressure as high as it is at that time, and even now, to me, they're aggravating and intensifying the damage to that pipe and increasing it by five or six years of eating away on it, they're escalating it.

In other words, I project that the well ought to be all right for 15 to 20 years. But with the high pressure and all that, if they were to collapse my casing a little bit, swedge it in, so to speak, something you won't

know till we have to pull our tubing. But I feel like that it -- life expectancy may not be but maybe 12 years, instead of 20 years, if that cement is not totally all the way around that pipe, in which we don't really know. It shows it is, but there may be a pinhole in it. We don't know.

Q. Mr. Watson, do you attribute the cause of the damage to Gandy Corporation's operations of its State T Number 2 well?

MR. DOMENICI: Let me object, I don't know what damage you're talking about. Like to ask that question, clarify that.

Q. (By Mr. Hall) Do you want to elaborate?

A. Right now I have two wells there, Watson 6 Number 1, and we have the Snyder A Number 1. The Snyder A Number 1 currently has over 900 pounds pressure with just saltwater flow at the present time, so there's definitely a hole in the casing due to the disposal well pressuring up mine.

It also lets that water go downhole towards the other zones, so it's exposing the other zones.

So that one's already ruined and damaged and more or less done over -- done with. There's not much we can do about it.

But my Watson 6 Number 1 is currently a good

well, as far as I know right now, taking my disposal water. But it has continued pressure, it's already damaged may other well. I am reasonably sure it's going to damage my good disposal well. It's just a matter of time. It's not a question of if, it's when it's going to do it.

Q. Mr. Watson, do you also believe that fluids from the State T Number 2 well have intruded into your San Andres mineral rights?

A. Oh definitely, yes.

Q. Did you investigate Gandy's operations of its disposal well?

A. Yes.

Q. Tell us what you did.

Let's refer to Exhibit 4, why don't you explain that?

A. Okay.

Q. What is Exhibit 4?

A. Okay, after the last couple of hearings -- and apparently I didn't gain a lot of progress -- I decided to start keeping a pressure -- daily pressure chart on everything. When I say chart, it's due to new gauges and stuff like that.

What I did is, I recorded it daily. The pressures on my Snyder A Number 1, the pressures -- and this is all saltwater, you can kick a casing valve open,

it'll flow to the tanks and it'll flow saltwater just continuously. So I made a daily chart of all the pressures and recorded all of my daily pressures on the casing every day for the last --

Q. For what period of time?

A. Since about '04, 10 of '04.

Q. October 1st, two thousand --

A. October 1st, yes.

Q. -- four?

A. Yes.

Q. And how current is your pressure log?

A. It's up to the 24th of this month.

Q. Okay.

A. And as you can see in this Exhibit 4 here, that we -- we got up to some pretty high pressures there. Let's see here.

On page 2 you can see that we got up to pretty high pressure for some unknown reason. I don't have the date here with me right this second, but whenever they shut the Gandy well down for a little while, you can tell that pressure started going back down, went plumb back down. And then whenever they stayed shut in for two or three weeks there, it even got back -- nearly to a vacuum, or it did get on a vacuum.

And then you can see whenever they started back

up, all the pressures come right back up and pretty well correlate with everything.

And up until, I believe, the first of this year, they had a pressure limitation of 962, and as you can see, several times mine got up relatively close to that on my Snyder A Number 1.

Q. And how far away is your Snyder A 1 from the State T 2 well?

A. Just a little over 300 yards, probably.

Q. Okay. Let's look at Exhibit 5, if you would identify that and explain that to the Hearing Examiner.

A. Okay, this is Gandy's State T Number 2 pressure. I didn't make a habit of going over there all the time, I just -- occasionally just go by and looked at the gauge. You can see that they were injecting fairly well until 1-08 of '05, and it's showing about 600 to 1000 pounds there. And the reason that fluctuation is there is because the pump they had at that time, it was making the needle bounce around, so that's where it's at.

And if you follow on down through there, you can see that a lot of times it was up 1100 to even 1420 pounds. 1420 is currently right now, the 4th, 9th, '06.

Q. And what's the source of this data?

A. I personally went and looked at it.

Q. Your personal observations?

A. Yes, that is correct.

Q. Let's look at Exhibit Number 6. Would you identify that, please?

A. That's a Gandy Corporation C-117 monthly report -- or -115, I'm sorry.

Q. And is that a C-115 for September of 2005?

A. That is correct.

Q. And what pressure was reported by Gandy?

A. 210 pounds.

Q. As we look at September, 2005, let's refer back to Exhibit Number 5. Do you see the entry in your data for September, 2005, 9-28-05? What pressure did you observe?

A. I observed it on their gauge at the wellhead.

Q. And what is that pressure? Exhibit Number 5?

A. Okay, what date was that now?

Q. September 28th, 2005.

A. 600 pounds. Is that right? That's what I'm showing.

Q. Referring back to Exhibit 6, the Gandy C-115 --

A. Correct.

Q. -- do you know how Gandy may have determined a 210-pound pressure for that report?

A. No, sir.

Q. Now let's refer back to Exhibit 3. It's the compilation of the Division's orders. And if you would

refer to the very last order in there, that is Order Number IPI-264, dated December 19th, 2005.

A. Correct.

Q. Did Gandy receive authorization to increase its maximum injection pressure?

A. Yes.

Q. And what is that authorization now?

A. It looks like it's 1930 pounds.

Q. And by the way, were you -- did you receive notification that Gandy would be applying to the Division to increase its injection authorization pressure?

A. No, sir, I wasn't aware of it at all.

Q. If you refer back to Exhibit 5, the Gandy pressure log, commencing after they received that authorization, are those increased pressures reflected on those data?

A. They're showing that it is.

Q. All right. Mr. Watson, in your view what effect are these increased pressures having on your two wells?

A. Well, as you can see, on my Snyder A Number 1 it went from about 700 pounds to over 929 at the present time. So anytime they increase their pressure, I can monitor it on my well very well. Like I say, at the current time, on the 24th, it's 929 pounds, and you can see since this -- from 12-01 -- let's say December -- from about December the

1st, you can see that I had 452 pounds on it, and --

Q. You're referring to Exhibit 4?

A. That is correct. So what I'm saying, from the 1st of December I had approximately 452 pounds, and the 24th of this month I had 929, since they increased their pressure.

Q. Mr. Watson, if these pressures are allowed to be maintained, in your view is there likelihood of further damage to the Snyder A 1 and the Watson 6-1?

A. I believe they are, there's not a doubt in my mind.

Q. Okay. Has the pressure against your casing on the Snyder A 1 affected your plans to plug and abandon the well?

A. Yes, they have.

Q. What could happen?

A. Well, I currently only have a stuffing box, rods and tubing in the well. What I'm mainly concerned about is, I'm going to have to do something with all the water flow, get rid of it, which I do have my own disposal. But with 929 pounds, we get out there and get to working on it and it blows out, I don't know what may happen. It could get real ugly, real quick, and very expensive.

Q. Will you have to employ additional measures and incur additional costs to deal with the higher pressure if

you want to plug and abandon the well?

A. Yes, more than likely I sure will.

Q. Give us some details about that. How will you deal with the pressure?

A. Well, you know, I run a hot-oil business, and we use one truck for a kill truck and this and that. And over the years -- I've never had to kill a well with saltwater. I've always had to kill wells with gas, oil or whatever flowing.

But this one, if you've already got water in it, more than likely what we're going to have to do is call in a mud company and haul a bunch of mud in there and try to pump it down and try to help stop some of the water flow. That's going to be tremendously expensive.

Not only that, is, we'll have to have additional frac tanks out there to let it try to flow back in the meantime and get some of the pressure off of it, because it's -- like I say, it can get very serious, very quick. And I just don't want any of it on the ground if I can get it -- at all possible, keep it contained.

Q. Mr. Watson, is your opinion that if the pressure is not eliminated, pressure from the State T 2 is not eliminated, that there's a reasonable likelihood of flows to the surface in other wells in the vicinity?

A. Oh, yes, I'm sure of that.

Q. Have, in fact, there been flows to the surface in other wells?

A. Yes, there have been.

Q. Where did those occur?

A. The most major one was the Snyder B Number 2, owned by Energen. They had water come to the surface and did get on the surface. They had to go in and try to cap that well off until they could plug it. But it has already reached -- gone on the surface, due to the stuffing box blowing out, such as what I'm speaking of on my Snyder A Number 1. It's already came up and went there.

Also on the Snyder A Com, it's also hit surface over there in that Snyder A Com Number 1 owned by Energen. And please -- I need to clarify that. Energen has a Snyder A Com Number 1, I have the Snyder Number 1, so there's two different wells with nearly the same name. But DKD owns -- DKD owns the Snyder A Number 1, Energen owns the Snyder A Com Number 1.

The Snyder A Com Number 1 they wound up having to plug, 18-barrel-a-day well, due to damages that we feel like it is created by the State T Number 2 disposal.

Q. Mr. Watson, in your opinion are the fluids being injected through the State Number T 2 well being contained within the permitted injection intervals?

A. Re-state that again, please.

Q. In your opinion, are the fluids being injected through Gandy's State T Number 2 well being contained within the permitted injection intervals?

A. No, I don't believe they are.

Q. Okay. In your opinion, are Gandy's injection operations adversely affecting other properties and operators?

A. Yes, it is.

Q. Do you have any data to confirm that?

A. Yes.

Q. Let's look at Exhibit 7. What is that?

A. Exhibit Number 7 is where I called Energen to ask permission to put my own gauges, and I put brand-new gauges on each one of their wells before they came in and plugged them.

Energen Snyder B Number 2, as you can see, only did it for just a few days there before they got there, and you can see that the pressure went from 280 to 386 pounds in the Snyder B Number 2.

On the Snyder A Com Number 1, you can see that I put it on there for approximately -- oh, several days there, and it went from 210 to 382. And I observed that myself, I did put new gauges in, and I did check it daily myself.

Q. And again, the Snyder B 2 and the Snyder A Com

Number 1 are reflected on Exhibit Number 1?

A. Yes.

Q. So we can determine their proximity to the State T Number 2 well?

A. That is correct.

Q. Mr. Watson, are you requesting the immediate termination of Gandy's injection authority?

A. Yes, I am.

Q. Would that be necessary to reduce pressures around your well to allow the plugging and abandonment of the Snyder A Number 1?

A. Yes, it will.

Q. And are you asking the Division to issue such relief immediately after the hearing before the issuance of a final order?

A. Yes.

Q. And why is that necessary?

A. Well, it's already pressured up so much, and I feel like that they're plume is plumb full, they've had to increase their pressure trying to get rid of some more, and as you can tell by my pressure readings that it's just getting greater and greater. So there's ongoing damage, not only to my wells but the surrounding area there.

My main concern is -- again, is protecting my Watson 6 Number 1, which is my SWD. My Snyder A Com, it's

history, it's just ongoing damage. And anytime that water gets up towards the surface, produced water -- as you can see, these wells were drilled a number of years ago, a lot of them. I don't know how good the casing may be between surface and 4000 feet.

Q. All right. Will you be requesting additional time from the Division to maintain the Snyder A 1 in its TA status, pending the outcome of this proceeding?

A. Yes.

Q. In your opinion, Mr. Watson, would the granting of your Application be necessary for the prevention of waste, the protection of correlative rights, and prevention of further damage to property?

A. Yes.

Q. Were Exhibits 2 through 7 compiled by you or at your direction and control?

A. At my direction.

MR. HALL: At this point we'd move the admission of Exhibits 2 through 7. We will offer Exhibit 1 through our next witness, Mr. Examiner.

That concludes our direct of Mr. Watson.

EXAMINER JONES: Objection? Any objections?

(Off the record)

MR. DOMENICI: Could I ask him some questions about Exhibit 6? I don't have any objection to the

other --

EXAMINER JONES: Sure.

MR. DOMENICI: Or I'm sorry, Exhibit 5.

EXAMINER JONES: Sure.

MR. DOMENICI: I don't object to 2, 3, 4, 6 and 7.

EXAMINER JONES: Let's first admit Exhibits 2, 3, 4 and Exhibits --

MR. DOMENICI: -- 6.

EXAMINER JONES: -- 6 and 7.

MR. DOMENICI: Yes.

EXAMINER JONES: And go ahead and ask --

VOIR DIRE EXAMINATION

BY MR. DOMENICI:

Q. Okay, Exhibit 5, that is based on readings you took from Gandy's well?

A. That is correct.

Q. And how did you record those readings?

A. I read it off their pressure gauge.

Q. And how did you record whatever you read off the gauge?

A. I just wrote them down on a paper and kept a log, just like you're seeing here.

Q. Is this the log you kept?

A. I have a handwritten log back in Tatum, yes.

Q. So this is not the handwritten log, this is not the actual log that you --

A. Well, we typed it so that you could read it a little better, sir.

Q. And you don't have the handwritten log?

A. I do not have it with me right now, no, sir. But I do have the log in Tatum, in my office.

MR. DOMENICI: I'll object to that, without seeing their handwritten log. I don't think it's a reliable document, I don't think it's the best evidence either.

MS. MacQUESTEN: Mr. Hall?

MR. HALL: I think the witness has testified that the data shown on Exhibit Number 5 are based upon his personal, direct observations. They're not created by a third party. Whether they're written in hand or typed up so that they're more legible is inconsequential. It's certainly admissible.

(Off the record)

MR. DOMENICI: Let me ask -- If I could follow up --

MS. MacQUESTEN: (Nods)

Q. (By Mr. Domenici) Did you record any additional information, other than this, on your handwritten log?

A. Did I --

Q. -- record any additional information, other than what is on this page, on your handwritten log?

A. I made a few jot-downs, just to refresh my memory of what was happening, maybe.

Q. Did you record whether the well was injecting at the time you took your reading?

A. Yes, I did.

Q. And that's not on this log, is it?

A. No, sir.

Q. And that would make a difference, wouldn't it? That's why you wrote it down on your handwritten log?

A. Yeah, I did not whether the pump was running or was not, whether it was up -- running or not.

And for instance, if you'll look at that 1-8-05, it's about -- oh, nine or ten down --

Q. Yeah --

A. -- from the top of the page --

Q. Okay.

A. -- all right, that 600 to 1000 there --

Q. Right.

A. -- I can tell you that pump was running at that time, because they had a reverse pump on it. And due to the pumping, that's the reason for the fluctuation from the 600 to 1000 pounds, because the needle on the gauge was bouncing.

So that's how I can tell it. You may not be able to, but I can tell it.

Also the next day, 825 to 850.

2-22-05, 1000 to 1400 pounds, I can tell you that pump was pumping then.

Whenever it's solid like the one below it, 3-10-05, I can't positively identify that, but I just would be more than willing to say that that pump was shut down at that time, because it's an even 1000 pounds.

You come down two more, it's 1450-plus. Due to the gauge, the large numbers and stuff, I'm saying, is solid 1450-plus pounds, but more than likely the pump was down.

Q. When you say more than likely, are you recalling what your notes said? Is that how you're telling us it's --

A. I'm just telling you that I observed this and I've read gauges, and I know enough that I'm almost sure that the pump was down at this time.

Q. Because -- and you wrote that in your notes, that's my question?

A. Oh, yeah. Yeah, whether it was pumping or not.

Q. So for all of these entries, we could tell from your notes whether they were pumping or not?

A. More than likely, yes.

Q. And right now you're trying to recreate that, based on what's on this page?

A. Right.

Q. You don't have specific recollection of -- for each time you were out there?

A. Oh, no, not each specific time, no.

But I was there enough to know that I can tell you that whenever the pressure fluctuation was 600 to 1000 pounds, the gauge was bouncing around, the pump was running.

MR. DOMENICI: I have the same objection.

MR. HALL: Mr. Examiner, let me point out that without objection Mr. Watson was qualified as an expert. And as such, he's entitled to rely on underlying data to formulate hearing exhibits, which is what this is. There's been no request before now for the underlying data utilized by the expert in formulating his opinions and his testimony.

I'll tell you, we'll be glad to provide the information to Mr. Domenici as a courtesy, but this exhibit -- this information is certainly admissible.

(Off the record)

MS. MacQUESTEN: We're going to admit the evidence. We believe the objections go more to the weight than to the admissibility, so we will admit them at this

time.

MR. DOMENICI: Just to follow up, when -- you indicated you would provide it today, during the hearing?

MR. HALL: Can't make that promise today.

MR. DOMENICI: Okay. Well, it doesn't do us any good after today, so...

MR. HALL: It hadn't been requested before now, so it's a little late to be asking for discovery.

MR. DOMENICI: I'm just saying you offered to provide it, and I was trying to verify that that was for us to go to the weight of this exhibit, which you just admitted subject to challenges to the weight.

So I think -- and the counsel, before you made that ruling, offered to provide the exhibit, so I think we should -- or that information -- I think we should have that today. I think that's part of your ruling.

MR. HALL: I think you've ruled on the objection.

MS. MacQUESTEN: The evidence is admitted. Let's move on.

EXAMINER JONES: Exhibit 5, with the idea that Gandy Marley [*sic*] can provide their own pressure data, daily pressure data on that well, to -- we're going to go ahead and admit Exhibit Number 5.

MR. HALL: That concludes our direct of this witness.

EXAMINER JONES: Redirect [*sic*]?

CROSS-EXAMINATION

BY MR. DOMENICI:

Q. Let me make sure I have the time sequence of some of your testimony down.

A. I'm sorry?

Q. Let me make sure I have the time sequence of some of the things you testified to. You indicated that you obtained the Snyder A 1 well in May of 2003. I think you said the fifth month of 2003?

A. That is correct, yes, sir.

Q. And you obtained that from Energen?

A. That is correct.

Q. And as part of obtaining that, did you agree to take the plugging liability --

A. Yes, I did.

Q. -- from Energen?

And then I think you testified that you noticed the water rate on the Snyder A 1 increased. So that was sometime after May of 2003 you noticed that, correct?

A. Yes. It took some time there to get my pumpjack and all of my stuff put together there like I needed to operate that lease.

Q. And you were asked to provide records of the Snyder A 1. Did you provide all the records that would

indicate when you obtained information on that water rate increase? Have you provided all of those?

A. To the best of my knowledge, yes, sir.

Q. So those would confirm the time period, those records would confirm the time period when you noticed the water rate increase that you just testified to?

A. Yes, sir, definitely, the one -- now again, I need to remind you that, you know, I went to blow that well down, I and an Energen hand, and it was blowing gas. Well, whenever I got ready to put the gas meter on and everything, it had loaded up with fluid, I suspected, so then I went trying to get my pumpjack and all that stuff put together. So I was thinking at that time that possibly it loaded up with fluid, which is not uncommon from the formation.

So what I'm trying to tell you is, it did load up with some water at that time. I did not know it at that time, until I put my pumpjack and all that on. So the water increase is going to be after I got my pumpjack on.

Q. Now you produced records of the regulatory history of Gandy's well as part of your exhibits. That's your exhibit -- Let's see, Exhibit 3 is your chronology of administrative actions, correct?

A. Yes, it is.

Q. And you aren't asking this Hearing Examiner to

reverse any of the decisions that were made previously, or are you?

A. Am I asking him to reverse any of these?

Q. Yes.

A. No, I'm asking him to get them to plug it out now, before it does any more damage.

Q. Are you asking that the -- Are you indicating that the Hearing Examiner made errors when they made a determination in the decision of July 8th, 2004, which is part of Exhibit 3 -- for the record, it's --

A. What are you -- I don't follow you, I'm sorry.

Q. Okay, if you'll look at Exhibit 3 -- and I think starting from the back is the best -- there's an order in there dated -- that says -- it's Order, 12,171.

A. 12,171.

Q. Do you see that order?

A. Yes.

Q. Okay, on page 3 there's paragraph (12), page 3 of 5, paragraph (12). Do you see that?

A. Oh, yeah, where it's talking about the San Andres?

Q. Page 3, paragraph (12)?

A. Yeah.

Q. You were aware when, I think Mr. Fesmire signed this decision --

A. Yes, sir.

Q. -- that that was the final decision at that time on paragraph (12).(a), correct?

A. Yes.

Q. And you didn't appeal that, did you?

A. No, I lost that battle, and that's over with. I mean, the San Andres is washed out now, so let's move on to new territory, because it's gone.

Q. Okay --

A. So protecting the San Andres is over with.

MR. HALL: Let him ask a question.

Q. (By Mr. Domenici) I want to go back in time to July of '04, all right?

A. Okay.

Q. As of that time you hadn't hooked up to your well, had you, as you just described earlier?

A. July, '04?

Q. Yes. You hadn't -- and you hadn't developed the information on water that you just testified to, that there was a water increase?

A. Well, I'm not sure about the date there. Now what -- July, '04?

Q. Well this decision was July, '04, the document in front of you. It's dated July 9th, 2004. Do you see that? The second --

A. Yes, okay.

Q. -- second paragraph --

A. Okay.

Q. -- up at the top --

A. All right.

Q. -- July 4th [*sic*]. You didn't appeal that decision that as of that date this Division was -- found that, The evidence in this case indicates there is likely a very small amount of moveable oil in the...San Andres within this area, did you?

A. I didn't dispute it.

Q. You didn't appeal it?

A. No, I did not appeal it, no, sir.

Q. And you didn't appeal the next finding, which said, Much time and...opportunities existed in the past for DKD and other operators to have tested the upper San Andres. To date, no one has tested it for commerciality.

You didn't appeal that decision, did you?

A. No, sir, I did not appeal it.

Q. Now let's talk about -- I think you talked about two wells that you have. One is the -- is your disposal well?

A. That is correct.

Q. And you have a permit from this Division to inject into that disposal well?

A. Yes.

Q. What's your interval that you inject into?

A. I inject approximately 10,800 to almost 11,000 feet.

Q. And you are not contending that impact on that well would impact a correlative right you have, are you?

A. I don't understand the question.

Q. Okay, I'll rephrase it. You don't contend that impact on that well -- you're alleging there might be impact in the future, aren't you, from Gandy's disposal well?

A. Yes.

Q. If I understood your testimony, you're saying that could occur in the future?

A. That is correct.

Q. My question is, you are not contending that if that occurs, that will impact your ability to extract oil and gas from that well, are you sir?

MR. HALL: Let me object. I think there's some confusion about the question. It's not a -- Are we talking about the producing well or the injector?

MR. DOMENICI: The injector.

MR. HALL: You're asking him whether he will produce from the injector?

MR. DOMENICI: Yes.

THE WITNESS: No, I won't produce from the injector because it's taking saltwater.

Q. (By Mr. Domenici) And I think you testified that for the Snyder A well you had invested money in that to try to attempt to produce it?

A. About $180,000, yes, sir.

Q. And none of those records are here today, are they, of any of that expense?

A. Any of that expense, no, sir.

Q. And I think in the conclusion of your testimony you indicated that you were asking for -- or were planning to ask for a delay in time until when you would have to plug that well?

A. That is correct, yes, sir.

Q. Have you calculated the amount of time?

A. No, sir, it depends on the hearing.

Q. So you're not planning to ask for a specific amount of time from the hearing? You don't have a specific amount of time that you're requesting?

A. I probably will ask for one year contingency.

Q. From today? So one more year --

A. From when my expiration date runs out on it at the current time.

Q. And that is when?

A. I believe it's -- I haven't looked at it in a

while. I believe it's somewhere around the end of June, July, somewhere in there, I believe.

Q. And that is the document -- or that's the date included in your notice of intention to plug and abandon? Is that where you're getting that date from?

A. I've already filed for an extension once, through the Hobbs office, and I'm not sure when that runs out, sir.

Q. And you filed that request December 15th, 2005, roughly?

A. I believe that is correct, somewhere along there.

Q. Now you didn't -- I don't know if your attorney has them, but you heard your attorney speak about letters he had written to the Division asking if they'd take action with respect to Gandy's well. Are you familiar with those letters?

A. Yes.

Q. Have you seen those letters?

A. Yes.

Q. When were those letters written?

A. I don't remember. It wasn't very long ago, I don't believe, but I don't remember.

Q. Were they written before this action was filed?

A. I'm not sure.

Q. Did you write them or your attorney?

A. My attorney, I'm sure.

Q. Did you follow up with them, did you talk to anyone at OCD about what was going on with those letters?

A. Did I personally talk to them?

Q. You personally?

A. No, sir.

Q. Have you talked to anyone at OCD asking that they take any kind of action with respect to Gandy's well?

A. Yes, sir, verbally.

Q. Who have you talked to?

A. The OCD office in Hobbs. I just notified them.

Q. Let me ask you, to the best of your recollection isn't it true that the letters your attorney wrote were written after your notice of intention, dated December 15th, 2005?

A. State it again, please?

Q. To the best of your recollection, were the letters your attorney wrote that you referred to in this -- the opening discussion -- were they written after December 15th, 2005, after your notice of intention?

MR. HALL: If you know, you can answer the question.

THE WITNESS: Well, I was just trying to think, and I think they were written after the extension was filed.

Q. (By Mr. Domenici) Okay. Let me show you this,

and see if this is the document you're referring to as the extension. If you -- Are our exhibits over there?

MR. LAKINS: Yes, that would be the last page --

Q. (By Mr. Domenici) If you turn to that other binder --

MR. LAKINS: -- in Exhibit 3.

Q. (By Mr. Domenici) -- and look at Exhibit 3, the last page, is that the -- when you say the extension, is that the extension?

A. Yes, sir.

Q. Okay, did you file any notices prior to this? Is this the first notice of intention to plug and abandon?

A. That is the first form that I have filled out.

Q. First form. And in that you asked for a one-year extension and were granted six months?

A. That is correct.

(Off the record)

Q. (By Mr. Domenici) Is there -- Have you had a chance to review the well records for your Snyder A Number 1 well that you produced to us?

A. Have I had a chance to review them?

Q. Are you familiar with the historical records with that well?

A. Somewhat.

Q. Are there any records that you dispute -- is

there anything inaccurate in the public record or the historical records for the Snyder A Number 1 well that you dispute?

MR. HALL: I'm going to object to that question, Mr. Examiner. If he can refer us to a specific document that he believes in question, but I -- it's inappropriate to ask the witness to speculate, something like that.

MR. DOMENICI: I'm not asking him to speculate, I want to be sure that he doesn't challenge any of those records. So let me just ask it.

Q. (By Mr. Domenici) Do you challenge any of the historical records related to the Snyder A Number 1 well?

MR. HALL: Same objection.

MS. MacQUESTEN: Mr. Domenici, I share Mr. Hall's concern that that's a rather broad question. Could you --

MR. DOMENICI: Okay, let me try to break it down.

Q. (By Mr. Domenici) Do you challenge any of the production records, public production records, as not being reflective of the actual production from the Snyder A Number 1?

MR. HALL: Well, again, Mr. Examiner, I would make the same objection. If he wants to bring forward a specific document of production, we'll be glad to look at that with the witness, but a blanket assertion like that we would object to.

MR. DOMENICI: I think if he is aware of production outside of the record or is going to challenge production history -- I think he should be prepared to disclose it.

(Off the record)

MR. DOMENICI: If he says he doesn't know, he can't even say that.

MR. HALL: Why don't we repeat the question?

Q. (By Mr. Domenici) Do you challenge -- Do you have any information currently available to you that would lead you to challenge or question any of the historical production records on the Snyder A Number 1?

A. I don't know at this time.

Q. And do you have any information that would -- available to you now, that would lead you to challenge any of the well history records in terms of the well condition, the well drilling?

A. I'm not sure.

(Off the record)

Q. (By Mr. Domenici) If you'll look on Exhibit 2, the third page, towards the bottom of the page there, there's a casing program. Do you see that? That's the third page.

MR. HALL: I'm sorry, Pete, is this your exhibit?

MR. DOMENICI: Yes, third page of Gandy Exhibit

2.

THE WITNESS: Okay, Exhibit 2, third page --

Q. (By Mr. Domenici) Yes.

A. -- correct?

Q. Towards the bottom there is the casing program.

A. Okay.

Q. And that's the Notice of Intention to Drill or Recomplete. You're familiar with that form?

A. Yes.

Q. And in the casing program section, do you see where it mentions liner?

A. Yes.

Q. Are you familiar with what that means?

A. Yes.

Q. What did you -- What was the consideration, the complete consideration -- by that I mean the purchase terms -- between you and Energen for the Snyder A Number 1?

A. What was the purchase terms?

Q. Yes. What did you give Energen in exchange for whatever you acquired from them?

A. I took the wellbore over for the plugging, and I paid for some of their electrical pumps to be pumping.

Q. And then you obtained those pumps, you acquired those pumps?

A. No, I just paid the electricity, because we all

had the same bank on it, same electrical bank.

Q. So you paid your share of the electricity?

A. That is correct.

Q. Were you aware when you took that well over, or acquired that well from Energen under the terms you just described, that they had performed the activities described on Exhibit 3? If you'll look at Exhibit 3.

A. I'm sorry, but I don't quite understand your question. Which page did you --

Q. Okay, Exhibit 3, the first page.

A. First page, okay.

Q. Okay, do you recognize that, first of all?

A. Yes.

Q. Were you aware that that -- the activity described there had taken place before you obtained the well from Energen?

A. Yes.

Q. You were aware of that?

A. Yes.

Q. And I think, just to finish up, you were talking about when you plugged this well, you were asked about some additional items you were planning to do, that you might need to do when you plugged the well. Do you recall that testimony? Additional measures or costs to plug this --

A. Okay.

Q. -- well, the Snyder A Number 1. Do you recall that testimony?

A. I'm not sure what you're --

Q. I'm just generally talking about that. You recall talking about that you anticipate additional costs or measures --

A. Yes.

Q. -- to plug --

A. Yes.

Q. Have you scheduled any of those activities? Have you scheduled any of the equipment?

A. Not at the present time.

MR. DOMENICI: That's all I have.

EXAMINATION

BY EXAMINER JONES:

Q. Mr. Watson, I get to ask some questions now.

A. Okay.

Q. So what distance is it from the State T 2 to the Snyder A 1 and to the Watson 6-1? Did you calculate that or --

A. Okay, I'm just using observation when I'm standing there, so it's an estimate. From my Watson Number 6 SWD --

Q. Okay.

A. -- to the Gandy State T Number 2, I'm going to

estimate it no more than 400 yards.

Q. Okay. Okay, that's -- is that scale you've got on this map correct?

MR. FRIESEN: Yes, sir, it's correct.

THE WITNESS: You have to ask Mr. Freeman.

Q. (By Examiner Jones) Okay. So you -- basically, you are within a half a mile of that well?

A. Definitely, yes.

Q. With both of these wells?

A. Yes, sir.

Q. When their well was permitted -- you did file objection and come to hearing on that. Were you concerned at that time about damage to your wells?

A. No, sir, I was trying to protect the San Andres zone at that current time.

EXAMINER JONES: Okay. Thank you, Mr. Hall.

Q. (By Examiner Jones) So speaking of that, the San Andres zone that you were trying to protect, it's pretty thick. What zone in the San Andres were you looking at?

A. It was the upper San Andres zone. I believe it was around -- around 4000 to 4400, 4800 feet, if I remember correctly.

Q. Okay. For the record here, can you go into again why you thought the San Andres was productive? We don't want to re-hash it --

A. Sure.

Q. -- if it's been heard in previous hearings, but why did you think the San Andres was productive in that upper zone, or possibly productive?

A. Okay, on the north end of my pasture down there, we have a well called the State T Number 4.

Q. Is it on this map? Okay.

A. I believe it is.

Q. Okay, that's the one --

A. If you look straight up from my Watson 6 Number 1 to the State T Number 4, that's the one that I had to request to get plugged on there, because they hadn't plugged it in several years, so I requested them to plug that.

At that time, Pronghorn owned it. And also at that time, Marks and Garner come in to plug that well for Favor, I guess, or Pronghorn. They cut the casing off at, I believe, around 5500 feet, if I can remember correctly. They came out and -- refreshed memory and stuff, that -- they come out and it was highly corrosive and eat up bad from about 5000 foot down to 5500, if I remember correctly.

Also, in order to set the cement, they had to flush out approximately 50 barrels of oil, San Andres oil -- black and viscosity and everything, appeared to be San Andres oil. They flushed out about 50 barrels of oil so

that they could set the cement plug just above the casing or right in that area.

The next morning, we come back and they had flushed out another 30 barrels of San Andres oil out of it, in order to either tag the plug or do whatever procedure they needed to do. But I saw approximately an estimated amount of about 80 barrels of oil in there.

Q. Did they reverse it out?

A. Yes.

Q. So that -- out of that cut casing?

A. That is correct.

Q. So the casing hadn't been recovered at that time, they just shot it off and pulled up a little bit and --

A. No, the casing was out on the ground, so I guess they went back in to set the plug.

Q. So you're not sure how deep they were when they were reversing?

A. They were right at 5000 feet, or in that neighborhood. I don't know exactly, but they were somewhere --

Q. Okay. Did you see the injection profile on -- that was run on the State T Number 2, that was run after the last Commission hearing and that Gandy actually ran on that well? Did you take a look at it?

A. Are you talking about a step rate test?

Q. No, an injection profile, injectivity profile, tracer, temperature log.

A. Yes, tracer log, yes, sir, I did see that.

Q. Okay, what -- Do you remember what zones was taking the fluid in that well?

A. Yeah, there was a certain percentage, and I can't recall it off the top of my head, certain percentage going into the San Andres. It also was going in around 5500, 5800, I believe, in that neighborhood. And then there was another one at 6300. And with that pressure survey they showed that it was going in 6300 and -- I can't remember whether there was any more below that or not, but I know they didn't go down and tag a plug or didn't go down and -- they said no other water was escaping below that, is what the tracer survey said, if I remember correctly.

Q. And you would have no reason to suspect there's been any change in that wellbore since that tracer log was ran and just determined the bottom plug, where it was at in that well?

A. I really don't know. I do know that -- upon observation that they've been in and re-perforated all that. I know that in the last hearing that I brought them into, they only had intervals from approximately 6000 to 6400 feet, if I remember correctly. They'd already perforated from 4800 to 6800, the Commission allowed them

to expand on that. They -- That got them back within compliance, however they want to do it is fine.

But I just know that they only had one interval that they was supposed to be getting into, and now we've got over 2000-foot interval, and I do know that -- on observation, that they have re-perforated or done some kind of re-metal work to it. What they did, I don't know for sure.

Q. Re-perforated after the last hearing?

A. Yes, sir.

Q. Just more perforations within the same zone?

A. Well, I don't know.

Q. It should be in a sundry in the well file. Did you look on line to the well file?

A. Uh-huh.

Q. You did?

A. Some. And I think it will be presented later on.

Q. Okay.

MR. HALL: (Nods)

Q. (By Examiner Jones) Okay, so we're going to talk about that later.

But I guess the point I was making is -- and I wanted you to decide on here, is, the San Andres zone that you think may have been damaged by the water, do you think it's the lower San Andres Glorieta, or do you think it's

the upper San Andres that might still have the oil in it?

A. I'd be reluctant to say that there's anything left. I honestly feel that by putting that water anywhere they can and at this amount of pressure, they've washed it away. Whatever chances was there, I'm going to say it's gone.

Q. So doing a risk analysis, you would not go back and spend the money to perforate and frac or acidize the San Andres, even upper San Andres, in your well now?

A. I don't believe I would, no, sir, I just -- I believe all my chances are pretty well gone, I really do.

Q. Okay. So what's that well good for now?

A. Basically, it's a good monitor well to watch the State T Number 2 right now.

Q. How deep is it?

A. I think its TD is around 10,200, if I remember correctly.

Q. So what's the main use of wells in this area right now?

A. Well, there's a lot of production wells there through Energen, which is some of the old Gillespie wells. There's still several of them that's still producing.

Q. In what zone?

A. Some of them -- I just don't know. I mean, they're 10,000 or better. And then --

Q. So they're Wolfcamp --

A. Yeah.

Q. -- Permo-Penn wells?

A. There could be a few of them left in there, but most of it is Strawn, I believe.

Q. Oh, Strawn, down in the Pennsylvanian?

A. (Nods)

Q. So what -- So you're saying your only alternative is to plug that well right now?

A. That's the way it's shaping up, yes, sir.

Q. So you don't need another saltwater disposal well in this area; is that what you're saying?

A. No, sir, because my Watson 6 Number 1, as I testified before, is taking around 2400 barrels a day on average. Some days that's a little shy of it, and most days it's more than adequate at the present time. Plus I have different mineral owners who are on the Snyder A Number 1 that I would have to re-negotiate its fee land over there, or fee minerals.

Q. In the San Andres? So you would --

A. Yeah, from the surface all the way down.

Q. Okay. So you have an obligation to either produce the San Andres, plug it or justify to those fee owners an injection well in the San Andres; is that right?

A. That's three options, yes, sir.

Q. Or an injection well in your -- down deeper. But you don't need one; is that --

A. I do not need one at the present time, no, sir.

Q. Okay. The Snyder -- the -- Energen's well, the Snyder A Com Number 1, collapsed casing last year?

A. Yes, sir.

Q. It's coming from all the way up to the State T Number 2?

A. Yes, sir.

Q. That's a long ways away. How far would that be, do you think? Let's see, I guess maybe --

A. Just about a half a mile, maybe.

Q. Okay. Little over a half a mile, maybe?

A. Yes, sir.

Q. But -- So you would say the directional permeability is basically north-south in this area?

A. No, sir, it's all over, 360 degrees.

Q. It's good then, it's good injectivity?

A. As I testified before, as you can see, the Snyder A Com Number 1, I have accurate observed pressures. The Snyder A Com -- or Snyder A Number 1, which is mine, I have accurate, observed by me, pressures.

If you'll go from the Gandy State T Number 2 and go to the Snyder B Number 2 for Energen, which is straight east or to your right there, I have accurate information on

it. I can tell you, I witnessed it, I observed it, I saw it all myself with new gauges.

Q. Okay, it looks like your casing -- the casings in that area are pretty rotten, and they don't stand up to any additional reservoir pressure.

A. I think you will bear with us that you will find this later -- at a later time.

Q. Okay, so there's going to be some more -- What about your Watson 6 Number 1? Is it -- Where's your packer set on that well?

A. It's set, I believe, around 10,300.

Q. And you've got your annulus full of --

A. -- packer fluid.

Q. -- packer fluid?

A. It's full of packer fluid, and it has been tested on an integrity test and it has passed that at the last test.

Q. When was that?

A. Approximately -- Well, it was right after I put it on, and then we just got through with a Bradenhead inspection in December -- January, I'm sorry, January this year.

Q. Okay. But you talked earlier about the possibility of casing damage to that well in the same injection zone that Gandy is injecting into right now,

right?

A. Possibility, yes, sir.

Q. Okay. But you also mentioned something about you think their injection is maybe going out of zone, above or below -- I understand that the interval they've been --

A. Okay --

Q. Do you really believe that?

A. Okay, again, upon observation from me, you go back to the Snyder B Number 2. Gandys have done some kind of well work on their well, trying to make it take more water, you know, which is normal procedure, on the Snyder B Number 2. Once they did that workover here, their pressure had reduced some. The Snyder B Number 2 had lost some pressure for a while.

Upon the plugging unit coming in there, whenever they set the bottom plug, they had to swedge the casing out on it, they had to go down and set the bottom plug on it. Once they got the bottom plug -- and again they had mud fluid, mud-laden fluid in there, in order to help plug this well, stop the water flow.

Q. What was the original perfs on that well?

A. I think it was -- well, it was better than 10,000. I don't know, I'm not real familiar with it, I'm not sure.

Q. So they swedged the casing, went down --

A. Swedged the casing --

Q. -- to plug --

A. -- went down to plug, set the plug, and in 12 minutes from the time they set the plug, water hit the surface.

Q. Okay, so they've got a casing leak in the San Andres or Glorieta? What --

A. They've got a casing leak. I'm not a -- You know, I don't know, I can't see down there so I don't know. All I can tell you is, water hit the surface in 12 minutes after they set the plug.

Q. Okay.

A. So what I'm trying to tell you is, that water was going and going down in another zone.

Q. Okay, that's what I was getting at. So you think for a period of time there, there was a well within the area of review of the State T Number 2 or beyond -- a little bit beyond it, that was actually being a conduit of fluid out of zone?

A. Exactly. Now, I testified a while ago that I read the pressure readings on all this. But what I'm trying to tell you too is, when they put the mud-laden fluid in there to stop the flow up there, they had to pull the tubing out of the well and the packer -- or the tubing and an anchor. They had to swedge it to get it out and

everything, and then they got that plug back in there. Again, like I'm telling you, whenever they set the plug, in 12 minutes water hit the surface.

Q. Okay. Okay, but if the casing leak is in the same zone that Gandy is permitted in the State T Number 2, it's not the fault -- is it still the fault of their well, or is it the fault of the Snyder B Number 2 that it's not correctly, or is it not cased correctly? In other words, is it -- it wasn't moving -- you don't have any reason to believe the State T Number 2 injection was moving above the San Andres or below the Glorieta in that wellbore itself, but in surrounding wells. You're saying it did it in surrounding wells?

A. Yes, sir, it did it in that one particular one, I know that.

Q. Okay, okay. Now the -- Your well, the Watson 6 Number 1, you stand to lose a lot if that casing collapses in that well?

A. Yes, sir.

Q. I understand that. And you may have already lost the well and you don't know it yet; is that right?

A. It maybe swedged in somewhere that I'm not aware of, until we get ready to pull it and it doesn't pass the test.

Q. And that will be the time you'll know it?

A. That's when we'll run on to it.

Q. Okay. If -- Let's say the casing is not collapsed yet on that well. What would be your remedy to this situation? How would you protect your well?

A. I don't know if there's any way I can protect it.

Q. Okay, could you -- What size is your casing?

A. Five and a half.

Q. Oh, okay. You haven't considered running a scab liner or something like that or -- in that -- in -- How much would that cost?

A. I'm not familiar with that, I don't know.

Q. Would it reduce your injectivity to lower the ID of the well, of the casing in the well?

A. Well, I currently have 2-7/8 tubing in it, and anytime you put anything inside of it, you're restricted somewhat more. But what my main focus point is right now, I don't know that I have any damage on the Watson 6 at the current time, but whenever they have been pumping at 1400 pounds pressure -- and now they've got it bumped up to 1930 limitation, and I think they're currently putting in between 1400 and 1500 pounds right now -- I don't know how you're going to protect it to keep it from going in there.

But if we shut the well down and it goes back to a natural state, then I feel like you're reducing of collapsing my casing.

Q. Okay. How often do you monitor the pressure on your annulus?

A. On what?

Q. On that Watson 6 Number 1.

A. About a week, every week, we check the casing on it, be sure that things are all right.

Q. And it's been pretty constantly good so far?

A. So far, it's been okay. So far.

Q. Okay, you've obviously had lots of conversations with Energen, and I don't -- I guess I don't want to have any second-hand conversations here, but --

A. Well, now, I do, but I'm telling you on the Snyder B Number 2 what I just told you I observed. I didn't ask anybody, I observed that.

Q. Do you know who owns the wells over in the other section, Section 1 to the different township here, to the -- straight to the west?

A. Over where the State C, B, and all this is over here, is that --

Q. Yeah, the Bs and the Cs?

A. Energen pretty well owns all of them, yes, sir.

Q. And it looks like they're having casing leaks. According to your map here, you've got a lot of casing leaks highlighted.

A. And then the last three weeks you can probably

add a couple more to it.

Q. Oh, really? On your Watson 6 Number 1, you bought that wellbore; is that right?

A. Watson 6 Number 1? Yes, I have -- I own the land to the surface, and the wellbore was on that surface.

Q. Did you get drilling records with that well when you bought it?

A. No, sir, I did not get any drilling records.

Q. So you don't have a record of centralizers being used on your casing or -- Have you run a bond log on the well to see how good a cement?

A. It's a matter of record, and I think Mr. Friesen can tell you more about it later on, possibly.

Q. Okay. Do you think there's any damage to fresh water in this -- due to injection of either of these wells?

A. I have no idea.

Q. And do you think your well that's being injected is -- it's going on a vacuum --

A. Correct.

Q. -- so do you have any idea that -- Is your well staying within zone, do you think, your injection?

A. Yes, sir, I believe so.

Q. You don't see any evidence of surrounding wells being affected by your well?

A. No, sir. The closest one to mine probably is

that little 6 Number 1, which is kind of back to the -- below my Watson 6 Number 1, back there to the right. They're currently producing out of the Strawn, and it's a pretty stout well, or gas well and stuff. And I'm at 10,080, and I know they're at 12-something, and I'm not -- they're well below me, the next closest one, and their production has not been affected at all. As far as I know, no one else's production from my well. But mine stays on anywhere from 4 to 26 inches of vacuum, so there's no pump on it. The only thing I've got is an automatic valve to open and close the water. So, you know, I don't see how I could affect anyone.

Q. You receive water from other operators, and then they put it in your tanks and then it just flows naturally into your well; is that what you're saying?

A. That is correct.

Q. You've got an enviable situation, I would say, in the saltwater disposal --

A. It's far better than I probably deserve, but yes, sir, I'll take it.

Q. That Snyder B Number 2, the perforations in that well were almost correlatable, aren't they, with your injection in the Watson 6 Number 1?

A. I'm not sure.

Q. You're not positive?

A. No, sir.

Q. Okay. But you did testify that once the plug was set above their perforations, then water hit the surface --

A. That is correct.

Q. Okay.

A. Now previous -- before that, I do know that they were selling some gas off that well.

Q. Okay. Okay, we currently do not require notice for injection pressure increases to surrounding operators as a matter of commonality, but I guess it would fall under the affected -- anybody affected by an order of the Division should have been noticed.

But you do think that the injection pressure increase, you should have received notice of that before it was approved --

A. I feel like it, yes, sir.

EXAMINER JONES: -- in this case? Okay, I have no further questions.

MR. HALL: I have no redirect, Mr. Examiner.

EXAMINER JONES: I'm sorry, yes?

EXAMINATION

BY MS. MacQUESTEN:

Q. Mr. Watson, I have some questions first about this Snyder A 1 well.

A. Okay.

Q. Now as I understand it, that well is currently inactive and on the approved temporary abandonment status; is that right?

A. It should be -- Well, I say should be. I put in for the extension on the plugging. I did receive notice from the State that I needed to produce it or plug it.

Q. Okay, and when you say you asked for an extension, you're referring to the document we've seen --

A. That is correct, yes.

Q. -- Exhibit Number 3 from Gandy. And this is a sundry notice saying that you intend to plug the well?

A. Yes, ma'am.

Q. But you never went through the process of asking to put the well on approved temporary abandonment status and going through an MIT test and that process?

A. Well, whenever you've got so much pressure on it, no, ma'am, I did not do that.

Q. Okay. So have MIT tests ever been done on that well, to your knowledge?

A. Not to my knowledge, but I do have 900 and some odd pounds right now.

Q. Okay. Now it's been inactive for quite some time. Do you know how long it's been inactive? Just roughly.

A. It's been inactive since about -- two and a half

months, I had to put the pumpjack on, and that's going to be in '04, I believe.

Q. Okay, so its been inactive for more than 15 months?

A. Approximately, yes.

Q. So it's been out of compliance with our inactive well rule?

A. Probably.

Q. And you're -- As I understand it, you're saying that this sundry notice is a request for an extension of time for you to be able to plug that well?

A. Yes, ma'am.

Q. You're aware the well is on our inactive well list --

A. Yes, ma'am.

Q. -- it's out of compliance still, even with whatever this --

A. Yes, ma'am.

Q. -- document --

A. Uh-huh.

Q. -- accomplished?

Now are you -- you're asking us today, as I understand it, to, as part of any order issued in this case, recognize that you have an extension to plug the well? Is that part of what you're asking for?

A. No.

Q. Okay. You did testify that you thought the cost of plugging the well was going to be higher than normal because of problems you think are caused by the Gandy injection well --

A. Yes, ma'am.

Q. -- and that you may have to take special actions in plugging the well?

When did you start to think that plugging the well was going to be more expensive and require these additional actions?

A. Probably about 10 days after I found all that saltwater flow was hitting it.

Q. And when was that again?

A. If I can remember -- whenever the saltwater started there, whenever I started logging all that stuff, about -- 10th month of '04.

Q. Okay, that was quite a bit before the time when you filed --

A. Yes --

Q. -- the sundry notice?

A. -- because I was currently trying to produce my well at that time.

Q. Okay, and when this was filed -- which was December 15th of '05; is that right?

A. I believe that's correct, yes.

Q. -- and you were asking for the extension, you didn't mention that there were any problems with additional costs or additional measures that you'd have to take in plugging the well?

A. Your office in Hobbs, the OCD office knew it at that time, and I think they were sending people back somewhere in that neighborhood to monitor the Gandy well.

Q. Okay, I'm just asking because I don't see that in this document. I see a request for extension of time based on difficulty getting equipment --

A. Plugging, right. Yes, ma'am.

Q. -- but you didn't mention it in --

A. No, ma'am.

Q. -- this?

Could you tell me more about what you did to try to notify the OCD of the problems that you saw with this well leading up to the hearing today? We've heard about a letter or letters that were sent, the ones that Mr. Hall says he's going to produce later. Do you know who those were sent to?

A. I do not remember.

Q. What efforts did you make personally to notify the OCD?

A. I just went by and verbally told them, you know,

that I had pressure on the well that, you know, we're starting to develop problems on it.

And then I didn't say any more to them after that, much. I let it ride, because I don't want to be a trouble-maker. I just wanted to -- just let it ride, let them take care of their job.

Then I think the OCD was well aware of the situation when they had to check Gandy's SWD in, whenever they caught him at 1450 pounds, it blowed out on the Snyder B Number 2 on the ground.

I think they were certainly very well aware that it was high pressure in the area, and I did not say anything at that time, thinking that they were aware of -- possibly, what's going on.

Q. When you had this verbal contact, was it with someone in the Hobbs office?

A. Yes.

Q. Who was it?

A. Oh, Chris and Gary.

Q. Okay. And approximately when did you have this contact?

A. Gosh, I don't know. It was sometime just right before the blowout on the Snyder B.

And in fact -- he's retired now, but Billy Prichard come out there and we visited on location several

times.

Q. On the location of your well?

A. Yeah, that Watson 6 Number 1, on my SWD. He was good about coming by, and we visited a few minutes about things, and I did notify him -- or I did tell him occasionally that I had pressure on that well over there. Just in casual conversation, nothing in writing.

Q. Was this once incident where you went to the Hobbs office and talked to people there and then went out to the site with Billy, or was there a course of conversations?

A. One, one conversation with the office in Hobbs.

Q. Was anything done as a result of that conversation, that you know of?

A. No, all I can tell you is that Billy Prichard was coming by, monitoring the well, Gandy's SWD, for a period of time.

Q. So the OCD was monitoring Gandy's well after hearing your complaints about it?

A. That's my understanding. Now whether they really were or not, I can't tell you.

Q. Did you ever -- you yourself, because we know there were letters sent, and we need to find out about those, but did you yourself ever make any complaints to anyone in the OCD Santa Fe office about what was going on

with the Gandy well?

A. No, ma'am, I did not. I've been through -- this makes the third hearing on this. They seem to not hear me or something, I don't know, but this the third hearing, and let's face it, I can take whatever the Hearing Officers rule. Life doesn't have to be fair, I can take it. So if I get these here, let's go on down the road. It doesn't mean that the world's coming to an end.

It's just that I've tried and tried and tried, and it just seems like that they're not going to go my way a lot of times. And so be it.

Q. Well now, they haven't gone your way every time, that's for sure, but you have been able to obtain some emergency orders, for example, from the Division --

A. Right.

Q. -- when you expressed concerns about the Gandy well. Are you aware that we have an enforcement and compliance manager in Santa Fe?

A. Yes.

Q. Did you ever contact him to say that the District Office wasn't responding to your concerns?

A. No, ma'am, I did not do that.

Q. Did you ever contact the Division Director?

A. No, ma'am.

Q. Did you ever contact the Environmental Bureau in

Santa Fe?

A. No, ma'am.

Q. As I understand it, there was an injection pressure increase issued to Gandy, and you say that you did not receive notice of that --

A. That's correct.

Q. When you became aware that the pressure increase had been granted, did you take any steps to have the case re-opened or do anything to notify the OCD that you had concerns about that pressure increase?

A. I found out approximately three weeks or -- about three weeks ago through my attorney, that he had discovered it.

This hearing was already on the docket --

Q. Okay.

A. -- so I want to be patient, and I wait, and here we are.

MS. MacQUESTEN: Okay, thank you, that's all I have.

EXAMINER JONES: Mr. Hall, you have one more witness?

MR. HALL: Yes, sir.

EXAMINER JONES: And what do you think about the time?

MR. HALL: I think it may be 30, 45 minutes on

direct.

EXAMINER JONES: Okay. And Mr. Domenici and Mr. Lakins, the time --

MR. DOMENICI: We estimated three hours for our two witnesses.

That included, probably, cross-examination also, unless it's a lot longer than we expect. Our direct is probably about half of that, a little more.

MS. MacQUESTEN: Mr. Examiner, I had asked if we could work through lunch, because I was hoping to be able to get to a meeting at 2:30, but that's probably not going to happen.

So if you want to go ahead and schedule a lunch, that's okay with me.

EXAMINER JONES: Yeah, let's break for lunch, at least for one hour, till one o'clock. Is that okay with everybody, do that?

And we'll go off the record.

(Thereupon, a recess was taken at 12:03 p.m.)

(The following proceedings had at 1:13 p.m.)

EXAMINER JONES: Okay, let's go back on the record this afternoon.

And Mr. Hall, call your next witness.

MR. HALL: At this point, Mr. Examiner, we would call George Friesen to the stand.

GEORGE FRIESEN,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, please state your name.

A. My name is George Friesen.

Q. Mr. Friesen, where do you live and how are you employed?

A. I live in Midland, Texas, and I'm a consulting petroleum engineer.

Q. And would you give the Hearing Examiner a brief summary of your educational background and work experience?

A. Yes, I've got 30 years of petroleum engineering experience, 25 of which is in the Permian Basin. Most of my work is waterflooding work, subsurface injection-type work, and quite a bit of evaluation work, workovers, new well drills, prospect evaluations and that sort of thing.

The 25 years of experience in the Permian Basin, why, all that's been reservoir engineering except for about two and a half years of production engineering.

And I'm from the little-known state of Wyoming, that's where I graduated with a BS degree in petroleum engineering, 1976, so this is literally the 30th year here, in another couple weeks.

Q. Mr. Friesen, you've previously testified --
A. Yes.
Q. -- before the Division and had your credentials as a petroleum engineer established as a matter of record?
A. Yes, I have.
Q. And you're familiar with the Application that's been filed in this case?
A. Yes.
Q. And the lands and the wells that are the subject of the Application?
A. Yes, I am.
MR. HALL: At this point, Mr. Examiner, we would offer Mr. Friesen as a qualified expert petroleum engineer.
EXAMINER JONES: Objections?
MR. DOMENICI: Could I just ask one or two questions?
EXAMINER JONES: Sure.
THE WITNESS: Certainly.

VOIR DIRE EXAMINATION

BY MR. DOMENICI:
Q. Mr. Friesen, have you been involved in these particular wells prior to this --
A. No, sir.
MR. DOMENICI: That's all I have, I have no objection.

EXAMINER JONES: Okay, Mr. Friesen -- How do you spell your last name?

THE WITNESS: F-r-i-e-s-e-n.

EXAMINER JONES: Okay, Mr. Friesen is qualified as an expert petroleum engineer.

DIRECT EXAMINATION (Resumed)

BY MR. HALL:

Q. Mr. Friesen, have you investigated whether the Gandy Corporation injection operations on the State T Number 2 well have resulted in the escape of fluids from the permitted injection intervals?

A. Yes, I have.

Q. And based on your investigation, have you formed an opinion whether Gandy's operations have resulted in the escape of fluids?

A. Yes, I have, and it has resulted in the escape of fluids.

Q. All right. Could you please explain to the Hearing Examiner how you conducted your investigation?

A. First of all, I prepared this exhibit here, which we talked about a little bit earlier.

Q. That's Exhibit Number 1?

A. Exhibit Number 1. And I also prepared Exhibit Number 8, and those are -- And then I also have analyzed the pressure data that Mr. Watson has recorded, and I've

got -- we'll show a graph later on.

But what I'll do -- just kind of explain in general how I'm going to step through this thing -- I'm going to establish that there is a corrosive zone, known casing leaks in the public record, and that the Gandy permitted interval straddles the corrosive zone. There's no cement behind any of the producing wells over the permitted zone, and we've lost three producing wells. Two have been plugged, two Energen wells have been plugged

Mr. Watson's well has high pressure on it as a result, and there are four other producing wells on my plat that are in danger of the same situation occurring, so...

Q. All right, let's look at Exhibit Number 1. Do we need to refer to Exhibit 1 again?

A. I'm going to -- yeah, let's go back to 1, I just want to kind of want to go through it a little bit since I prepared it and kind of make sure everybody understands what we've go there.

I've identified the wells with the names above the well symbol. And then I've also shown below the sell symbol in black, that's the completion date. The red dates that appear are the plugging dates, if they've been plugged.

And then in blue I've shown all the casing leaks or casing collapses or et cetera, that are a matter of

public record. Now that's just a matter of the public record, that was something I saw that actually stated that there was a casing collapse or a leak, a sundry notice, and they went in and fixed it.

Some of these wells have been plugged, and nothing said as to why they were plugged. So it doesn't preclude them from bering casing leaks, but I just can't tell.

And then above the State Number 2, just for a little bit of information, the first disposal was 9 of '03, just for reference. And then if you go down to the Watson well -- it's the Watson 6 Number 1, which happens to be Mr. Watson's well -- its first disposal was July of '02.

And then I just wanted to reference the cross-section A-A', which is up on the wall here and in front of everybody. It starts down on the left with the Snyder A Com. That's the Energen well that's just been plugged recently. In fact, 12-13 of 2005.

The next well to your right is the Snyder A. Now that's Mr. Watson's well that currently has plus or minus 800 or so more pounds of pressure. And I've got that, and I'll get into that specific number here in just a little bit.

Then north of that is just the T 1. That's only in there -- it's a plugged-out well in 2002, and I can't --

from my study here, it was plugged out well before the Gandy State T 2 started injection. So it happens to be on the cross-section, but only because it happens to be between the State T 2 and the Snyder A well and the Snyder A Com.

And then the next well is the Gandy State T 2 well.

The next well on it drops down, and we'll catch the Watson 6 Number 1. That's Mr. Watson's well, the other disposal well in the area.

And then we'll move over and we'll catch the Snyder B 2, which was plugged 11-22 of '05 as the direct result of a casing leak caused by the Gandy well.

And then we'll move over to the Snyder A 1 -- excuse me, the Snyder B 1, which was plugged 12-6 of '05, and that casing leak occurred at some point a few years ago, according to Energen. The decided to go ahead and plug it, but it was not affected, at least at this point, by the Gandy well.

The wells that the Gandy well has affected here have been the Snyder B 2, the Snyder A Com and the Snyder A. Those are the three wells, the three key wells.

So if Mr. Hall's ready, I'm going to --

Q. Let's refer to Exhibit 8. Is Exhibit 8 the cross-section A-A'?

A. Yeah, I've rolled Exhibit 8 so everybody can look at the top of it. And again what I've done is, I've identified the wells in the top and I've identified their completion dates. That's the date that you see in black just before the -- just after -- underneath the elevation.

And then I've just identified them with a symbol. This symbol over here on the right for the Energen Snyder A Com is plugged. The Snyder A is shut in. And then you see plugged, the two disposal wells plugged and plugged.

And what I'm going to do is go over here now and just start working down through this thing so you can sort of unroll it.

I want to point out that on Exhibit 1, these casing leaks, that is -- and I've just kind of, you know, picked it roughly, the top and the base and the casing leaks and shown them in yellow here. Just wanted to show that.

I want to show -- there's the Gandy injection interval, right there, here to here, top, bottom perf. There's the corrosive zone.

And I also want to point out the injection profile that was run, I believe, in '04 by Gandy on their T 2 well. This is the results of the injection profile. I put the temperature log as a little strip log down through there, but I wanted to show the results of the radioactive

tracer surveys.

And what it shows, there are two measurements made. The first measurement says 23 percent was exiting out here at the top of the zone at about 4800 feet. And then the second measurement said none was going out there.

The -- Go down here to approximately 5300 feet, and you've got somewhere between 5 and 17 percent of the saltwater disposals exiting right here.

And then if we go down near the bottom and we're down here around 6210 to 6360, we've got anywhere between 72 and 83 percent of the water being disposed of here, within the corrosive zone, no cement. I want to point out, this is the cement, tops.

The only well that possibly has cement through the top is Mr. Watson's well.

Q. Mr. Friesen, let me ask you for the record, when you say these are the cement tops, are they indicated in purple?

A. Yes, they're indicated in this purple color.

For example, here we have a reported top of 8830. That's on the one clear to your right.

Then we have a calculated cement top that I have 9161.

We have another reported top on the next well over to the right of 9445.

We then have just the Gandys' records here of the work that they did in their well, which was the work that was submitted in August of '03 when they set this well up for saltwater disposal, and I just -- this is the original cement, with the reported top of 9762.

By the way, all of these are Wolfcamp-type completions originally. There is one deeper Strawn well in the area, but I think that question came up and it was primarily Wolfcamp or Permo-Penn type of production.

Let me go back to this well. When they set the well up in August of '03, they set a bridge plug down here at 10,288 feet -- and I'm working off the public record -- and came up and found a casing leak at around 7000 feet, set a bridge plug at 7700 feet, cemented with a reported top of 6700 feet.

Now in this same period of time when they're working on this well, they had another casing leak up here -- it's a matter of public record -- squeezed it and had a reported top of 4750 feet, and then perforated the well here, here, here, here, here, here, here -- well, that's not good for -- not good for you, but I can go through the depths. And this is the bottom of the zone right here at 6880.

So they injected between a top, roughly 4740, and a base of -- excuse me, a top perf of 4810 to the base of

6880. No cement across here. Known area of casing leaks by the public record.

So there's no doubt in my mind that once this well catches pressure, once you go from a well -- you know, and this is all normally a pressured area. But, you know, normal pressure that we see throughout most of the Permian Basin, you're not going to have a saltwater flow to surface. That's just -- it's not going to happen until you abnormally pressure a zone, and then you're going to have a saltwater flow.

Now the only way to abnormally pressure a zone is to catch pressure at the surface, go above zero. And at that point, you now have a situation that wherever that well is open you have a pressure greater than the hydrostatic pressure. And if you're under the right conditions, if you have no resistance to flow, you're just going to U-tube water to the surface. And this is where it gets U-tubed, right here. This is what I believe.

And what I'd like to do is just kind of take you through some dates and some notes that I've got. And then I think Mr. Hall's going to give me some exhibits, and I'm going to say, Okay, you know, I've told you this, but here's an exhibit that supports just what I said, so...

Q. Let me ask you a couple more questions --

A. Certainly.

Q. -- about Exhibit 8. On the Watson 6-1 --

A. Yes.

Q. Does that well have cement across the corrosive zone?

A. The corrosive zone, yes, it does. It has a cement top that was reported when it was drilled of 2664 feet.

Q. Okay.

A. Excuse me, 2864 feet.

Q. Now I want to ask you something else. I'd like you to refer in our exhibit notebook to Exhibit Number 2, and that is the original C-108 application --

A. Yes.

Q. -- filed on behalf of Gandy Corporation --

A. Yes.

Q. -- and if you would turn about halfway into that material, there is a page labeled at the top, "Well Data".

A. Yes, sir.

Q. Are you there yet?

A. I'm there.

MR. DOMENICI: What exhibit?

MR. HALL: It's Exhibit 2, about halfway in. It's labeled at the top, "Well Data".

MR. DOMENICI: Okay.

Q. (By Mr. Hall) Mr. Friesen, does this show the

cement tops that were reported in conjunction with Gandy's C-108 application on the offsets?

A. Yes, it does.

Q. And would you discuss those? Why don't you discuss the Snyder A Com 1?

A. Okay, the Energen A Com 1 -- move over here to my cross-section again. It's this well right here, the Snyder A Com Number 1. The individual who did this work reported a calculated cement top of 2100 feet. But as a matter of the public record, the cement top is reported at 8830 feet. So that calculated cement top is extremely -- extremely optimistic. You know, in fact, it's just a matter of public record where we know that one for the fact, why, you're looking at, you know, 8800 minus 2100. We missed it by -- excuse me, I missed it. 8800 minus 2100, missed it by 6700 feet.

Now what I did, I went out here in this area, and I found wells with reported cement tops. I knew the hole size from the public record, generally speaking, I knew how many sacks they used, so I calculated an effective yield based on data that is out in this area. And I used that effective yield in terms of cubic feet per sack of cement cemented with, to calculate any of my cement tops.

So what I've done is used data in the area from actual data reported, calculated a yield, taking into

account that wellbores aren't smooth and you lose cement, you know, and one thing and another. And anywhere where I have GWF calculated top, that's how I arrived at that, which are more conservative than the tops used in this application.

But even if you go through with the tops in this application, we've got this zone open, and there's no cement. You know, this one well was way off, but the others are reported at 6200 feet, et cetera. I mean, I don't believe that's really the case, but that's how it was reported.

And I also have observed data, pressure data, that shows we've got casing leaks through here. So it's one thing before the fact, but it's another thing when you now observe the data at the surface and you can go back -- once you have observed the facts, now some things really become pretty clear. They weren't clear before the fact. You, know, they're not clear till you've got the surface water flow, for example.

Things are not clear until you record the pressures. Got a big pulse test going on out here, and I'm going to go through that in a minute. That's a common -- common interference well test. Danny didn't know he was conducting that, but that's what he was doing, was recording those pressures. And I've got a graph that's

going to show that.

Q. Let's turn to Exhibit 9, if you would identify that, please?

A. Exhibit 9 -- Oh, yes, Exhibit 9 is a graph I'm going to spend some time with.

Now what this is, this is a graph of the data that Mr. Watson talked about earlier today verbally, the data that he recorded in the Gandy T 2 -- that's in red -- and his well, the Snyder A Number 1, and then that short period of time where Energen let him put those gauges on both the Snyder A Com Number 1 and the Snyder B Number 2. And I've got a -- or I could go through that at this time if Mr. Hall --

Q. What is your interpretation of that data? What does that show us?

A. Well, that -- That's really a good example of an interference test, and more specifically a pulse test in the oil business where you've got what they call the active well. The active well is the Gandy well. That's the one where the pressure's going up, and then the pressure comes down, and the pressure goes up. So that's what we call the active well.

The observation wells are the ones that are shut in and have pressure gauges on them and are observing the changes in pressure as a result of the pressure going up in

the Gandy well and down and up and down. Or just -- well, up, down, up, is where we're at.

And what you notice is, it's just exactly what you would expect. The Gandy well catches pressure first, causes abnormal pressure in the area, but really the abnormal pressure isn't the critical thing. It fills up, it fills up the storage volume.

And I want to make a distinction between pore volume, which has been calculated before, and storage volume, and I don't think I'll make it right now, but I want to make sure I talk about the two, because they are a lot different.

Storage volume out here, by the way, is very small. Pore volume is very large.

But anyway, what you see here is a situation where once you fill up the storage volume -- that volume you can really get water and, you know, fluids to move into -- then what you do, you catch pressure, you've got our observation well, and then you've just got -- it's just a direct hydraulic communication, it's filled up between the two wells.

In this case, the State Number T 2 and the Snyder, you've got hydraulic communication. So as the pressure goes up in the Gandy well, it goes up in Mr. Watson's well.

You have to establish the hydraulic part of it, the direct communication. And then we've also established that in two other wells.

Q. Let's discuss some of the specific data points on Exhibit Number 9.

A. Okay.

Q. First, do the data for the State T Number 2 reflect at what point the injection formation caught positive pressure?

A. Yeah, what we have -- and let me pick a note here, just a minute. Just for reference, the Gandy well started injection in September of '03. And this cardinal survey that I just talked about, approximately a year later, 7-21 of '04.

And then the State T well caught pressure in August of '04. That's the first time it went from a vacuum to a positive surface pressure.

Now at that time, that's when that reservoir is filled up. And it was in -- October 3rd, two months later, when Danny started to record those pressures. He had positive pressure at his well, he started recording. And that's where this thing starts, is on 10-3 of '04.

And what you see is, Danny's recording what he talked about earlier, a pressure in the Gandy well of about 285 pounds, and he's catching a slight positive pressure in

his well of 30 pounds.

Now if we move up this curve, we see this peak, the peak Gandy curve, the red curve, where it peaks out around 1450 pounds, that's on 4-22 of '05. That's when Energen saw the water flowing to the east, you know, the first productive well to the east. Water was flowing at the surface. They called the OCD, the OCD came out, shut the well in. It was injecting over its permitted pressure at that time, it was 1450 pounds, and I believe the permitted pressure is 962. That prompted --

Q. So the effect of that shut-in -- I'm sorry, go ahead.

A. No, that prompted the shut-in. And now I'm going to go through this in a little more detail.

MR. DOMENICI: I want to just object to all that hearsay. I mean, there's no foundation for that whole statement.

THE WITNESS: Yes, sir, there is exhibits coming.

MR. DOMENICI: Okay, maybe there's an exhibit coming.

THE WITNESS: Yes, sir, there's exhibits coming.

MR. DOMENICI: Okay.

THE WITNESS: I just wanted to -- yeah, just to -- what I'm doing is, I'm kind of trying to summarize, and then there'll be the exhibits coming --

MR. DOMENICI: Okay.

THE WITNESS: -- so -- Okay.

Now we go into a situation, though, where immediately -- and we'll show some exhibits -- 4-25 of '05, Gandy submits a sundry notice to re-perforate all the perfs in the Gandy well. At that time they get a consultant out there to do it. Can't get your job done. They leave for a few days and come back early May.

At this time too -- and we've got an exhibit -- there's a flowback period going on. And the consultant comes out and re-perfs, but he adds perfs to this zone. There's been a number of new perfs added, and that question came up earlier, which I could not find in sundry notice; it was found through discovery in the last few days from the documents I received from Mr. Watson's attorney, from Gandy. But there were new perforations added.

And that flowback period, which is -- and the memo will show -- is why this pressure drops so quick. Flowback period, plus you've added new perfs. So you know, you've got some new volume you've opened up, probably get some water to go into it. So that's why it drops pretty fast.

And then the pressure recordings Mr. Watson is making are oscillating. He's getting in there every few days to look at it, and the pressure is up and down. The

pressure data on his is more recorded every day.

And then you'll notice there's a gap, or there's a long period of time here -- it's kind of a flat top. It shows that there's probably around 575 to 600 pounds. Well, that's a data gap of about 52 days in there. Goes from 8-7 of '05 to 9-28 of '05, there's just no data right here.

So what I believe is, the well continued to oscillate pressure but was gaining pressure. And then you can see once the actual data appears again, we start getting some pretty good data, it shows it increases.

And where I stopped my plot was on 4-9 of '06, 1420 p.s.i. Mr. Watson had 877 p.s.i. on his well that day.

And then I just want to back up a minute. There are just a couple little short segments there, a little black line, a little green line, and that represents the period of time when Mr. Watson got permission from Energen to put those gauges on their two wells.

The green line is the Snyder A Com Number 1, and that gauge is on there from 11-3 to 11-22-05, 20 days. The pressure went up from 210 p.s.i. to 382 p.s.i. You know, again it's just a pulse test. We've got hydraulic communication, pressure's going up in the active well, we're setting over here in the observation well, we're

hydraulically connected, the voidage is full of water, and we're seeing the effect of it. It's always a little less, you know, there's always -- but...

And then the B Number 2, that's the black line, we've got 11 -- we've got a gauge on there from 11-3 to 11-14, 12 days. That pressure goes up from 280 to 386.

Q. (By Mr. Hall) Does Exhibit Number 9 reflect a direct correlation between the injection pressures and then the reactions you see on the inflections for the pressures on the offset wells?

A. Yes, yes.

Q. Do you have an opinion whether the Gandy T 2 injection well is in direct communication with the offsets?

A. Yes, I do, and it is in direct communication. The pressure data clearly shows that. The behavior is just what I would expect.

Q. Let's look at Exhibit 10, if you could identify that for the Hearing Examiner.

A. Yes, what Exhibit 10 is, this is a rate-time graph for the Gandy well, the Gandy T 2 well. And all I'm trying to show here is, beginning in 9 of '03 it begins its injection. That's approximately 1500 barrels a day, and it fluctuates. That low point right there is approximately about 700 barrels a day -- that's about mid-'04 -- and then it, you know, climbs up and down a little bit, but it hits

a maximum of about 3000 barrels a day by the public records. And that's that blue dotted line.

Now the black line is the reported C-115 pressure, surface pressure. That well started out on a vacuum and caught pressure in -- it caught pressure August of '04. Now it was after August of '04 when all these problems occurred in all these offset wells. That's a key date. That well catches pressure. In my opinion, it filled up the storage volume and caught positive pressure.

Continue here, this is just the C-115 data. But you will notice there that in March of '05 they report surface pressure on the C-115 of 1300 pounds. Their permitted pressure is 962. Now this is a month before, this is the March data, '05 data. April 22nd is when the OCD shut the well. So we're getting close, you know. Actually, the month of April, on the C-115 the pressure reported was 750 pounds. But what part of April that pressure was recorded in, I don't know.

Now we see a pressure drop in the well on the C-115s, and that's just what Mr. Watson recorded, because we know from some exhibits we're going to show they're unloading the well, they've got a flowback period going on, they added perfs. And that's just what I would expect, is to see that pressure drop as you continue to inject, because of the new perfs.

You know, you get a steep drop in pressure due to the unloading, but when you go back to injection -- injecting, because you've opened up a new zone, you know, it looks to me like clearly with that pressure behavior you've opened up some new zone you weren't injecting into and disposing into. Pressure goes down, but you fill it up, you know, and they're always above zero pressure and then it just climbs.

And it climbs to the point to where -- I think they kind of -- it climbs to the point where, in my opinion, it's time to get a step rate test and try to get more pressure. You've just about opened everything up in the well you possibly can, at least in the permitted zone. Try that.

By the way in May, not only opened up additional perfs and re-perf'd everything but acidized the well as well, also. There's an exhibit we'll have coming up on that.

Q. Mr. Friesen, on Exhibit 10, the August, 2004, positive pressure date, is that the point in time where water begins to escape out of the permitted injection interval?

A. That's the time where -- it happens when -- you've got normal pressure and you've got some kind of a storage volume out there.

Now the storage volume, though, I just want to say and I want to elaborate on that a little bit, but you know, storage volume has to be effective porosity, it has to be the pore space that's interconnected. Not just pore space, not just area times height times the porosity value. We've got lots of pore space out in the Permian Basin that has no permeability, you can't get fluids in or out of that stuff. You've got to have effective porosity. Those little pore spaces have to be connected by pore throats of some permeability to allow fluids to move in and out.

And what I'm saying is, in August of '04 when that thing caught pressure, as a reservoir engineer I know that the storage volume is full. And I can also estimate the storage volume at 560,000 barrels, not 5 million barrels. And that's all because calculations done before are simply taking the pore volume into effect.

And I could tell from earlier, when I looked at one earlier exhibit, there was nothing done to correct that for effective porosity, that porosity which is interconnected, that height which is interconnected porosity, that area which has to be interconnected. The only way -- you know, you've got to have storage volume for these fluids, not just pore volume.

Q. When you made your calculation on the available storage volume --

A. Right.

Q. -- did you have available to you quality porosity data?

A. No. No, in fact, here's the -- I had one well -- and it's shown on my cross-section here, it's the Watson 6-1. It has a CNLF you see over here on the right. It's the only modern log I've found. The rest of these are all e-logs with no measurement of porosity.

But really, when you look at this doggone zone -- and I believe -- I prepared this a few months ago, but I believe that's just a standard CNLF DC display. I'd have to double-check, and I want to qualify that. But if you look through that zone, it's zero-percent porosity. I mean, it moves a little bit, you're below zero.

By the way, let me just explain. Clear to the right on this scale, that's zero porosity -- or minus-10-percent porosity. The first major division to the left is zero, second major division is 10, third 20, fourth 30.

If you look at the only log I could see, if you look at that density log, that thing is bouncing around between, you know, minus porosity and maybe 2 or 3 percent. There really isn't any porosity in there.

And then if you look at the CNL, which is really more just a kind of a measurement of the shale in the San Andres, if it'll spread there, but let's use the CNL

porosity -- I don't think that's a very good one to use -- it bounces up in a few little ticks to 10 percent, maybe, but very, very thin. Very thin. And I really think it's probably not very much porosity there, is what the thing is, not much storage volume in that thing.

Q. Let me ask you, up to the point in time in August, 2004, when the reservoir reached its positive pressure point, based on your review of the public records, were there any reported problems in any of the offsets?

A. No, not up until 8 of '04 when that thing caught pressure. When you create an abnormal pressure situation in a normally pressured interval. And all this -- all this, through -- this Permo-Penn stuff all through here is all normally pressured, there's no abnormal pressure. You've got to create it.

You create it by injecting with a positive surface pressure. The higher the positive surface pressure, the higher the abnormal pressure is anywhere your wells open to perforations into a zone.

Q. Let's quickly look at Exhibit Number 11. That's your time graph for the Watson 6-1.

A. Yes.

Q. What does that show us?

A. Well now, this is the same plot that I did for the Gandy well, it's just done for the Watson 6 Number 1.

Now what it shows is, it started injecting in 7 of '02, July of '02, approximately 1500 barrels a day. That rate over the last several years has fluctuated -- it's been down to a low of about 600 barrels or so a day -- yeah, 600 barrels a day and a high of near 3000 barrels a day. Currently it's around 2200, 2400 barrels a day, that Mr. Watson testified to.

But what's totally different here is, that well is on a vacuum. That well has never caught pressure, it's on a vacuum. It can't cause a waterflow to surface. It can't cause a waterflow to surface because the fluid column won't stand high enough for abnormal pressure in the reservoir, there's no abnormal pressure here.

Only when that thing catches pressure have you created a condition of abnormal pressure. Then you can take the static pressure -- Let's say the static pressure -- main casing pressure, let's say the static pressure is 1000 pounds. You've got a liquid-filled volume, static pressure, it's shut in, you've got 1000 pounds. You calculate your normal pressure gradient, what you expect the reservoir pressure to be, and you add 1000 pounds.

And if you've got communication, no resistance to flow, you're going to U-tube that water right to surface, because that water will stand just like an artesian well. There's no difference.

But a well that's on a vacuum won't cause a waterflow, not a saltwater-flow. And --

Q. Mr. Friesen -- I'm sorry, were you finished?

A. No, go ahead, it just -- it's not --

Q. Mr. Friesen, in view of our determination about the time you reach positive pressure point in the reservoir and then your calculation of the available storage volume for the well, is that calculation corroborated by flows to the surface in some of the other offsets?

A. Well, yes. Now here's the thing. You have to fill it up and get hydraulic -- you know, you have to kind of fill this thing up with water, make sure it's totally filled, because you know, they did get some water into it. You've got to make sure you fill the storage volume up. You've got -- hydraulically, there's nothing but water in your system.

Then once that occurs, if you get any water flows to surface, you ought to be able to do just what Mr. Watson did, and that is measure the pressure, surface pressure at the active well, the well that's injecting, and measure the pressure in the observation well, which is the three wells he measured.

And remember, this system here isn't a normal oilfield system. There's no withdrawals. This is a closed system with injection only. So you know, you fill it up,

you catch pressure, now you've created abnormal pressure.

And the only way -- and once your storage volume is full, that -- water's incompressible. You've got to keep increasing the pressure, you've got to frac -- you know, you've got to either frac the zone or re-perforate and open up some new zone you hadn't contacted before. But once it fills up, and it's a closed system, the only thing you can do now is start injecting at a higher pressure.

Now before the fact, I know there were some calculations made, there were 5 million barrels of voidage down there. Well, maybe. I mean, I can't -- I couldn't tell, I couldn't argue that.

But only after I observe the fact that when the well catches pressure -- I observe Mr. Watson's pressure data and I observe the waterflows to the surface, then I know -- 5 million barrels.

Not only that, take into account this thing -- let's just say it has not 15-percent porosity -- and there's an exhibit coming up, I believe, with the 5 million barrels that was calculated using 15 percent -- let's take 1 percent. Let's take 1 percent and say, Well, that's the only log we got, let's just say it's 1 percent. That's 300,000 barrels. Two percent is 600,000 barrels. That thing caught pressure at 560,000 barrels.

So you know, I mean, in my opinion, with the data

that I have to look at, looking at that porosity, 560,000 barrels to me seems a lot more reasonable that I calcul- -- you know, that I witnessed from observable data, than 5 million barrels.

But if the 5 million barrels would have been correct then, you know, you wouldn't have had -- you know, you would have continued to put water in this thing at -- you know, at a vacuum for a long time, and if that -- if it was that big -- effective volume, the effective volume is 5 million barrels. You would have injected into this thing just like the initial calculations stated, except that that was a pore volume, that wasn't storage volume.

Q. Now Mr. Friesen, in the course of your investigation did you review certain documents and other materials that were provided to us by Gandy Corporation and came from other sources?

A. Yes.

Q. Let's look at Exhibit Number 12, if you would identify that, please, sir.

A. Okay, Exhibit Number -- Okay, Exhibit Number 12 is from a prior hearing, and this is the exhibit that I looked at that calcul- -- I've just mentioned, in fact, that this was the exhibit that calculated approximately 5 million barrels of pore volume, and that assumed a reservoir height of 34 feet, a porosity of 15 percent, and

a -- that was cylinder, I'm assuming a cylinder with a radius of 1320 feet, 40-acre well spacing.

Q. If you will look in the next to the last paragraph of Exhibit 12, it says, Your well was logged (electric logs) with conventional resistivity devices, but no direct measurement of porosity.

A. That's correct.

Q. Do you believe that the author was looking at the available well log for the T 2 well?

A. Probably. The Gandy T 2? Let's see, that thing was drilled in '57, yeah, that's an e-log. So sure, that's what I think, that's probably the log that he was talking about.

Q. Then you look at the author's conclusions. In Number 2 it says, Reservoir porosity, 15 percent --

A. Uh-huh.

Q. -- when you look at the log for the T 2 well. And now with the log we have available on the Watson well, do you see 15-percent porosity there?

A. No, and I'll tell you, on those old e-logs I can't tell porosity. I mean, I honestly can't. I can't tell porosity, and they're just difficult to work with, you can't tell where it's -- you know, you can tell sometimes a little bit of permeability, but there's just no porosity measurement made there.

So I don't know what supports the 15 percent, where that came from. Possibly some other data that I just -- I didn't see, I wasn't aware of.

But the data that I had in my analysis -- and I looked -- pretty good-sized area here, I only found that one porosity log, and I put it on my cross-section --

Q. Okay.

A. -- and it shows no porosity, really, to speak of.

Q. Okay. And there the author concluded, based on his assumptions about porosity and other components, that there were 4.97 million barrels of volume --

A. Uh-huh.

Q. Do you agree? Do you agree?

A. No. No, sir. It's much smaller. In fact, I -- you know, I believe it's about a half -- about 560,000 barrels.

Q. Okay.

A. Supported by a back-of-an-envelope calculation I just made, assuming 1- and 2-percent porosity.

But you know, this is a good time, I would like to talk just a moment about pore volume, since we're on this, and storage volume and just my definition of what the differences are.

You know, when you take these carbonates like this, and all through the Permian Basin -- I'm going to

make just a little simple drawing here.

Let's just say this is just a piece of carbonate, this is that -- this is that cylinder we're talking with the well in the middle, 1320 foot this way, it's 34 foot thick -- 35 foot thick, 34 foot thick? 34 foot thick -- Yeah, I'm assuming a cylinder here with a radius of 1350 feet, 40-acre well spacing. This is the -- Let's just put 5 million barrels pore volume, which is right, I mean, I ran that and got it.

The problem that you've got is that in a lot of these carbonates, because they're laid down and then later, you know, they're enhanced and destroyed by a lot of geologic processes that they were not really probably well understood, you get porosity, you get pore space.

But a lot of times what happens is, you get pore that's not connected. You run a density log through there, or you run a CNL log or any other log that's a porosity device that -- it's just going to tell you the pore space in there. It's not going to tell you how much of that pore space is interconnected.

And so let's just draw a little zone through here, we'll put some pores in here, but we'll do something a little different, we'll connect those with a pore throat. That pore throat now has got some permeability to it, it will allow fluids to move through it and move fluids from

one pore to the next via the little pore throat.

That's another way -- you know, a pore throat, let's talk about that. You talk about a pore throat, you know, if the pore throats are real big you've got lots of permeability. That's another way -- just a simple way of looking at it. If you've got real, real tiny pore throats, or as the pore throats get smaller, permeability is going to go down. And that's kind of a broad-brush way of looking at it, but that's a true statement.

And when you get no -- when you get no interconnected pore space, that's just isolated porosity, and there's a -- lots of it around. But when you get interconnected pore space, you can now transmit fluids through here. But like I show, you need to know the effective porosity.

Now I don't know what the effective porosity is out here, I wouldn't have known it at any point. But once I observe the flows, once I observe when the well catches pressure, that allows me to make an estimate of really what the storage volume is, and that's the effective porosity, that's the porosity where these little pores are interconnected by pore throats that allow fluid to move in and out of them, and that's the big difference.

So pore volume is what was calculated. You know, it if was all interconnected porosity, that's correct, 5

million barrels. But the thing is, it's not, it's not.

And I think anyone -- and again, I make a lot of reserve estimates in the Permian Basin. I never use volumetric reserves. I mean, they're just too, too -- too big, they're just way overstated.

And they're way overstated because we just don't know the effective porosity. Even though we have a lot of modern devices for measuring porosity, we can't measure what's interconnected, especially in these carbonates, so therefore you really have to rely on analogies, things like that. It's just not a good idea to rely on volumetrics, for that reason, and this is just another application of that.

Q. Mr. Friesen, in your opinion have the injection operations through the State T 2 well exceeded available storage volume?

A. Yes, it has.

Q. Let's look at Exhibit 13, if you would identify that and tell the Hearing Examiner how you utilized that.

A. Okay, this is the -- this is the daily well reports when the Gandy State T 2 was completed for saltwater disposal back in August of '03. And what I show on my exhibit is just pictorially what occurred with this verbiage, and then also there's a couple of wellbore schematics with ties to the verbiage and then ties to what

I went over earlier with the configuration of the well.

Q. And so that's reflected on your Exhibit 8?

A. Yes, that's reflected on the Gandy -- the Gandy well on my exhibit there, Exhibit Number 8.

Q. Let's look at Exhibit 14. What is that?

A. Okay, 14 is that cardinal survey I talked about and put on my exhibit, talked about that earlier. That's just the -- just the log. I just took that, put a piece of that log on there, I put the temperature part on my exhibit, and then I just transferred over those numbers onto my exhibit.

Q. So this is the injection profile from the log --

A. This is the injection profile.

Q. -- run in 2004?

A. This is the injection profile run in '04, prior to the new perfs being added.

Q. Okay.

A. Remember, there's new perfs added later on in this zone, so now where the water's going I can't say. It was going here in August of '04 -- excuse me, July of '04, but now in May of '05 there were new perfs added through here so, you know, where it's going now I can't say.

Q. And did you determine that there were new perfs added based on some of the documentation provided by Gandy Corporation?

A. That -- provided in their discovery, yes, sir, Exhibit Number 15.

Q. If you'll look at Exhibit 15, is this a copy of the April 25, 2005, C-103 filed by Gandy Corporation?

A. Yes, it is. This is where they're asking to go back in and re-perf all the zones in the well. This is on the 25th. This is a re-perf.

Q. And the handwritten entries below the form, are those your notes?

A. Yes, those are my notes. And those are the perfs that were added. For example, the perf from going up that whole top set of -- one, two, three, four -- five sets there, from 5540 to 6200, those are not in the intent, the sundry intent.

Now, the perfs added on 5-6 of '05, there's one set there -- and I've noted off to the right, 6290 to 6300 -- that are not in the intent, sundry intent.

Then I come down to the perfs added 5-7 of '05, and there are -- one, two, three -- there are four sets there that were not in the sundry intent. There's a set from 5310 to 5290, a set from 5140 to 5100, a set from 4955 to 4970, and a set from -- now you have to go down to that last entry and go off to the right, the set from 4850 to -70 was not in the intent.

Now I want to mention one thing here. Doggone

it, I see -- I rarely write down -- go back to that set at 5140 to 5100. I rarely write numbers down like that, I think I might have a write-o. Hang on just a moment, let me look. Five, seven -- there's some exhibits coming up that will go over this too. No, it's written down 5140 to 5100, okay.

Q. All right, let's turn -- now we have a better idea of where the perforations are in the well --

A. Right --

Q. -- from that --

A. -- and by the way --

Q. -- particular chart?

A. -- I would not have known these new perfs, because I could not find the subsequent notice in the public record of what was actually done. In fact, in discovery this is what was said to us, and that's just the intent. If it wasn't for some other documents sent to us, I wouldn't have known about these perfs from the public record, and I think that question came up earlier today too.

Q. Let's turn to Exhibit 16. What is that?

A. Okay, this is -- this an e-mail from the consultant that went out on the well on the 25th of April. Now remember, the well was shut in by the OCD on 4-22. Energen -- Let me back up just a minute here, I want to

back -- I want to establish just a couple of things, that will get me into this April time frame.

This is a critical time frame because this is when the OCD shuts a well, and this is when two of the wells go haywire. So I just want to back up just a minute, start with 4-22.

And on 4-22 of '05 -- This is roughly nine months after the Gandy T 2 first caught pressure, so it's been injecting at surface pressures above zero, it's been creating abnormal pressure, it's gotten worse with time. On 4-22 Energen, over to the east -- and that's approximately 2000 feet -- had a waterflow on their -- hang on just a minute here -- had a waterflow on their Snyder B 2 well, at the surface, and that was the first one.

That's what prompted the shut-in, when the Energen people to the east, twenty-two -- 2000 feet to the east, the offset to the east, the first producing well to the east of the Gandy well -- when they had waterflow to the surface -- there's an exhibit coming up that talks about what they had -- or pardon me, that's a phone conversation -- well no, that's not a phone conversation, that's an OCD document that we got. We got an OCD document where they did shut the well in on 4-22 because of the pressure, so that's documented. But what prompted the call was Energen, and I talked with the Energen people.

They called, they got the well shut in 2000 feet away, and the Gandy well at this time, on 4-22, was 1450 p.s.i., that was their surface pressure, it was 488 p.s.i. more than the permitted pressure of 962 pounds, and --

MR. DOMENICI: Let me object. If there's an exhibit, I'd like to see it, I think we should see it on the record. But all this that Energen did this and the OCD did that, I think we --

THE WITNESS: Well, let me --

MR. HALL: The exhibit's coming.

THE WITNESS: -- let me --

MR. DOMENICI: Well --

THE WITNESS: -- let me come back to this, and we can go ahead and look at those documents. I want to come back and go through these -- these days from April 22nd to May 7th, critical dates.

MR. DOMENICI: Okay. Well, I'll just object. You can rule on it, but I just object to that testimony.

THE WITNESS: But if you want to come back and --

MR. DOMENICI: It's all --

THE WITNESS: -- go -- walk you all through those days, there's a two-week period in there where a lot's going on.

MR. HALL: Go ahead, Mr. Friesen.

THE WITNESS: Oh, continue?

EXAMINER JONES: Yeah, show the -- no, go ahead and show the exhibit that --

THE WITNESS: Okay. Let's go -- let's look -- let's look at Mr. -- Let's go back to Exhibit Number 16 then, and this is the one that's -- up at the top, it's Terry M. Duffey. His company is EverQuest, he came out there to work on the well on 4-25. They worked on it for -- it looks -- they ended on 4-26.

They tried to go out and re-perforate, according to the -- you know, the sundry notice was filed on the 25th, he came out on the 25th to do the work. They had some mechanical problems, backed off, but notice he's -- he's noticing the shut-in tubing pressure there, static tubing pressure, 900 pounds, which at that point -- and this -- this is 22nd, 23rd, 24th, 25th -- this is three days after it was ordered shut in, and the pressure's dropped to 900 pounds.

Q. (By Mr. Hall) All right, let's refer to Exhibit 17.

A. Okay, now 17 -- 17 is a letter that Mr. Duffey, who we just looked at on Number 16, wrote to Mr. Gandy, dated April 26th.

Now, there are a few things here I'd like to point out. First of all, there was some talk or reference in here to a cardinal survey, running a step rate test.

And my opinion, and in my experience with injection wells, you can run these kinds of tests when you've decided that all you can do to increase injection is to increase in pressure. That's my experience with them, that's when I run them.

Well, you run them to start with to make sure you're not going to part the formation, but then you run them later on so you can step that pressure up without parting the formation.

The other thing, look at paragraph two: I will be happy to do whatever I can to assist you regarding the fluid and pressure anomalies that have recently surfaced in the offsetting Energen wells.

So now there's knowledge there that the Energen well -- and what they're talking about has to be the B 2 -- off to the east 2000 feet, that's the well he's talking about. He uses plural, but at that point on 4-25 there's only one Energen well with a problem. And we -- here a few days later, there's going to be another one, but right now it's just one.

And then I'd like to point out that -- Look down there, next to the last paragraph: I would recommend that you take advantage of the flowback -- and I pointed out the flowback period. Remember where the pressure was dropping real fast? That's where I pick up on the word flowback.

They're flowing that thing back, they're trying to get the pressure off of it -- /shut-in period you are experiencing in the State T Number 2 saltwater disposal well to talk with Energen about the symptoms they are experiencing in their two wells.

Now, I just got through saying one well. I don't know at that point why it's necessarily plural, because it really isn't until 5-6 of '05 when they see the waterflow on the direct offset to the south, the Snyder A Com, that they rig up on that well. So I don't know -- I just don't know why they're using plural here.

Q. Mr. Friesen, if you would refer back to your Exhibit 9, which is your pressure log --

A. Yes.

Q. -- in your view, is there an inflection for the flowback period reflected on the pressure data there?

A. Yeah, and that's what I want to point out. That -- you know, at first -- you know, when I -- before we got all this other data, and I've just plotted up Gandy's data -- it was a bit of a curiosity as to why that thing dropped so fast, the pressure. You know, if you just shut a well in, I would expect a slower pressure drop.

But then on discovery when we found out they added perfs and there's a flowback period, well, then that fits, that fits what I would expect to see. You're

unloading the well, you're trying to get the pressure off of it. Remember you've established a direct hydraulic communication between your active well, your disposal well, you've got pressure monitor on your -- at that point, on Mr. Watson's well, you've got your observation well. Boy, the pressure -- they start unloading the pressure off of that, flowing that thing back, they add new perfs, you're cross-flowing into a new zone. Pressure's coming down, just like he shows, fast. And then it's also falling in your observation well awful fast.

But that's why it's falling fast, it's the new perfs and the flowback period, they kind of work together. I can't separate the two, but that's what's going on.

Q. The fact that the pressure reduction is reflected in the offset wells in a relatively short period of time tells us what?

A. Well, it tells us when it's -- again, when it's a short time like this, you know, there's just a -- it's direct communication. It's -- this line -- you've got this Watson well, you've got this State T well, you've got holes in the casing, you've got direct communication, no resistance to flow.

And a small storage volume. You've already filled it up, you've put pressure on rotten pipe, abnormal pressure on rotten pipe, that's established. You get more

casing leaks.

So now on 4-22 you've got a well 2000 feet away to the east. May 5th, May 6th, Energen rigs up on a well to the south approximately -- Well, I have it in my notes here, but it's a little further away.

Q. All right.

A. And in between -- let me mention one thing, and in between the Gandy well, the active well, and the Snyder A Com well, the Energen well, you have Mr. Watson's well, which is -- has a pressure gauge on it and has been recording this pressure all the time. It's between the two. And I've got -- again, I've got some notes, I'll talk about those numbers and stuff.

Q. All right. By the way, Mr. Friesen, let's establish how you determined on Exhibit 8 what you've depicted in yellow there is in fact a corrosion zone, a corrosive zone --

A. Well, all I --

Q. -- what's that --

A. Yeah, all I did was, in the public record -- goes back to Exhibit 1. For example, you can look at the State B Number 4, that's the well that's furtherest to the left and kind of in the upper left. You see there was a casing leak report and a sundry notice, 11-70, 5400 to 6012 feet.

So I took each one of those casing leaks that

reported in the public record and I just said, Okay, I want to show kind of -- about the top of the casing leak and about the bottom of the zone. So I just went through here, and that's what I put on here.

So that's just -- that's just a vertical representation of what you see in blue up on that plat, just to kind of help you see where it fits and where all the perforations and cement and stuff like that are.

Q. Now, are those corrosive zones consistent across the cross-section?

A. Across here? Yeah, I mean I think -- I believe so. I mean, you know, the public record isn't going to have the reason why -- and you'll see there's several other plugged out wells. I mean, there's not a requirement to say why you're plugging a well, you're just plugging a well. So I don't know why they plugged those wells. Maybe they depleted, maybe they got casing leaks. I can't tell. I can tell on the ones that I've noted, because they were noted in there.

But you know, this is San Andres. San Andres is just a -- kind of a noted corrosive zone in the Permian Basin. I mean, that's -- you know, to me that's nothing unusual, something I certainly see, something that I accept.

So I have -- when I saw that it was occurring in

that zone -- this is, by the way, about the top of the Glorieta, about right here -- you know, that's no surprise to me.

Q. And you said the top of the Glorieta corresponds with the bottom of the corrosive zone?

A. Approximately. What I did, just again for reference -- my background is petroleum engineering, I made that exhibit -- I took the tops that were reported either in the public record or in the IHS Energy Service scout tickets, and I put them on the wells where it was reported, and then I just interpolated the top in between.

I mean, this stuff is pretty much as flat as a table top. So you know, here's the top of the San Andres, here's the top of the Glorieta. You know, it's pretty darn flat. There's the Tubb, Abo, et cetera, the Permo-Penn down here.

Q. Okay.

A. There's a little bit of relief, but -- and you know, really, whether I got that top exactly right or not, it -- I mean, that's close. When it's table-top stuff the geology is pretty straightforward.

Q. Look at Exhibit 18. Could you identify that, please?

A. Okay, this is the -- a piece of the Cudd invoice that -- Pressure Control invoice that we got in discovery,

and it is on the Gandy State T 2, and it's dated 5-6 of '05. Now this is the time when the consultant -- remember, he left in 4-25, came back, started work on -- 5-5, 5-6 and 5-7 is when they actually did the re-perf and the new perfs.

And this is a Cudd invoice, and it shows that they brought out a stripper assembly, so -- they brought out coiled tubing too, so you know, they probably brought -- they probably -- undoubtedly brought it out for the coiled tubing, but they also might have brought it out for pressure control on the water. I can't say, but you know, it definitely was there for the coiled tubing.

Q. Okay. Now let's look at Exhibit Number 19. These are --

A. Okay, now again, discovery. I wouldn't have gotten this out of the public record. This is the perfs that the consultant did on 5-5, 5-6 and 5-7 of '05. This goes back to that previous exhibit with my notes at the bottom where I went through this thing and noted what was re-perfed and then what was new perfs --

Q. And then --

A. -- or additional perfs.

Q. -- so your notes on Exhibit 15, the C-103 form, are taken from these perforated intervals --

A. Yes.

Q. -- reflected on these notes?

A. Yes, I just took those notes and put them over here. And as I was doing it, I was just going through checking, saying, Okay, here's what's on the intent notice, here's what was perforated, and identified new perfs. The ones that are shown on there are just re-perfs, just exactly what the intent notice was for, was a re-perf.

Q. All right, let's turn to Exhibit 20. Can you identify that, please, sir?

A. Okay, this was the -- this was the log run by the company out there when they were doing the perforating, and it has most of the -- it has really all -- pretty much all the perfs on there.

There's some sections -- there's a few little pieces missing off the log, didn't get the whole thing, but it's just some other documentation run on 5-5 that just shows a lot of those same perfs that were on those hand notes that I put on that one exhibit by hand. It's just a little more support, a little backup.

Well, it wasn't the complete log, it was a couple pieces missing, and I think just inadvertently missing.

Q. Now, Mr. Friesen, earlier you mentioned some of the problems that were experienced on the Energen wells. Let's turn to Exhibit 21, if you would identify that, please.

A. Okay, 21 is the daily activity report from the Snyder B Number 2. This is the first producing offset east of the Gandy well, approximately 2000 feet.

Q. And does Exhibit 21 also include daily reports for the Snyder A Com --

A. Yes, if you thumb through those few pages, let's see, two pages, go to page number 3 and you'll see the workover reports for the Snyder A Com Number 1. And I'm going to stop right there, but I want to still come back to that chronology, I want to tie these dates together, so...

Q. All right. From the information reflected in Exhibit 21, what sort of information did you take into consideration?

A. Off of 21?

Q. Yes.

A. Well, off of 21, let's -- let's move to page 3 first. I keep talking about May 6th, and that's the date that you see on page 3. This is the Snyder A Com Number 1. Now remember, on 4-22 of '05, that was the day Energen called, they had the waterflow at the surface in the Snyder B 2. OCD came out, shut the well -- shut the Gandy well in.

Now on 5-6 Energen noticed -- and they have right here, Well shut in with a casing leak, flows water out the casing and tubing, 630 pounds of shut-in tubing pressure.

They rig up on that well on 5-6, right away. So you know, what -- the situation you've got here in the Snyder A Com is -- Snyder A Com, you know, you're standing at the Gandy well, you look east 200 feet, the Snyder B Number 2 -- they didn't put a rig on right away, because what Energen told us was, when they -- when the Gandy well was shut down the pressure went away. They didn't put a rig on that till -- if you look at Exhibit Number 21, they did not put a rig on that until September 10th, they didn't have to get on that one right away, pressure started going down.

Okay, this is on -- you're standing here, you're -- they're working on the Gandy well on 5-6, they're perforating, trying to add new -- you know, trying to get the pressure off of this thing, it looks like to me. They're perforating, the flowback period we've talked about.

And I don't know -- you know, April 26th, the flowback period referred to. I assume that it was already -- it was -- started at -- right after 4-22. So I'm going to say I assume by what I've seen that on 5-6 Gandy well during this flowback period, re-perforate, et cetera. And you look down to the south, 33- -- 3400 feet, and Energen is rigging up on the Snyder A Com, because they've got a waterflow to surface.

Now remember, the Snyder A Com, 3400 feet this way, the Snyder B 2, 2000 feet this way, that's two more observation wells. That's -- remember that, going back to that one exhibit that I went through, that's Exhibit Number 9. Those are two observation wells at some point in time.

And then in between the Gandy well and the Snyder A Com we've got Danny Watson's Snyder A, pressure gauge on it. It's also an observation well, it's got a high pressure on it.

In fact -- in fact, on 5-6 -- on 5-6, this is -- they're perforating, Energen's down there rigging up, Danny Watson's well is between our -- we're standing on the Gandy location, Mr. Watson's down there, his well is reading 610 p.s.i. at the surface, and they're rigging up on the well just south of his well to control this casing leak, this waterflow at surface.

But you're not going to get a waterflow unless you've got abnormal pressure, and the way you can get abnormal pressure is, you've got to pressure something up, you've got to inject above zero. And if you've got direct communication into the surface through casing leaks, you're going to get a surface waterflow, in my opinion. That's exactly what happened out here.

They got two wells, two producing wells, that have to be plugged, later on they're plugged. And as Mr.

Watson talked about, you've got his well, got a lot of pressure on it.

Now you know, I don't know if this invoice -- of course -- go back to that Cudd -- it's expensive. Tried to bring out stripping assemblies, heavy mud, et cetera. I know -- you know, it's just as -- you've got a lot of pressure on a well. That's a dangerous situation, in my opinion as a reservoir engineer. That's a dangerous situation, pressure on a well like that.

Q. At the point in time Gandy was performing the workover operations on the T 2 well, he had the pressure observations from Mr. Watson's well. Are those pressures reflected in our Exhibit Number 4?

A. Yes, they are. I just took -- I just took this data and plotted it out. That's all I've done.

Now Mr. Watson talked about a few days beyond where my data goes. My data ended 4-24, yeah. And I think Mr. Watson talked about a few days later, that's what -- I just plotted this data, and that's what I show on that exhibit, is all that pressure data that he recorded.

Q. Let's talk a little bit more about Exhibit 21 with respect to the dailies -- daily reports for the Snyder A Com Number 1. What period of time did these daily reports cover for that well?

A. They cover May 6th, 2005, through May 27th, 2005.

Q. And if you look at the entry for May 17, 2005 --

A. May 17, okay.

Q. -- what volumes of water were noted on that day, flowing back?

A. It says here -- read through there and get, oh, halfway through, I'm going to start -- look at that sentence down -- let's see, sentence on the 17th -- one, two, three -- the fourth sentence, it starts with the word "above". Look over there until you get to the period, and I'll start reading.

Well is flowing back large amount of water constantly, possibly due to disposal in near proximity.

Q. All right. Anything further with respect to Exhibit 21?

A. Well, the only thing is -- you know, and this has been my experience too. When -- you know, I do a lot of waterflows. Waterflows are not real common, but they occur. Anytime you're injecting fluids, you know, you can have a waterflow to surface.

Now, waterflows is not real common because we're pulling volumes out of these things all the time. You know, we're not really creating an abnormal pressure situation. But remember here, this is a closed system, we're just putting water in, not pulling anything out.

But you know, water -- whenever a well flows

water to the surface, it always floods the closest injection or disposal well, because that -- that really has to be the well, or that's the first place I would look. It's the comment that this individual made, that he will -- he even put it on there to his boss. First place I think it's coming from is this disposal well nearby.

First place I look when I run into these situations -- and occasionally I get involved in those things -- first thing I look for is, well, where's the closest disposal or injection well? That's the -- I don't look for the closest producing well out here in the Permian Basin unless it's flowing, and most all these wells are pumping here. In fact, pumping near the --

Q. All right.

A. -- near the pump.

But again, I think it just shows that this is -- and it's not Mr. Watson's well, by the way, because Mr. Watson's well is on a vacuum. Mr. Watson's well can't cause a waterflow to surface, it's not causing any abnormal pressure. Water won't stand in Mr. Watson's well, it's on a vacuum. That water level, I don't know where it is, but it ain't going to cause a saltwater flow. It's got to be a well that's injecting above some kind of zero surface pressure.

And you know, you've got to have some other

conditions. I mean, you know, this thing, U-tubes real well because you've got no resistance to flow once you break through the casing.

You know, if you've got formation that you're trying to push it through -- different story. You know, you're going to burn up a lot of energy trying to push water through a formation. But when you U-tube it like this up wells and casing leaks...

Q. Mr. Friesen, in your opinion have the injection operations conducted to the State T 2 well been the cause of abnormal pressures in the storage reservoir?

A. Absolutely, absolutely.

Q. And in your opinion was there also a small amount of available storage reservoir?

A. Yes, the pore volume -- we went through that, 5 million barrels, storage volume is much, much less.

Before the fact, before we had the water flows, et cetera, catching pressure, 5 million barrels, that -- you know, it's an estimate, but once you see the observed data, that -- what's going on -- and you have to understand that porosity value needs to be effective porosity, and then the only effective -- well, effective -- the only porosity I saw, the only total porosity I saw is very, very low, 1, 2 percent.

Which kind of corresponds to using this same

calculation made earlier -- about 300,000, 600,000 barrels of storage volume. If this porosity -- if this porosity is effective. It may not be. It's just total porosity. I don't -- I mean, I'm just -- I'm using that number, but it could be -- it could be, you know, just isolated porosity, effective porosity, it could -- I don't know what it is.

But what we do know -- and I don't know effective porosity, but what I do know is, 560,000 barrels was the storage -- a good number for storage volume in this San Andres zone. That's when it filled up, hot pressure, and that's a pretty good number. Once you see that -- and I'm just adding up the injection, the disposal, till the month it catches pressure. That's a reasonable estimate, oilfield estimate.

Q. Based on your investigation, Mr. Friesen, did you determine that there are one or more conduits in the immediate vicinity of the State T 2 well that would allow for the conduct of disposal waters onto the surface or into other zones?

A. Yes, the conduit is -- is the fact that you have no cement behind these producing wells, the conduit is this corrosive zone, which has had, you know, several known casing leaks. And so the conduit is, you've some -- you've got some storage volume here. It does go from well to well, we know that. But once you break through this rotted

casing, then it just U-tubes to the surface because there's no -- there's no resistance to flow at that point.

Q. In your opinion --

A. You have to have the abnormal pressure too, to create it.

Q. In your opinion, Mr. Friesen, did the injection pressures from the State T 2 well cause or contribute to casing leaks in the other offsets?

A. Yes, it absolutely caused them and contributed to them, in my opinion.

Q. Should Gandy's injection authority be terminated at this point?

A. Yes, absolutely, because we have -- and I don't know if I've mentioned this or not, but four other producing wells that are at risk, in my opinion.

And if we look -- go back to Exhibit 1, I might just point these four wells out that are still producing, that I think are at risk.

We have down here the State D Number 5, over here on Section -- Is that Section 1? Section 6. Okay, somebody's going to have to help me out here.

Q. That's Section 1 on the left.

A. Oh yeah, there it is, real light gray, Section 1 right over here, real light gray. But what we have here is the State D Number 5, the State D -- excuse me, the State D

Number 5, there's a State D Number 6, and then actually the State B Number 2, which I show as shut in, is actually still reported as an active well. So there's those wells.

And then if we look over here on Section 6, we go up here to the uppermost right-hand corner, that's the Snyder William C Number 1. That's an active producing well. And in my opinion, you've already -- you know, just look at this plat -- you've already got a well ruined here, a well ruined here. So I believe this, in my opinion, is at risk, and these other producing wells over here are at risk.

Q. All right. Mr. Friesen, in your opinion, in order to prevent the further escape of additional volumes of fluids and further harm to offsets, is it necessary for the Division to order immediate cessation of injection operations --

A. Yes.

Q. -- before the issuance of a final order in this case?

A. Yes, absolutely, absolutely.

Q. Were Exhibits 1, 8 through 21, prepared by you or at your direction and control?

A. Exhibit 1, 8 -- yes, they were, through 21, yes, sir.

MR. HALL: Mr. Examiner, we would move the

admission of Exhibits 1 and 8 through 21. At this time we'd also move the admission of Exhibit 22, my notice affidavit, and that concludes our direct examination of this witness.

EXAMINER JONES: Objections to exhibits?

MR. DOMENICI: I have no objection. I would like to move to strike part of his testimony, because he never provided any verification that the OCD shut in Gandy's well, they never discussed that, they never -- that was complete hearsay. They never provided evidence that Energen contacted OCD, and OCD contacted Gandy.

THE WITNESS: I brought an exhibit, that computer printout, remember, that showed the OCD that date, 4-22, they visited the well, they actually shut it in.

Well --

MR. HALL: Shall we take a break so I can find it.

THE WITNESS: -- I -- I -- let me -- let me -- let me --

MR. DOMENICI: We've already closed his --

THE WITNESS: I'm sorry --

MR. DOMENICI: -- testimony --

THE WITNESS: -- I'm sorry, I'm sorry --

MR. DOMENICI: -- so --

THE WITNESS: -- I just wasn't familiar with the

procedure.

EXAMINER JONES: First of all, let's --

MR. DOMENICI: I don't have any objection on his exhibits.

EXAMINER JONES: Okay, let's accept -- let's make a matter of record, Exhibits 1 and 8 through 21 and Number 22.

And do you have an objection?

MR. DOMENICI: I would like to move to strike his testimony, because we allowed provisional testimony about a circumstance around April 22nd, 2005. The witness said he had backup documentation for what I understood was double and triple hearsay, that somehow Energen called OCD and OCD required shut-in of Gandy's well. But there's no exhibits to support that, and there's been no -- nothing tendered or offered that would support that, even though they've said they would provide that.

MS. MacQUESTEN: Is there anything reflecting that in the public record?

MR. HALL: Yes, Mr. Examiner, the witness has testified that a substantial portion of his testimony was based on his review of documents from the public record, as well as documents provided to us by Gandy Corporation in this case. So I think there is foundation for that testimony.

THE WITNESS: Yeah, I -- could I say something about that exhibit?

MS. MacQUESTEN: The one we don't have?

THE WITNESS: The one you don't have. Can I just explain what that is and where I got and --

MS. MacQUESTEN: Well, can we get it?

THE WITNESS: Oh, I brought it with me, it's -- I don't know what happened, it's down in Scott's office. But let me explain what that is. I -- Danny had told me about this OCD thing, and I know in Texas these things always get written up in the Railroad Commission, so I called Doug Schutz over here --

MR. DOMENICI: I'm going to object to all of this, because this is just more hearsay that I've already objected to once and was told there would be a foundational exhibit, and now we're getting more hearsay.

THE WITNESS: Well, all I want to say is --

MS. MacQUESTEN: I agree. If we have any documentary evidence that can be presented on this point, we'd be willing to --

MR. HALL: We'll --

MS. MacQUESTEN: -- to look at it.

MR. HALL: -- be glad to provide that, and we'll ask that be made a part of the record. And I think we can get that today.

THE WITNESS: If I might be allowed just to finish, it's a screen dump off of the OCD computer, it's dated, shows what the action was, and I brought that with me, it's down in Mr. Hall's office.

MR. HALL: It's one of the compliance screens --

MS. MacQUESTEN: From RBDMS?

MR. HALL: -- for the well. Yes. We'll get that to you.

MS. MacQUESTEN: All right.

MR. DOMENICI: Well, I'll continue to have an objection. I mean, without seeing that, I don't know what it says. There's a lot of interpretations to be made off of what happened April 22nd, with virtually no documentation. So far, it's complete hearsay.

EXAMINER JONES: Okay, April 22nd was the -- supposedly the date the Snyder B 2 well had the first waterflow, right?

MR. DOMENICI: Yes, that's correct.

EXAMINER JONES: Okay.

MR. DOMENICI: And then the witness testified that as a result of that, OCD did certain things and Gandy did certain things. There will be testimony directly contradictory to that from Gandy as to why that shut-in occurred and what the circumstances were.

And so it's fairly critical -- That's why I

raised it when it came up, because I don't think this is actually -- and I don't think testimony on a computer screen shows something, provides any support whatsoever for that.

THE WITNESS: That was the only record that the OCD had, they sent it to me.

MR. DOMENICI: Well --

THE WITNESS: That was all -- That's what he says, that's all we've got on our computers, he had to make a copy, and he sent it to me by mail.

MR. HALL: Mr. Examiner, I might suggest that the need for that exhibit is immediate, as Mr. Domenici says, we take a break. Perhaps we can go upstairs and print off the compliance screen for the well that will show the information Mr. Friesen relied on for his testimony. Very simple screen, will show that.

EXAMINER JONES: Okay, it is time for a break. We'll do a 15-minute break, go off the record.

(Thereupon, a recess was taken at 2:34 p.m.)

(The following proceedings had at 3:05 p.m.)

EXAMINER JONES: Let's go back on the record and proceed with the cross-examination.

MR. HALL: Hold the phone.

THE WITNESS: Yeah, that's it.

MR. HALL: Want me to mark this?

EXAMINER JONES: Sure.

MR. HALL: You just want to see it, Pete?

MR. DOMENICI: I'd like to see it.

EXAMINER JONES: If it's real important, it should be marked, probably.

MR. DOMENICI: I don't have any objection to marking it. We probably should.

(Off the record)

MS. MacQUESTEN: Mr. Hall, if I could suggest, this version of the screen is much more legible and includes legible areas that you simply cannot see on the other copies. Perhaps we could by this copy and make enough copies for the record, and substitute that as Exhibit 23.

MR. HALL: We'll do that.

MR. DOMENICI: Yeah, that's better.

MS. MacQUESTEN: Would you like to hold onto that for your --

MR. DOMENICI: Yes.

MS. MacQUESTEN: -- examination?

MR. DOMENICI: Yes. So we'll still call this Exhibit 23 though?

MR. HALL: Yeah.

MR. DOMENICI: Okay.

MR. HALL: Do you need me to introduce it, or

shall I just move its admission? Want me to get it in through the witness?

MS. MacQUESTEN: Yes, please.

Q. (By Mr. Hall) Mr. Friesen, let me show you what we have marked as Exhibit 23 --

A. Okay.

Q. -- and let me ask you, is this a printout of the NMOCD computer screen upon which you relied to make your determination that there had been a shut-in of the Gandy State T 2 well on April 22nd, 2005?

A. Yes, sir, that was -- I had a conversation with Mr. Watson. He had told me about this, and this was my documentation of that.

MR. HALL: All right, move the admission of Exhibit 23.

MR. DOMENICI: No objection.

EXAMINER JONES: Exhibit 23 will be admitted.

MR. DOMENICI: Okay, I'll still renew my request to strike that testimony. The testimony was that the shut-in occurred because of the waterflow at Energen, and that's the testimony at the time I asked not to be admitted because it was at least double or triple hearsay, and I was told there would be a document that would support that.

This document doesn't support that. This document supports that there was a shut-in, it doesn't

support the rest of that testimony, and so I would renew my objection to that testimony.

MS. MacQUESTEN: Mr. Hall?

MR. HALL: I think the witness has testified. If you will look at, among other things, Exhibit 21, the documentation from Energen contemporaneous with that date, that shows the waterflows in the well.

Mr. Friesen has also indicated that he has conferred with Energen personnel to verify that in conjunction with -- to establish an understanding of Exhibit 21. So I think there's sufficient collateral documentation that supports that conclusion.

MR. DOMENICI: I'll renew the objection. It doesn't support the testimony that the witness gave. It's -- the evidence itself, I don't object to, but something happened that's reflected in Energen's logs that are Exhibit 21, and there was a shut-in related to an OCD informal action. But the rest of the conclusion is essentially drawing -- asking you to draw the conclusion that OCD drew some conclusion from those circumstances. Now if the -- that's what the testimony was.

If the witness wants to draw a conclusion from that, I think that's okay, and that's what I think Mr. Hall just described, but he didn't support the fact that the witness was drawing from what the regulatory agency did.

So that's the testimony I would like you not to consider, because it's hearsay. And I objected when it came in, and there has still been no foundation for it.

MS. MacQUESTEN: So if Mr. Friesen is testifying that based on these various pieces of evidence he is drawing a certain conclusion, that would be acceptable to you, but you object to any suggestion that he is saying the OCD reached that conclusion; is that correct?

MR. DOMENICI: Yeah, and I don't think it's acceptable what he drew, but as an expert he can draw a conclusion if he wants, and that's -- it would go to the weight, I think.

But for him to say that the agency drew a conclusion off of these documents, I think, is not supported by this evidence, relies on some form of hearsay or some point of speculation, one or the other.

MS. MacQUESTEN: We agree, and to the extent the testimony represented that the OCD drew that conclusion, that testimony will be stricken.

But Mr. Friesen's own opinion that he drew from the various pieces of evidence that have been admitted will remain.

MR. DOMENICI: Thank you.

Okay, if I may proceed?

EXAMINER JONES: You may.

CROSS-EXAMINATION

BY MR. DOMENICI:

Q. Let's discuss -- while we're on it, let's discuss this April 21st, 22nd time frame or so. And let's look at Exhibit Number 9. You've drawn various conclusions from Exhibit 29 -- or Exhibit 9 --

A. Nine.

Q. -- excuse me. I want to be sure my expert is -- and the record are clear on the assumptions that underlie your conclusions. You testified about a lot of assumptions, but I want to just ask you about a few more.

What is your assumption, in looking at these injection pressures, as to what contribution the condition of the perforations in the Gandy wellbore had to these injection pressures?

A. What contribution --

Q. What contribution or what impact did the condition of the Gandy wellbore have to these pressure differentials?

A. So let me see if I understand this. What you're asking is, the perforations in the Gandy well --

Q. Yes.

A. -- what did it contribute to the pressure in the DKD Snyder A well?

Q. No, just in the Gandy well. What contribution

did the condition of the perforations make to the injection pressure?

A. Oh, you -- well now, let me see if I understand this. Are you talking about like a friction loss or something through those perforations, or --

Q. Well, let's assume -- Let me ask you a hypothetical.

A. Just trying to understand --

Q. Is it your testimony that these pressure readings, essentially, that you then put in the graphic form -- is it your testimony that the amount of fluids that was being released from the Gandy wellbore through the perforations was constant at each of these pressure readings?

A. No, it wasn't constant. We have another exhibit that shows that the -- you know, the rates were fluctu- -- it's a saltwater disposal well, so it's probably fluctuating quite a bit, but looking at averages, you know, C-115s for a month, but --

Q. In terms of the -- Let me ask it again. Based on -- Assume that 50 percent of the perforations were not effective at a particular point in time. Would that contribute to the pressure, to the pressure reading, that you would be graphing? Would that increase the pressure?

A. If 50 percent weren't contributing, would the

pressure jump up?

Q. Yes.

A. If for some reason we're injecting and 50 percent of the pressure -- or 50 percent of the perforations now are blocked --

Q. Yes.

A. -- would the pressure jump up?

Q. Yes.

A. If that condition occurred, yes, sir.

Q. And if 75 percent were blocked, the pressure would jump up?

A. The pressure would move up, yes, sir.

Q. And if 100 percent were blocked, the pressure would jump up?

A. If -- yes, as you block of flow, yeah, you're going to --

Q. Now what is your experience, what is your specific experience in the operations of a disposal -- injection disposal well, as to the change in the perforations over time, change in the condition of those perforations over time?

A. My experience, generally speaking -- the perforations are there. And like we saw over here on this Exhibit Number 8, you know, we've got several sets of perforations through this well. They all don't take fluid,

necessarily. That is my experience when running injection profiles. We've got a lot -- we've got perfs, but not all -- but not water is going into all the perfs.

In fact, over time that changes. You know, when we first start injection, we generally see certain perfs taking water. And then over time, those no longer take water and other things start to take water. So it's a dynamic situation, you know, over an interval, generally speaking.

Q. Well, let me ask it this way. When I said experience, I was actually trying to have you identify what production type saltwater disposal injection projects you've been involved in.

A. Oh, oh, you mean the --

Q. Your personal experience?

A. You mean like naming waterflood projects that I've been involved in?

Q. Well, do you consider this a waterflood project?

A. Well, it's underground injection. Now --

Q. Okay, I'm asking you about disposal -- disposal well experience.

A. Disposal well experience? Well, the injection well is a disposal well, and I've had lots of experience with those kinds of wells.

Q. Okay, well let me --

A. Now -- now if you're asking me to recall, maybe -- Go ahead.

Q. I only want disposal wells.

A. Well, in my -- you know, in my experience generally I work with injection wells, but over the years I have worked with a few disposal wells, you know, doing direct pressure work, perforation, recommending perforations or recommending zones to dispose of, that sort of thing. But it's not a big part of what I do.

Q. What other ones are you working on today?

A. Oh, none today.

Q. What other ones were you working on in 2004?

A. In 2004?

Q. Yes.

A. Boy, I don't know. I could say 2004 not -- but before then there were some. But my goodness, I can't recall. I mean -- I can answer your 2004 question, but --

Q. Okay.

A. But I mean -- you know, I mean, I got a great memory, it's just pretty short on some of these things. It gets -- but I have had some -- and if you want me to say limited, fine, I don't mind that.

But I would like to say that whether it's a saltwater disposal well or an injection well, the principles are all the same here. The only difference is,

in a saltwater disposal well it's a closed system. The injection system, a waterflood, you're pulling volumes out. But you know, there's a lot of times you shut an injection well in, and some of those patterns become closed systems.

So it's essentially the same, in my opinion. There's no difference, in my opinion, whether it's saltwater disposal or -- you know, the reservoir engineering principles are the same, in my opinion.

Q. Well, in your -- I think your testimony when you qualified yourself, you indicated most of your experience was in reservoir engineering?

A. Yes, sir.

Q. And very limited in production?

A. About two and a half years, that's correct.

Q. And do you consider the operation of an injection disposal well to be production?

A. Of an injection disposal well. Well, it's -- your -- to be production. Injection disposal well. Well, a disposal well is -- the difference between injection -- to me, in my opinion, the difference between -- and when you talk about an injection well, I'm assuming a well that is into a zone productive in oil and gas, productive of oil and gas. And then the distinction to me, in terms of a saltwater disposal well, is one that is into a zone that is not productive of oil and gas. That's generally how I, you

know, kind of couch the two.

Q. Okay. Well, let's use your terminology. So a saltwater disposal well into a nonproductive zone, is the operation of that well production?

A. No, it's -- I'd just say it's disposal.

Q. Do you know how that's charged in the industry? Do you know how that's --

A. No, I -- now I'm not -- no, I don't do -- you know, it's been -- that two and a half years of production experience goes back to 19- -- in the Permian Basin end of things, goes back to 1988, '89, part of '90. So we're at 25 years ago.

Q. Do you know if a disposal well like this is owned similar to a production well --

A. No, sir --

Q. -- working interests --

A. -- no, sir --

Q. -- override interests?

A. -- no sir. I do work with interests in the oil and gas business some, but on this particular situation I'm looking at just the reservoir aspects, the subsurface flow. I'm not -- do not look at any legal documents, ownership, things like that. I'm far from an expert on anything like that.

Q. What did you assume was the contents of the waste

stream, the disposal liquids, that constituted that 560,000 barrels that you testified were the -- as the reservoir -- or the storage capacity?

A. Saltwater.

Q. What salt content of that water?

A. You know, I did not know. And I didn't need to know for what I was doing.

Q. What content of other impurities or other materials did you consider would be included with that saltwater?

A. None, there wasn't any need to.

Q. What is your understanding as to how frequently -- or any frequency required to maintain a saltwater disposal well?

A. To maintain?

Q. What's your understanding of the maintenance required on a saltwater disposal well?

A. My understanding -- well, none.

Q. So none of those -- Or let me just be specific. None of your calculations take into effect the impact on -- the liquids disposed in that well could have had on the way pressure calculations were reported?

A. You mean as far as impurities or how many chlorides or the weight of the salt, things like that? No, sir, there's no need to do that. It just isn't -- it isn't

-- it isn't -- it isn't needed.

Q. What would -- or isn't it true that -- looking again at your Exhibit 9, where that 1450 spike is in about April of '05 --

A. Yes, sir.

Q. Isn't it true -- Isn't it true that if a load of water -- of liquids, were disposed with LCM contained in it that clogged up the perforations, that that could cause a pressure spike like that?

A. Could cause it?

Q. Is that true? Could it cause it?

A. Oh, you mean totally plugged up the perforations?

Q. Say substantially.

A. Substantially plugged up the perforations? In -- April 22nd, possibility.

Q. You didn't consider that in any of your calculations --

A. You don't have to, because in March -- in March on the C-115s, it's reported at 1300 pounds. It's clearly in the public record that it's over the injection pressure then. There's no reason to do that in April, 22nd, Danny's reading. It's 1450. It makes sense, it's coming up.

See, that's just -- it's just -- it's -- the principles involved here all fit just exactly what they should do. I don't need to know the salt content, I don't

need to know how many impurities are in there. And you know, really, when these things lock up tight, your surface pressure just goes -- you know, you've got to shut down.

So you know, these things are all -- could possibly have some influence. But boy, when data fits -- you know, when you look at data like this -- and I look at a lot of oilfield data -- it's -- you get impurities in everything, in salt concentrations and all that. We don't look at stuff like that.

We make some assumptions, we look at the observed data, and we ask ourselves, well, does this fit the principles that I understand, does this make sense? And then we offer up an opinion.

But most of this stuff, I have no access to that kind of data. And it's just not important.

Q. Well, so it wouldn't be important, as an example, if the quality of the water that was injected during the storage phase, as you indicated, before -- while there was still a vacuum, before pressure -- it wouldn't be important to you to see if the quality of that water and water injected after that was similar to the quality of water identified in Danny's well that you claim came from this well?

A. Uh-huh.

Q. It wouldn't matter to you?

A. I -- I -- No, I didn't conduct anything like that. Now, you know, in the past I've looked at water samples and things like that and, you know, I've just had no luck at drawing conclusions from things like that. Occasionally -- occasionally, but not in these situations, because that water gets all mixed together.

You know, you've got to have some really good -- you've got to have some good base level water analysis and -- you know, it really gets -- and then what happens is, many times, the conclusion is really -- after you've injected water and you pick it up at the surface and you get nice detailed analysis done -- you know, still kind of left kind of wondering what the heck's really going on. I mean, I've tried that kind of stuff, I've just never had luck with drawing any conclusions that mean anything.

Q. And you don't know if the water that was -- the quality of water found -- in looking at the -- your Exhibit 1 -- if the quality found in Snyder A Number 1 --

A. Yes, sir.

Q. -- that is -- that quality is totally irrelevant to the quality of water that was disposed in the State T; that's your testimony, correct?

A. The water is totally --

Q. The quality --

A. Quality of the --

Q. The contents and the quality of that water is totally --

A. Yeah, yeah, looking at all this data and things, right, quality, content, impurities just were not a factor. It was not something that I thought buy investigating would add anything to the testimony.

Q. Did you know that there was water quality available from both wells?

A. There -- No, sir. But like I say, I've tried to work with these things in the past. It does -- it just -- it's inconsequential, it's not something -- it's not something I need as a practicing engineer to make a determin- -- to make the determin- -- all the determinations and opinions I gave today.

Q. So something like putting something in the water to actually physically trace it, to see if it -- if your conclusions are correct, that would be irrelevant too?

A. That would be what?

Q. That would be irrelevant also?

A. Oh, that would be great to do that, I'd love to do that with this particular project, yes, sir.

Q. Okay, and you don't --

A. Yes, sir, I mean, I --

Q. -- you don't consider water quality data to have that same --

A. Sir, I've looked at that kind of information in the past, and the answer to your question is no. I've had -- personally, I have had no luck at using water analysis in the Permian Basin to determine things, much other than on a DST to determine whether I got drill water or I got formation water.

But then we're talking about -- in that situation where I use that, we're drilling with a fresh mud, and boy, the chloride contents are huge, you know, big contrasting difference. What happens, the stuff gets all smeared together and there's no -- in my opinion, no real correlation here.

But tracers, oh, yes, sir, that would definitely be something that would -- I'd be all in favor of that and it would prove it up in short time, this is in direct communication. But yes, yeah, that would be good.

Q. And when you say it's all smeared together, once it gets into -- once the disposed water gets into the porosity that you've --

A. Connected porosity, yes.

Q. -- it doesn't smear together there, does it?

A. Well, you've got formation water, connate water, and then what you've got is your injected water. And yeah, it gets mixed as you -- you know, as it moves, you know, into there. There's always a mixing zone from there, you

know. You're moving water from there, so you're mixing it.

Q. But you're not mixing water that you put in 100 days before or after, are you?

A. What do you mean, mixing water? I'm sorry --

Q. Well, you're saying it's all smeared together. I'm trying to draw a picture of a well that's been taking liquids for months, during a vacuum, as you testified, so -- in fact, during a vacuum would indicate to you that that water is dispersing without causing any pressure buildup, correct?

A. That water is dispersing, yeah, filling what available volume it can.

Q. So the water out of the leading edge of that, that would not be smearing with the water that you put in when the pressure starts building up, say 12 months after you've been injecting. Those two wouldn't be smeared together, would they?

A. You know, that -- yeah, you know, I'll tell you what, I see what you're saying, the theory is correct. But you know, in my experience with things like this there is a substantial mixing zone that does occur. And yes, sir, the chlorides is what I was referring to, that's what get mixed together, smeared together, yeah.

You know, the problem -- the problem that I see from a practical standpoint with what you're saying is, you

know, you're assuming a piston-like displacement here, when really what happens is, permeability is layered.

You know, you've got a zone of high perm, and below it you've got a little lower perm and things like that. And so what's happening is, you're getting override in the high perm zones of this injected water, and you've got some connate water below it in a little -- you know, a little bit tighter zone, so a little lower perm, and maybe below it you've got another little high-perm streak.

So what's happening laterally is, all this stuff is mixing. You've got fractures that allow it to mix vertically and -- you know, it's just -- it's something we can't see, you know. But practical experience, my opinion working with this thing is -- and just -- mixing zone, my idea of mixing zone, my idea of the geology and things, my experience is that, you know, you get a lot of mixing laterally as you move through there.

Q. Well, let's be sure we understand what your experience is. What is your specific experience with analyzing the movement of disposed saltwater?

A. Well, let me back up again. There is no difference in analyzing disposed saltwater than there is with analyzing injected water in the waterflood, because -- let me just make a quick statement here, and I think it goes back to what you were trying to talk about production.

In this situation, in a saltwater disposal zone when you have no communication with the surface, then you're just putting water in, you're not withdrawing. But as soon as you have communication with the surface, now you've got water injected, it moves across, and it comes up a well.

Well, in waterflooding, the well it comes up is a producing well. But in this particular instance, once it breaks through into the wellbore and comes up these wells -- you know, technic- -- you know, you've just got water being put in. I do a lot of that. It comes over to the well. Let's call this a producing well. It comes up, that's injection, comes down, over, up.

And I do a lot of analysis, pattern analysis using -- sometimes using tracers, pressures, where we take injection wells with offset producing wells. This is wells where water comes to the surface but it's being pumped up with oil, and we try and analyze water movement. How much water is moving into these various producing wells? Can we go in there and close off some of these zones I referred to?

It's all the same stuff, it's just a technicality here, and I -- personally, it's the same -- it's the same kind of thing, it's just subsurface -- it's subsurface injection. And I do quite a bit of that. And I've done it

now for -- ever since I've been in the Permian Basin.

Q. But you just said -- I want the record to be clear. You've never done that analysis with a disposal, correct?

A. Water movement? Yes, sir, but not since 2004, is how I answered your question. And I have done this kind of stuff before, but I'm sorry, I'm not going to be able to tell you specifics, I'm --

Q. Not even one location, not even --

A. No, sir, I'm just --

Q. -- one permitted well?

A. No, not in a situation like this, and I don't have total recall and I can't do that. Now, if you want to let me go back, I'll be happy.

Q. Yeah, I'll let you go back. And what are you going to produce? A list of projects where there has been disposal --

A. Well --

Q. -- that you've been involved in?

A. Disposal?

Q. Yes, disposal.

A. Well --

Q. You're testifying today as an expert in a disposal case --

A. -- as an expert in a disposal case, in New

Mexico, probably, is what the next question is. Well --

Q. I just would like the record --

A. -- I don't know, you're really -- ah, you know, that's a real technical -- I really don't -- don't see the point of that, personally, in my opinion, but -- but okay --

Q. Okay, but I --

A. -- I guess. If you make it real narrow, though, you keep narrowing it down and you make it so narrow that I'll have to answer it no, well, just keep going, I'll --

Q. Okay, well let me just make it --

A. -- I'll keep playing.

Q. -- let me just make it real narrow --

A. Okay, good, then I'll go back --

Q. -- and see if that's a good --

A. -- and it won't take me --

Q. You don't have --

A. -- long to do.

Q. You don't have one disposal well project you've worked on that you can testify to this Hearing Examiner, correct?

A. You mean that I've testified in a public hearing?

Q. No, that you've worked on, where you've done analysis as to the characteristics of where the disposal of water --

A. Oh, yes, sir. Yes, sir, I can do that.
Q. Good --
A. -- I can do that.
Q. -- what's the name of it?
A. Well, it -- Sir, I told you, I don't have -- you just agreed to let me go back. Let me go back and I'll give you -- I'll give you the well name.
Q. Okay. But today you don't have the name of a well?
A. Sir, I cannot recall it.
Q. Okay.
A. Great memory, just short. Hell -- Well, I'm 53 years old. I mean, come on, you know?
Q. And you didn't look back for any -- you knew you were testifying in a disposal well case --
A. Oh, no, sir --
Q. -- and you didn't --
A. -- no, sir, I -- No, no, I'm not going to go back through -- I do this routinely --
Q. Okay.
A. -- week in and week out, year in and year out. I don't -- you know, I don't say I don't go back and refer to things. But no, I didn't --
Q. Okay --
A. -- I don't --

Q. So you've never testified, that you can recall, on behalf of someone trying to obtain a disposal permit?

A. No. Now, that -- that's a true statement. I've never testified in the State of Texas or in the State of New Mexico in a contested case for a water disposal well.

Q. Now, I think I asked you this, but I want to make crystal clear. You don't have any information as to what the waste stream would consist of that was accepted by Gandy Marley?

A. No, I didn't -- I didn't look at any of that data. I didn't need it, I didn't ask for it, and I didn't look at any.

Q. And I think you testified that you relied on some of these exhibits that Gandy Marley provided regarding the re-perf, the perforation activities in May of '05, correct?

A. (Nods)

Q. And you looked at the communication from -- Let's see, these are in your exhibits. That would be Exhibit 19, would be the perforation logs.

A. Exhibit 19, those handwritten notes?

Q. In your --

A. Yes, sir.

Q. You relied on those to make --

A. Yes.

Q. -- to draw some of your conclusions?

A. Yes, put those perforations on Exhibit --

Q. Exhibit 15, I think.

A. Exhibit 15.

Q. And who did you understand did those perforations?

A. Who did it?

Q. Yeah, what company?

A. Oh, Mr. Bennett. But sir, I just -- the report was made by Mr. Bennett, I don't know him.

Q. And then I think you relied on Exhibit 17?

A. Yes, sir.

Q. That's the EverQuest --

A. Yes, sir.

Q. -- correspondence. Do you know who paid EverQuest for the re-perforation?

A. No, sir.

Q. Would it change your opinion if you were told that a company that improperly disposed material, that clogged the perforations, paid for that work, would that change any of your opinions in this case?

A. No, sir. No, sir, it wouldn't.

Q. Would that change your opinions as to -- Let me ask it this way.

A. Yeah.

Q. If you were informed that Gandy Marley reported

-- or that Gandy reported that the pressure had been exceeded, would that change your opinion?

A. I'm sorry, once more. I think --

Q. If you were informed that Gandy reported that the pressure had been exceeded because something improper had been disposed in that well, in their well, and clogged up the perforations and caused the pressure to go over their allowed limit, would that change any of your opinions?

A. Huh-uh, no. No it wouldn't, not a bit. I've got too much data there, you know. And I guess what you're saying is, it occurred here? Well, you know, it -- got data here that says -- you know, and they're back right up there again.

This is just all -- this really is just a situation where you catch pressure, you filled it up, you keep going up, you unload the well, you perforate things, you've got some water going back in some new storage or relieving the pressure, it comes down, and then we just go back up again.

Now, I'm not arguing that some of these oscillations and things, one might be a shut-in pressure, one might be a -- not a shut-in, or there may be some -- you know, some junk that goes in.

But you know, there's just too much data here, over too long a period of time, that followed just accepted

engineering principles, reservoir principles of fluid flow that -- that's why I didn't need any of the data, and that's why I personally don't care whether a little bit of junk goes in there once in a while. It doesn't change what happened out here, it does not change my opinion about what happened out here.

Q. Okay, let's ask a few more questions. How much water was unloaded?

A. When? Now, I don't know, the only thing -- the only thing I have to the flowback is Exhibit Number 17. It's mentioned -- it's mentioned in that letter. Mr. -- Mr. -- Mr. -- Mr. Duffey, EverQuest, in paragraph -- one, two, three, four -- paragraph 5, he says, I would recommend that you take advantage of the flowback/shut-in period...

Q. Well, can you calculate the amount of water based on --

A. No, sir --

Q. -- engineering --

A. -- no, sir, I cannot, not without -- you know, I don't have any data.

Q. What number would be consistent with your reservoir calculations that you've testified to? What flowback quantity would you expect if your reservoir calculations that you've given are correct, to depressurize that --

A. You mean that the pressure went down?

Q. Yes.

A. What quantity of water?

Q. What quantity?

A. Oh, I couldn't even make an est- -- I could not calculate the quantity, I don't have enough data to do that. All I can do is observe what occurred and then why it occurred.

Why is it steep? Well, it's steep because there's a flowback period, and it's steep because they added new perfs, and so you've got -- you know, I'm going to speculate that they've got cross-flow, then, with the new perfs. And that high pressure water is coming up, moving into some of that stuff that they hadn't seen before.

It comes down, that's all I'm saying, is, it comes down. And I know that when you start doing flowback periods or you start adding perfs in a well, the pressure is going to -- you know, it's going to come down. It's just doing what -- and the well -- you know, the well is just doing -- behaving like it should.

Q. What would you expect the pressure to come down -- come down before they re-perfed?

A. Before they re-perfed?

Q. Yes.

A. I don't have an estimate of that.

Q. Why not?

A. Well, I just -- I didn't do it, that wasn't part of what I needed to make my opinion, my study, come up here and offer my testimony.

Q. Well, what -- what would it take to do that?

A. Pardon?

Q. What would it take for you to calculate, based on everything you've seen, what the pressure would have been before they re-perfed? So after they took water out of the well, you can't estimate the amount, right? I think you just testified --

A. No, I don't have any data that would tell me what was taken out.

Q. But that data -- if you had that, that would be useful to substantiate your overall opinions, wouldn't it?

A. You mean if I knew how much water?

Q. Yes.

A. No, sir, it wouldn't change my opinion a bit.

Q. So 100,000 barrels or 500- --

A. Well, I --

Q. -- you don't want to --

A. -- well, sir, now you're getting into some pretty big numbers, but they're not anywhere near that.

But no, in the quantities that they're going to

flow back and truck off and move somewhere else, no, sir. I don't know those numbers, and I don't need them to formulate an opinion. It wouldn't change my opinion, the small volumes.

Q. And then you don't have an opinion as to what that pressure would have been at that point in time?

A. When they re-perforated?

Q. Before they re-perfed, after they had taken water out of the well.

A. Well, all I have is -- you know, I can -- I can look and see what the data shows that I graphed as of a certain date, and I'll be glad to do that.

Now, I could tell you what the pressure was as of a date, if you'd like me to do that.

Q. Well, let me tell you, what -- let me ask you this. What does that pressure indicate? Does that indicate the static pressure at that point?

A. What was that?

Q. Does that indicate the static pressure of that reservoir at that point?

A. Which pressure is that?

Q. The pressure before they re-perfed.

A. On which day?

Q. Well, after they had taken all the flowback out in order to --

A. Yeah, but I don't know what -- the time period that is or anything like that. I mean, I -- I -- and -- and -- I don't know. I don't know how much they took out or over what time period.

I know on the 26th when the letter was written there was reference to a flowback period, so I assume it was going on -- you know, it rose on April 26, it probably was going on the 25th. Did it go on for several more days? I don't know, I don't have any data. When did it start? I'm not sure. How much water was taken out? I don't know.

Q. Okay, let's go back to your -- what you drew up on the board here. I think that was a part of your discussion as to what the -- is it the storage porosity?

A. Well, I was referring to the pore volume versus storage volume, the differences --

Q. Okay.

A. -- between the two. And what I -- what I was just trying to show was the exhibit that was -- that I was talking about at that time. I'm looking at the exhibit that was at the prior -- presented at the prior hearing. This was Exhibit Number 12.

You know, I just -- this is all I had for Exhibit Number 12, and it -- it -- and what I -- here's my assumptions, and I made this calculation myself to find out this volume.

But I was assuming that we had a cylinder with a radius of 1320 feet and a thickness of 34 feet, and if you calc- -- and a porosity of 15 percent. And if you run the numbers on that, that's a pore volume of 4.97 million barrels.

Q. Okay.

A. But what I was trying to refer to was that this porosity didn't need to be a total porosity. If -- if -- you know, if the porosity is -- measured by a log logging tool or whatever, shows porosity, and let's say 15 percent just for the sake of argument. If -- the 15 percent's not a problem, but if the pore space comes up to 15 percent and it's isolated then it's not storage volume, you can't get fluid to move between this pore and this pore because there's no interconnection.

So all I was trying to talk about was, this number needs to be effective porosity. This needs to be the porosity of these little pores down here that actually have little pore throats between them that's open, some permeability, and you can move fluids into this zone. So that -- that needs to be effective porosity.

And then furthermore -- maybe I didn't mention it, but this 34 feet needs to be 34 feet of effective porosity. This area of 1320, that circle, needs to be an area of, again, the effective porosity, which is the inter-

connected porosity.

Q. Okay. What I'd like you to do is use your same analysis you've described and show me what assumptions you made that would come up with the 560,000.

A. Oh, the 560,000 barrels -- well, you know, we don't have -- we've got a bunch of old Lea logs, and we've got that one -- that one new log, and -- the Watson Number 6. But I did not -- I did not back-calculate, you know, using this. Let me explain how I did that.

I took the -- I took just cumulative -- the injection, 560,000 barrels, up through the month where the Gandy well caught pressure. And that was August of -- hang on a minute. That was August of '04. That was 560,000 barrels.

Now, the geometry of that 560,000 barrels, I have --

Q. That's where I'm headed.

A. -- I have no idea. And you know what? That geometry, there's not enough data to calculate the geometry. I can tell you the volume, and that's effective storage volume, but the length of that zone, or whether there's a number of zones, the effective porosity, et cetera, there's just no data.

But I do know that the volume of the zone that's interconnected down there is about 560,000 barrels, you

know, within, you know, a reasonable estimate there.

Q. But you don't know the thickness, you're not testifying what the thickness is?

A. No, sir.

Q. And you're not testifying what the lateral extent is?

A. No, sir, I can't tell you. I can tell you from the data that we've observed, the waterflows at the surface, that there are -- there is a zone in there, or two zones or whatever, but there's at least one zone whose lateral extent goes to the Snyder B 2. I can't tell you how thick it is, can't tell you how wide it is.

But I can tell you there is a direct communication, a zone that is at least 2000 feet long and goes to that well. I can't tell you anymore about it. But you know, I can tell you that because I've seen a direct hydraulic communication between the Gandy well and the Snyder B 2.

And I can tell you that going south off of that Snyder well -- off of that Gandy well, approximately 3400 feet -- and I -- we just use that number for the sake of argument -- to the Snyder A Com Number 1, there is a zone that is that long, that goes down to that well. And I can't tell you how thick, I can't tell you how wide.

But I can tell you because I've got a direct

hydraulic communication -- there are two zones, at least, or one zone, you know, that just -- it goes 2000 feet here and 3400 feet here. I can tell you that much because I've observed the effects of this -- of the water, and I've observed the effects of the pressure.

Q. And that pressure is based on the pressure calculations from Gandy's well --

A. Well, it's based on the pressure data that Gandy recorded earlier, you know, those earlier exhibits. I just graphed it up.

Q. Let me ask you just some general questions on saltwater disposal.

Is it your position that saltwater disposal that requires pressure should not be allowed if there are wellbores perfor- -- wellbores penetrating where that pressurized water may go?

A. You mean if there were wellbores penetrating with no cement behind pipe?

Q. No, just any -- first, any circumstances?

A. Oh. Well, I would say that -- that it -- you know, water injection into -- if you have cement behind pipe, you know, all your wells are effectively sealed from that injection, there's nothing wrong with that.

Q. So you're not opposed to testifying that no injection should be allowed under pressure?

A. Oh, no, there's a lot -- oh, no, my goodness, no. I work with injection under pressure all the time. But what we do have to consider is -- and, you know, in my work anyway, injection well work, when I'm working on new injection wells and getting them permitted in Texas, I've got to make just this kind of study. And I have to say that, you know, we got cement behind pipe, we got -- you know, in the best of my opinion, mechanical integrity.

So we do -- we run into that quite a bit where you -- if you have the mechanical integrity that -- we believe a hydraulic seal, then you could inject into a zone, have producing wells offsetting it, no problem.

It's only when -- when there's no mechanical integrity, it shows here, no hydraulic integrity, no cement -- no, in Texas you're not going to get that approved.

Q. Okay. Well, looking at your Exhibit 1, the map --

A. Yes, sir.

Q. Let's look for the closest currently producing well, currently producing oil and gas well, that you contend did not have cement or mechanical integrity.

A. The wells at risk? Well, the closest one would probably be -- up to the State 2, would probably be that State B 4. That is shown as a shut-in well, but it's actually a -- it's actually a producing well.

Q. And how far is that? Around 2000 feet, maybe --

A. Get my engineering scale here. Okay, that well, from the -- you know, the way the crow would fly from the Gandy T 2 to the State B 4 -- that's that well in the upper left-hand corner --

Q. Right.

A. -- I'd say about 2800, 2900 feet.

MR. DOMENICI: Okay. That's all I have, thank you.

THE WITNESS: You're welcome.

EXAMINER JONES: Okay, I --

THE WITNESS: Oh, certainly.

EXAMINER JONES: -- I always get to do that here.

EXAMINATION

BY EXAMINER JONES:

Q. The Snyder A 1 is directly south of the State T 2?

A. Yes, sir.

Q. It's got a liner in it from what, 4500 on down, and is only cemented with 300 sacks; is that right?

A. The Snyder A Number 1, yes, sir, it's got a liner. I'm pointing to it there. And I've got to go down to the bottom of the exhibit, but it's a 5-1/2 liner cemented with 300 sacks, yes, sir.

Q. And the top of cement?

A. The top of the cement is 9161 feet.

Q. Okay. But you've got cement above 4500 feet or so, right?

A. In this particular well?

Q. Yes.

A. Up here above the --

Q. Yeah.

A. -- above the surface pipe? Yes. Now I'll probably just mention, I didn't look at anything above surface pipe. I did notice that most of these wells had, you know, fairly high volumes of cement, the type that would be circulated to surface, but I didn't look at each one. But no, I looked from the surface pipe and assumed we had a hydraulic seal to surface --

Q. Okay.

A. -- and then looked down --

Q. Okay.

A. -- to TD.

Q. Okay, I'll have to look at all those again. I probably did once before and, you know, I've -- looked at them very good, but...

Why is the San Andres so corrosive right there in that interval? What's --

A. You know, I'm not -- you know, I'm a reservoir engineer, and I've worked with a lot of wells over the

years. I'm not a corrosion expert. But we do run, in the Permian Basin, to the San Andres which is a corrosive zone. And so we -- you know, I've been involved with -- with just, you know, my general work where we get casing leaks and it's in the San Andres. And it's not everywhere, but it's just kind of a known problem zone. The mechanics of the corrosion I don't really understand.

Q. Maybe something to do with H_2S?

A. You know, I'm just -- I'm just not sure.

Q. Okay. Is the Glorieta sour?

A. Oh, possibly. I mean, again, I can't really attest like an expert to that, whether it's sour, but you know, the San Andres is kind of a --

Q. But you had said that this corrosion zone stopped it --

A. Well, it just happened --

Q. -- almost at the top of the --

A. -- yeah, it --

Q. -- San Andres -- Glorieta --

A. -- just happened to stop here. Here's the top of the Glorieta, by the tops that I've put on there. And then when I've picked about the bottom of those casing leaks, I just, you know, picked it out right there, so the two of kind of --

Q. Okay. Did you look at any kind of petrophysical

calculations on the San Andres to see if you could see any oil saturation in the top of it?

A. No, sir, I didn't. All of my work was directed at the testimony I gave today. I didn't look at any -- the producibility of anything in the San Andres or any -- the producibility of any zone out there, nothing like that.

Q. Okay. So you don't have an opinion about whether the San Andres did or still does have any kind of recoverability of oil?

A. You know, I just didn't look at that. I mean, I do look at zones like that. I didn't for this. So I just -- I don't have an opinion --

Q. Okay.

A. -- in this particular area of the map --

Q. Okay.

A. -- at least, you know, not asked to do something like that, look into something like that.

Q. If it did have some in the top part of the San Andres, do you think it would be destroyed already by the injection that's happened so far?

A. Well, that's a difficult question to answer. I think yes, it -- you know, it's one of those things where maybe, maybe not. We really don't have, again, the data that we need to conclude that. We just -- it could be either way, so --

Q. Okay.

A. -- I know that's not much of an answer, but it could be either way.

Q. Okay. It was an eye-opener when you showed the log on the -- through the San Andres, and then combined with the injection survey --

A. Uh-huh.

Q. Does that sort of explain why it's fingering through small intervals and extending long distances?

A. Yes, sir, and that's my -- that's my opinion with injection in the Permian Basin, is that, you know, this is -- this would be -- if we just -- if this were just a typical injection well, that would be what we'd see. And if we'd run one a year from now, well, it wouldn't be probably quite what we see today, but...

But generally these shallow shelf carbonates, what we see is, we don't get good piston-like movement across here, it moves out in little streaks. But then again, once you move away from the well we don't know how that little streak moves, necessarily.

We've run -- I've been involved in production surveys where we had really good data here. We go over here and run an offset production survey on a producing well and, shoot, doggone water isn't -- and oil isn't coming in correlatable, geologically correlatable, to the

same zone. So it really gets quite -- fluid flow in these shallow carbonates are very complex.

Q. Is there anything Gandy could do on their well in the San Andres and Glorieta to improve their conformance of their injection?

A. No, sir, not in this zone, because there's no cement behind pipe in the offset producing wells that are still out there. And you know, the thing is, there's nothing to protect these other -- Well, I -- I'm waving my hand over there. I really ought to be, you know, looking at this exhibit over here. But there are some producing wells out there. In my opinion, they're at risk, because just like these -- you know, most of these are plugged. Gandy's well's the only one that's not plugged.

But no, sir, that -- that -- there's nothing that -- in my opinion, that could be done, from a reservoir engineering opinion.

Q. Okay, what about -- This is probably not a reservoir question, but if there was cement over all the wells around there, what could they do to increase their injectivity and their conformance --

A. Oh, I see, so if we had a situation, then, where we had -- we felt reasonably sure we had hydraulic integrity isolating us from the disposal zone to the pipe, you know, cement all across there, and we ran into a

situation where we wanted to increase the injection in this well, what would we do?

Well, you know, they've tried a couple of things, they've -- they re-perforated, they've added perfs, and they've acidized. So those are -- those are standard things to get permission to do, and do, that's good sense.

But you know, where they're at with it, they filled it up. So then the only thing you can do then, and what they did in December, was go back and ask for more pressure. You know, that's -- that's -- that's what it becomes, because the storage volume is so small.

Q. Okay --

A. Now you know, if the storage volume is big and we -- we feel -- and, you know -- then -- then -- you know, then -- well, then you wouldn't have these problems.

If it was 5 million barrels, why, shoot --

Q. Okay.

A. -- we may not -- if it was 5 million barrels, I don't -- you know, a different situation but -- but --

Q. In some other states I know they put a limit on the volume you can inject with a given permit to -- If that was the case here, or even a reduced rate, what would you recommend? See, all I heard you say so far is you think the well should be shut in. But -- and you said there's some wells in danger.

But if you go with the midpoint of that and you say, well, if I could write a permit for a limited volume and maybe a certain rate --

A. Uh-huh.

Q. -- a maximum rate, do you have any calculations that you --

A. Well, you know, all you could do there -- and I don't believe this is feasible, is, you know, you could say, okay, you know, put it back on a vacuum, go back to normal pressure in this zone, go back to normal pressure where you're not creating abnormal pressure.

You've got bad pipe in that zone, though, and what really concerns me is, you've got other operators nearby with producing wells, you know, certainly within the radius here that we've been talking about today, that -- you know, we -- we just don't know that -- but they may have -- anytime or a casing leak.

So you know, really, I think you've got to protect those people, and you've just got to abandon the well. Because it's just not a feasible -- there's no cement, it's -- you don't have protection, it's just not feasible to go back. You can't go back to vacuum, you can't -- I don't -- you couldn't get anything in it.

Q. Couldn't get anything in it.

A. Then they -- they perforate it. You know,

remember, they perforated every doggone thing. I mean, they just Swiss-cheesed this thing between then and the May 5th deal. They've done that, they've acidized. Now, they've gone up in pressure. I mean, you're just kind of working yourself into a box there.

Q. Is it linear flow, then? In other words, have you done any pressure test or any -- can you infer that there's not radial flow away from that well, it's actually fracturing?

A. Yeah, you know, can I determine a preferential direction, or is it just going to a few wells and it's not going to the northwe- -- no, sir, not with the data. Because see, I have to rely here -- I can't calculate those things, I don't have the data, I don't have the test that could do that. I have to only rely on the observed response in the field, pressure, water flows.

I mean, once a well starts flowing water, then I can tell you something. You know, I could tell you that there's a 2000-foot zone going to the B 1 and a 3400-foot zone of that length going to the Snyder A Com. But I can only do that because I know I've got water flows there, I've got pressure data that says we've got direct hydraulic communication.

So in my opinion -- I know that's the length, at least, minimum, but I can't tell you anything about the

height or the area that it's going to, or whether it's circular or anything, until I -- you know, we see another well, another waterflow to surface. Then I can say, well, it's going -- it's going that direction.

Q. Okay. Have you done a ZEI calculation, a zone of endangering influence? The EPA has these for mainly --

A. Uh-huh.

Q. -- homogeneous reservoirs back east, but they keep talking to us about using that as a way of determining the area of review on injection wells.

A. Things like that.

Q. Have you done those?

A. No, I -- no, sir, I haven't. I'm not familiar with that.

Q. Okay. This pressure increase that was allowed, did you go look at the pressure -- the data in our database? It's usually scanned in, at least --

A. The actual charts, the charts from the --

Q. Yeah.

A. -- step rate test?

Q. Yes.

A. Yes, I did. In fact, I -- not in your database, it may be there, but I -- we got it on discovery. I mean, I have seen those charts, yes, sir.

Q. Okay. Was there a fall-off period after the --

after the injection, the last rate, so you could have analyzed --

A. I didn't see that. I just saw -- you know, I saw clearly that there was no fracturing going on, but it was just the points going up, and it just stopped --

Q. Okay.

A. -- and that's all what I could see. Now if there was a shut-in period to watch the falloff, et cetera, I didn't -- it wasn't in the data that I could see.

Q. Did you disagree with the conclusions of the analyst --

A. No, no, there's --

Q. -- permitting the injection pressuring?

A. No, sir. That test, there's no fracturing going on. It's just a straight line going up, so no reason to do anything different than he did with the data that he had.

Q. Okay. Okay, the -- Do you think freshwater is in danger here anywhere?

A. Well, you know, I think -- that came up earlier, and I don't know because I -- I looked at everything from this -- these bigger surface pipe down. My only comment was that going up there were large volumes of cement, so I'm just going to assume -- I haven't looked at it, but I'm just going to assume that there's a hydraulic seal there, that's just a -- you know, I don't -- it may be -- it may

be, but I -- I -- you know, my -- what Danny had hired me to do would -- we were -- there's just no mention of freshwater, he didn't want me to do any work in that.

Q. Okay. Before, you mentioned something about cement. If there is competent cement around the wellbore, it will protect it from that corrosive --

A. Well, that's generally the assumption. You know, if you've got a good cement job, and if you just assume theoretically that you've got a nice cement sheath through there, competent cement, you know, it's standard practice to assume that, yeah, you're okay, you know, corrosive waters are not going to eat through the cement and into the pipe. Now it happens, but we don't generally assume that, because -- you know, nothing's perfect, but assume kind of a perfect world when we look at those things to start with.

Q. Okay. You've been in the oil patch long enough to have an opinion about cement, even though you say you're a reservoir engineer?

A. Oh, yeah, I mean I look at lots of well files, I work with lots of production engineers and I, you know, routinely look for zones to recomplete in and work over and drill new wells.

So I mean -- you know, I'm here today as a reservoir engineer, but my goodness, I've -- 25 years, I've done a lot of things. In fact, I've -- you know, even do

some Permian Basin simple stick diagrams on a geological basis, do a little log analysis and things like that.

Q. You put that diagram together, I understand?

A. Yes, sir, I did that myself, uh-huh.

Q. That cement on the Watson A -- the Watson 6 Number 1 --

A. Yes, sir, right here.

Q. -- is it cemented from top to bottom?

A. Well now, according to the public records it is, you know, they -- they -- they put in there 1720 sacks, and the public record reports a top at surface.

Q. What was the DV tool? Where was it at? Where do they normally put the DV tool --

A. You know, I don't do casing designs, but you know, I've probably got that back there if you want me to look --

Q. You know --

A. -- give me a few minutes --

Q. -- it was a general question. I was really -- what I'm leading to here is, if you think cement is across the San Andres-Glorieta in his well --

A. Uh-huh.

Q. -- and he's got a packer down at 10,000 feet, and he's monitoring his annulus all the time, what danger is his well in from --

A. -- the Gandy well?

Q. -- the Gandy well?

A. Well, that's if it's not a perfect world, that's if -- you know, we don't have a cement bond log, and so -- you know, I'm just taking from the public record and assuming that there's good cement all the way up.

But you know, if there -- if this pipe is laying against the -- speculating, if the pipe's laying against the hole, there's no cement sheath. If -- in the cement moving up through here, you've got some places where it did not happen to be, maybe it went around some mud, some debris in the hole within the annulus, so there's no cement sheath, then it's being corroded.

But I'm just assuming from the public record what's occurring, and -- but I do know that while we make those assumptions, the world's not perfect and you could have places where that thing's being actively corroded right now, holes in the cement sheath.

Q. What would you recommend to Danny Watson to do to protect his well if the Gandy Marley -- or the Gandy well was allowed to continue injection?

A. Well, I think then in that case what Danny would need to do is talk to a production engineer about -- I think you mentioned scab liner. I mean, I'm not -- don't do that kind of thing, but to talk to an expert in that

sort of work and consider --

Q. Okay.

A. -- anything from logs to liners to whatever else they might do.

Q. Okay. Why did the Snyder A 1 go to zero pressure? I saw it did when they backflowed the T 2 well, it went to -- it lowered the pressure, and it actually went to zero, according to that --

A. Oh, yeah, it went on a little bit of a vacuum, really, there for a little bit of time.

Q. So that was to be expected?

A. Well, it follows -- it follows -- you know, it follows what I would expect. Now -- now had it not gone to zero, that would have been fine too. I mean, it -- the fact is, they're backflowing, they're adding perfs, the pressure in their well is going down, and I would expect the pressure to go down here.

Now having it go to zero, well, that's just where that one happened to go with the circumstances involved, but it could have went, you know, other -- it could have went anywhere else, but the -- boy, it's indisputable what -- the principles that it's following. That's just -- that's just really -- that's exactly what I'd expect. It's just good data.

Q. Okay. On that exhibit you show two other wells,

the Energen wells?

A. Yes.

Q. And I notice the pressure points are exactly on top of the pressure on that well to the south --

A. Uh-huh.

Q. -- so what conclusions can you make to that?

A. Well again, it just -- it just happened to be that way, you know. I mean, this is a -- you know, the conclusion I draw is, there's a direct communication between the wells, because as the Gandy pressure is going up, the pressure in our observation well is going up. That's absolute. That -- I know there's a communication there.

Now just because it happened to be right on that line, well, that's just how this particular data fell. But you know, if one of those fell below the line or one fell above that line or -- As long as it's below the Gandy line, that's the only critical thing, because you can't have an observation well with a pressure greater than your active well. So if I'd see pressure in an observation well greater than the active well I'd say, well, that's probably not good data.

So that looks to be good data to me. It just happened to fall that way.

Q. The distance between the Snyder B 2 and the Gandy

well and the Snyder A 1 and the Gandy well, are those similar distances?

A. Well, you know, they're -- the Snyder -- if I got this right, the State T 2, down to the Snyder A -- is that one of the directions?

Q. Yes.

A. That's about 2000 feet. And the distance from the Gandy well to the Snyder B 2 is, I'd say, roughly about 2500 feet, so about 500 foot difference. But they're very similar.

Q. But the pressure did track on top?

A. They happened to track on top, yes.

Q. But the difference in the distances, you -- would almost imply that the well further away should have a lower pressure.

A. Should, yeah. But again, you know, as I mentioned, you know, fluid flow is just -- is very complex. You know, if you have a little change in permeability in the storage volume, it gets a little higher in one direction for a little bit of distance, well, then that pressure response is going to be different. I mean, it does what I expect it do.

And I know from my experience that you can't always count on -- when you've got an active well, you can't always count on the nearest well being first and the

next furtherest well being next. I mean, that's a good theory. But in practice, especially in the Permian Basin, that fluid flowing underground is very complex, a lot of permeability changes, thickness changes, all that comes into play. So it doesn't bother me a bit, you know, if it doesn't fit perfect, that little theory that I just --

Q. Even though the Snyder B 2 supposedly had a little more -- little trouble first --

A. Uh-huh.

Q. -- it's further away, and it had trouble first.

A. First, actually had trouble first. Actually had trouble on the 22nd. But within -- you know, by May 6th, Energen was rigging up on the well to the south. And you know, that was 2500 -- 2000 feet versus 3400 feet. But I'm okay with that because I can understand there will be permeability thickness differ- -- you know, that's fine.

Q. Okay. Let's see here. Oh, did Energen get notice for this hearing

A. I don't know.

MR. HALL: I did not send them notice. They are aware of it, they have a copy of the Application.

EXAMINER JONES: Wasn't there a subpoena to Energen to get some data?

MR. DOMENICI: We ended up not doing that --

EXAMINER JONES: Okay.

MR. DOMENICI: -- not serving it --

EXAMINER JONES: Okay. So supposedly they're aware. But in one of these other -- one of the reasons I ask is, one of these wells that was permitted in the past, a notice went to the Energen office in New Mexico, which happens to be in Farmington, it turns out, and they didn't even know about that particular instance, so --

MR. HALL: This is another case?

EXAMINER JONES: That was a totally different case, I'm sorry, that was something totally different, so...

Q. (By Examiner Jones) But as far as Energen, speaking of Energen, it looks like they have the most to lose if something happens to the Wolfcamp out here?

A. I believe so. Now I can't tell you who operates all those wells. Danny talked about that a little bit earlier today, and he said Energen. But -- And so based upon what I heard him say, I'd say, yeah, that's -- that's what I'd say too. But I don't know who operates those active wells, I just identified the active wells there that I thought were at risk.

Q. But you guys didn't approach Energen about supporting your case, or, put it another way, Energen didn't show up to be concerned about their Wolfcamp wells in this case?

MR. HALL: Well, I think you're aware, I represent Energen.

EXAMINER JONES: Okay.

MR. HALL: I can't discuss everything --

EXAMINER JONES: Okay.

MR. HALL: -- I've discussed with Energen. I'll just say they are aware, they're very interested, they've been helpful.

EXAMINER JONES: Okay.

MR. HALL: The reasons why they're not here today, I can't discuss that --

EXAMINER JONES: Okay.

MR. HALL: -- I can't say one way or another.

EXAMINER JONES: Okay. What was the status of the Snyder B 2 before all this happened? Was it an active producing well making a bunch of oil out of the Wolfcamp? Does anybody know?

MR. LAKINS: Here, we've got that, it hasn't produced since 2003.

THE WITNESS: The Snyder B 2?

Q. (By Examiner Jones) Mr. Friesen, did you know that answer to that question?

A. No, sir, I heard -- but I heard an answer over there. I don't know. I know that -- what I looked at was -- when I say active well, it is -- it is a well that's not

plugged, but -- But now the B 2, you know, if you let me go back there and look on my computer, I can tell you if that thing's active or not, when it had that casing leak.

EXAMINER JONES: Well, that's -- It sounds like the other side's going to bring that out later. I'll just wait on that one.

MR. LAKINS: Mr. Hearing Examiner, if I may, we didn't make copies of these particular exhibits on the Snyder B well for the purposes of answering your question. I do have the production records directly off of the OCD website, if you'd like to look at those. Like I say, I didn't make seven copies of this and was intending to introduce them into evidence, but I could provide these if you would like.

EXAMINER JONES: Okay, I'll tell you what --

MR. LAKINS: Want me to get more copies?

EXAMINER JONES: No -- I'm actually trying to arrive at the actual capacity of the Wolfcamp out there right now, as to whether -- whether all the wells are -- been abandoned in years past, or are they still producing large volumes of oil, and I'm going to lead to some next questions after that. Mr. Friesen can probably answer.

MR. DOMENICI: We'll have Mr. Larry Scott just summarize that information --

EXAMINER JONES: Okay, okay.

MR. DOMENICI: -- when he testifies, and we'll make it available --

EXAMINER JONES: Okay. Thanks, Mr. Lakins.

Q. (By Examiner Jones) Mr. Friesen, do you have any comments on the capacity of the Wolfcamp to produce?

A. Oh, you know, I could make a statement if I go back there and look on the computer, but if they're going to do it, why --

Q. Yes.

A. -- I'll just wait.

Q. Okay. What about the Wolfcamp? Is it a waterflood zone in some places, Wolfcamp oil?

A. In some places, yes, sir, in some places. Now, generally the Wolfcamp is not -- not a -- you know, in the Permian Basin it's not typically -- it is waterflooding some specific places. But it's not like the San Andres, not like the Glorieta or the Clearfork where you have lots of water injection projects going on throughout the Permian Basin. It's really kind of hit or miss on the Wolfcamp, whether or not -- you know, how far reservoirs extend and whether -- how well they're connected and things like that.

Q. Oh.

A. You know, my experience is, there's a lot of one-well Wolfcamp fields, especially in New Mexico, and it's not to say that they're not multiple fields, that there

aren't some big ones.

But the problem with the Wolfcamp is, you drill it and you find it, then you go to offset it -- well, it's there, but it may or may not produce, or you may have a big well here and a tiny well next door and --

Q. Okay --

A. -- you know, it's --

Q. -- so it's continuity problems?

A. It's continuity, and in some places it's fine. But it's -- it's -- compared to those big zones I just mentioned, those shallow shelf carbonates, Wolfcamp's in the Permian Basin kind of a small --

Q. Not even as good as the Abo, right?

A. Well, it can be, it can be. But you know, it's just -- it's just -- it's a spotty thing, is my experience with it --

Q. Yeah.

A. -- in waterflooding.

Q. We're not talking about the danger of water moving through the Wolfcamp here, we're talking about -- correct me if I'm wrong, we're talking about the danger of water moving to the Glorieta-San Andres and hitting the wellbore and going through the bad casing --

A. Uh-huh, that's --

Q. -- and then watering out of Wolfcamp?

A. -- that's exactly my concern. I'm not concerned about the Wolfcamp, but I'm -- but I do believe, a hundred percent, that the problem is this San Andres zone and then no pipe behind the -- no cement behind the other producing wells. And that's what's caused two wells to be plugged and a third one to have pressure on it.

Q. Okay, okay. Why didn't DKD subpoena the daily injection volumes and rates from the State T Number 2? You guys did have a subpoena, right, to get -- to gather more data?

MR. HALL: We exchanged data.

Q. (By Examiner Jones) Exchanged data. Did you not want to use their dailies --

A. Dailies? No --

Q. -- instead of using Danny Watson's third-party data?

A. Oh, that pressure?

Q. Yeah.

A. Oh, I'd have used it if I had it. But you know, I did use their public record, and I made an exhibit of that, that showed their average pressure that they reported each month, their average injection volumes.

But you know, in this particular case the daily volumes just weren't something that -- again, kind like some of the other things, I just -- I didn't need it to

draw really good -- you know, in my opinion, to draw really good conclusions here, what's going on.

Q. Okay. Okay, so you don't have an opinion about how far the area of review should be out here?

A. The area of review? Well, no, sir, not -- no, I really don't have an opinion as to what the area of review should be.

I have an opinion, though, that stick diagrams like this ought to be part of the application process, that's what I feel like. Because if they were a part of the application process, this would have come to light before the application was approved. I just think when it's done with the verbiage it's real tough to see what I show up there.

So that -- my only comment is, is I would recommend that a stick diagram become part of the area of -- the search area --

Q. I appreciate that.

A. -- so that's all that -- that I have there.

Q. Speaking of the injection pressure increase, the notice for that, do you have an opinion that we should require notice to people for injection pressure increases, just like we do for permitting a well?

A. Yes, sir, that -- Yes, I do, I think you should do that.

Q. Do other states do that?

A. You know, I was thinking about that this afternoon, and I -- to get an injection increase in the State of Texas -- I'm going to say -- I've never done an application like that to increase it. Now we -- you know, Texas is -- New Mexico is more stringent than Texas. Texas, you can go a lot higher surface pressures. And so I think New Mexico's on the right track and does a better job -- requirement of the step rate test. But in Texas they don't -- my experience is, they just don't watch that pressure quite as close as they probably should.

Q. They have ten times as many wells as we do --

A. Uh-huh.

EXAMINER JONES: -- to -- That's all the questions I have.

Gail, do you have any questions for --

MS. MacQUESTEN: No questions, thank you.

EXAMINER JONES: Any more questions for this witness?

MR. HALL: Briefly.

REDIRECT EXAMINATION

BY MR. HALL:

Q. Mr. Friesen, if you turn back to your Exhibit Number 9 --

A. Okay.

Q. -- I have several questions about clogged perfs. Let me ask you, if there were any evidence of skin damage around the wellbore or clogged perfs, would you see the pressure response that is shown in the Snyder A 1 pressure line there?

A. Well, you know, let me go back to that. I've been thinking about that a little bit, and let's go back to that clogged perf thing just a minute here. You know, here's the thing I did not mention on that clogged perf thing.

You know, if the pressure would have come along and come up and gone flat across, yeah, you know, okay, something's -- something's plugged.

But it oscillates. So okay, someone throws something down the well, there's a little bit of problem, pressure bumps up. But then it goes back down. It oscillates. You know, so...

But the trend is what I look at. You know, that's what I look at as an engineer, because I get lots of scatter in data, and I look at the trend of the active well, the trend of the observation wells. And boy, that just makes really good sense.

So I don't need to know how much chloride is in there, I don't need to know the quality of the water. My goodness, not when the data plots up like that and it

follows the principles that I believe. I just -- it's --

And I don't know, even if I had all that, my goodness, I still would come back and tell you, it's following the right principles. Everything looks fine there. So -- So that's my only comment on that plugging thing.

MR. HALL: That's all I have, Mr. Examiner.

EXAMINER JONES: Okay. Any other questions?

MR. DOMENICI: No, nothing further.

EXAMINER JONES: Okay, thanks very much.

THE WITNESS: You bet, thank you.

EXAMINER JONES: So is that your case?

MR. HALL: Yes, sir, that's our direct.

EXAMINER JONES: Do you have an estimate about the time?

MR. DOMENICI: We might be less than three hours, but I would say our direct of Larry Scott is probably 45 minutes at least, and Larry Gandy might be as short as 10 minutes, so that's -- our direct case could be as short as an hour.

I don't know how much cross-examination --

MR. HALL: I don't anticipate I'll have much cross-examination. I'd like to allow myself 30 minutes per witness, but I think that's probably pretty accurate.

MR. LAKINS: We'll probably go three hours.

EXAMINER JONES: You guys are going to try to finish up tonight, is that what you're saying?

MR. DOMENICI: We would -- we're ready to. We would like to, actually. That would be our preference.

EXAMINER JONES: What about you, Mr. Hall?

MR. HALL: That's fine. If you'd like to do that, we're certainly willing to do that.

MS. MacQUESTEN: Whatever people want to do is fine.

EXAMINER JONES: Okay, let's -- Does anybody need a break?

Let's do a 10-break.

(Thereupon, a recess was taken at 4:30 p.m.)

(The following proceedings had at 4:45 p.m.)

EXAMINER JONES: Okay, let's go back on the record.

And Mr. Domenici, call your first witness.

MR. DOMENICI: I just -- Before I start, I just want to reconfirm my motion to dismiss at the beginning of the case.

After the case, it's clear this is a private compliance action. I think the testimony has made that even more clear, and I understand that's under advisement. I just want to make sure the record is clear, continuing that motion.

LARRY R. SCOTT,

the witness herein, after having been first duly sworn upon h* oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. DOMENICI:

Q. Okay, introduce yourself, please.

A. I am Larry Scott. I'm the president of Lynx Petroleum Consultants, based in Hobbs, New Mexico.

Educational and experience qualifications, a BS in engineering from the University of Texas, seven years in various drilling and production engineering capacities with Conoco Oil Company, and the last 24 years as an independent producer and petroleum consultant based there in Hobbs.

Q. Have you been qualified as an expert in petroleum engineering to testify in front of the Oil Conservation Division?

A. On many previous occasions.

Q. Have any of those occasions involved disposal well hearings?

A. On several previous occasions.

MR. DOMENICI: I'll tender Mr. Scott as an expert petroleum engineer.

MR. HALL: We have no objection.

EXAMINER JONES: Mr. Scott is qualified as an expert petroleum engineer.

Q. (By Mr. Domenici) Mr. Scott, please describe your experience with disposal wells?

A. Well, I operate -- I have in the past operated two waterflood units. I still operate one today. I was the principal designer of the Pronghorn SWD system subsurface disposal and associated pipeline system that we sold in 1998 to Mack Energy Corp., and that system is still in operation.

Q. And do you currently -- are you currently involved in operating any disposal wells?

A. Oh, yes, on my Lynx federal lease and my Sprinkle federal lease, as well as the waterflood injection wells in the Raitt-Sanderson unit.

Q. With respect to the disposal wells you just described, what is your personal involvement in the operation of those wells?

A. Well, we're a very, very small company, so I would supervise day-to-day operations, regulatory paperwork, field operations, pretty much everything that goes on.

Q. Do you consider the -- Strike that.

Do you consider the operation of disposal wells production?

A. Oh, absolutely.

Q. And explain why you testify to that.

A. Well, in several instances we -- our production depends on the successful prosecution of those disposal wells because it becomes uneconomic in the event that they go away.

In the instance where I operated commercial disposal, that -- charging for water disposal was our livelihood.

Q. Let me turn your attention to this particular hearing. You've been involved with this disposal well prior to this hearing?

A. I've been up here to testify on two previous occasions with regards to this project.

Q. And you sat here and you've heard both Mr. Watson and his expert witness testify today?

A. Yes.

Q. And in particular you heard Mr. Friesen talk about Exhibit 9 in the Applicant's exhibits?

A. Well, Mr. Friesen brought tremendous reservoir engineering expertise to the project, which is certainly applicable. However, a saltwater disposal well, particularly a commercial disposal well, is significantly different, in my opinion, from a water injection system in a waterflood unit.

Particularly, the water that comes into a disposal system is not processed. It contains basic

sediment, it contains sand and grit, it contains paraffin, it contains drilling mud, it contains mixed waters that may be somewhat marginally compatible with regards to scale formation. And in the instance of Mr. Gandy's well in particular, it contained lost circulation material and drilling mud.

Q. And when you approached this case and looked at the Application, what do you feel is the appropriate approach? You indicated Mr. Friesen talked about reservoir engineer. What do you think is the appropriate to approach this --

A. Well, when you're looking at the pressure data, for example, in his Exhibit 9, that data was taken, by Mr. Watson's testimony, both with the pump running, both with the pump off, at various times of the day. Might have been various fluids being processed at that time. And the dynamic effects of those injection operations I don't believe were adequately addressed by Mr. Friesen's testimony.

For example, this reservoir has had no production taken from it in, I think, about a six-mile radius. So waterflood calculations calculating a fill-up volume, if you will, and the associated pressure increase with a fill-up volume, are not necessarily applicable.

This zone was full of water from day one, and the

pressure required to put that water away started on a gradual incline from day one, and that pressure incline will continue until equilibrium is reached. And that point is the point where fluid is leaving the radius at the same rate that it's being injected in the Gandy wellbore.

The static effects, as measured by Mr. Watson, and the dynamic effects, as measured by Mr. Watson on the Gandy well, are vastly different in the case where impurities, if you will, something besides clean saltwater, is being injected.

Q. And why is that?

A. Well, the perforations plug up, sometimes suddenly.

Q. Let's look at Exhibit --

A. And I believe the data in Exhibit 9 is much more an example of various fluid constituents hurting that formation face right there at the wellbore, as opposed to the more gradual incline in pressure that you would anticipate if you were filling the reservoir volume up.

Q. Let me ask you to look in our exhibit book at Exhibit -- Exhibit 20. It should be in that. Yeah, the last page of Exhibit 20.

A. Okay, I have it.

Q. Okay, what is that?

A. That's a summary of the State T Number 2

saltwater disposal well C-115 reports.

Q. Okay. And so the record is clear, what does each column represent?

A. Volume disposed and surface pressure.

Q. And how do you use this information to rely on the testimony you just made relative to Exhibit 9 in the Applicant's --

A. Well, let's look down through here. I mean, it would appear that some fill-up is perhaps occurring, although this could also be due to dynamic effects and small-scale plugging.

But coming down through March -- or February of '05 to March of '05, you get a pressure spike from 350 to 1300 p.s.i. Now that's not reservoir related. That's related to some phenomenon that's taking place at the face of that wellbore over a small volume of fluid. And in this instance that phenomenon was the introduction of lost circulation material into the wellbore, and this was brought out in an interview that I had with Mr. Gandy when we got this project underway.

Q. That was the April 21st --

A. I believe that's correct.

Q. -- time period?

And then what was the response of Gandy Corporation to that --

A. Well, Gandy attempted to clean the wellbore out. They re-perforated.

Now the other important consideration with regards to Mr. Friesen's testimony is that those additional perforations, or the re-perforations, opened up new zone, which caused a pressure drop. Well, the record will show that the cement behind the State T Number 2 in the interval that's being disposed of is virtually nil.

All of those -- all of that interval was open before and after the re-perforation, the re-perforation got past the lost circulation material damage that was plugging those perforations, and the pressures dropped dramatically. It was a phenomenon near wellbore, not out into the -- out into the reservoir.

Q. And looking up above on that document, where it goes from V to 100 -- Do you see?

A. Yes.

Q. -- in that same area it looks like there's a substantial change in the volume also.

A. Well, that was after a period when Gandy was required to shut in, and it's possible that there were some additional near-wellbore effects with either paraffin, scale formation or some other phenomenon that, again, wouldn't be reaching into the reservoir.

Q. So what would -- based on your experience, how

would that work? So you shut in, and those come back in and fill up the perforations? Is that what you're testifying?

A. Yes, essentially, yes.

Q. And would that be something that you've experienced --

A. Yes.

Q. -- or -- Have you had to re-perf other disposal wells that you've been involved with?

A. I have had on several occasions scale formation to the point where re-perforations were necessary, and that was a consequence of mixing incompatible waters, or perhaps marginally compatible waters, that were coming into the commercial operation.

Q. And did that situation cause changes in the pressure?

A. It -- You never get it all back. I mean, you never go back to as good as you were before you experienced the problem. You can certainly improve the problem, but it didn't seem like we ever solved it completely.

Q. Let me rephrase it. Did the circumstance where you had the scale buildup -- did that circumstance cause increased pressure?

A. Oh, absolutely.

Q. Explain -- So that's clear for the record,

explain how that worked.

A. Well, it's basically the same mechanism that plugs the perforations with paraffin, basic sediment or any other solid material. Scale forms on the wall of that casing and plugs your perforations up.

Q. And then what are the -- what change do you see in the surface pressure then?

A. It goes up.

Q. Is that common understanding in operating disposal wells?

A. Yes.

Q. Just so we're clear for the record, do you think the data used in Exhibit Number 9 is reliable data?

A. Well, I think it's inconsistent with the data that was provided in the C-115 reports.

Q. Do you think it's reliable in the sense that -- particularly the Gandy readings, the red line -- in the sense that those might have been taken under dynamic or static --

A. Well, I mean, that testimony has already been given. It was taken under both sets of conditions.

Q. Well, I'm asking you to comment on the reliability of it.

A. Oh, I would think, generally speaking, one-time pressure reading over varying operational time periods and

operational sequences with pumps running or not would cause the data to be suspect.

Q. Can you -- Do you have an opinion as to whether -- on the same issue that Mr. Friesen testified about, whether the injection -- or the way the disposal in the Gandy well is shown in the last page of Exhibit 20 -- whether those -- whether that disposal has impacted the offset wells?

A. Well, I cannot rule out quantitatively that the Gandy operation has had an impact on both the Energen and the Snyder A Number 1.

Q. Do you have an opinion qualitatively?

A. Qualitatively, there are many instances where casing problems develop in old fields that have absolutely nothing to do with injection operations. I have personal experience with that phenomenon. And in this area in particular, in Mr. Friesen's corrosion zone, it had already indicated a history of casing problems prior to any of the Gandy injection activities. And I don't know that I can draw a strong correlation between the casing failures and the injection operation.

Q. Did you -- did you look at -- in order to evaluate the claims made in the Application here, did you look at water quality data from --

A. DKD furnished two water samples.

Q. Would you turn to Exhibit 6 in the Respondent's exhibits?

A. Well, I don't -- our exhibit?

Q. Yes.

A. Okay, I'm sorry, I'm in the wrong spot. Got it.

Q. Okay, what does that water quality data show?

A. Both of these samples are substantially saturated brine water, particularly the sample with 217,000 parts per million, which is Exhibit 6, the first page. It would be very unusual to have water of that salty a nature disposed into the Gandy well without substantial mixing with other waters. The San Andres formation water in that area has fairly high resistivities, indicating fairly low total dissolved solids numbers, and I have a hard time correlating this brine to anything that Gandy might be injecting into their wellbore.

Q. Do you understand, based on Exhibit 9 in the other book, that roughly around this same time period -- this well data is from September, '04, and this chart starts on October 1st, '04 -- that Mr. Friesen's testimony was that pressure began -- pressure from the Gandy well began impacting the Snyder Number 1 at roughly the same time as water quality data was available?

A. I believe that was his testimony, yes, sir.

Q. And how does this water quality data assist you

in responding to his opinion?

A. This -- I don't believe that this water went into Gandy's well, came through the San Andres-Glorieta and up this wellbore in this condition.

Q. And what is your experience with the -- you testified on the quality, rough quality of the San Andres. What do you base that on?

A. Water quality data from the West Lovington and Lovington-San Andres fields and the resistivity data that we previously developed for, I believe, the last hearing that I was at on this issue, where I was charged with trying to determine whether the San Andres was commercially producible in the area.

Q. And what is the basis for your testimony that the water that would have been disposed in the Gandy well would not have this quality?

A. Well, the vast majority of our produced waters, and they vary. Delaware water is basically saturated brine, but most other formations have total dissolved solids substantially less than the 220,000 parts per million -- I would say between 50- and 100,000 parts per million -- and the water in this area is somewhat fresher than saturated brine.

And again, it's mixed. And the testimony was that this moved through the Glorieta and San Andres and

popped up in the DKD well and apparently popped up as brine.

Q. And looking at the second page of that exhibit, what's the TDS number there?

A. I believe total dissolved solids here were 175,000 -- 174,730, to be exact.

Q. And does that water quality information lead you to question Mr. Friesen's conclusions?

A. It's still very high compared to San Andres water in this vicinity.

Q. And is it very high compared to the water that would have been disposed in the Gandy well?

A. I would think probably yes. I can't testify to whether they were disposing of purely Delaware water -- and there are -- that's where most of the good brine comes from, in conjunction with producing operations. But I'm sure that they're hauling -- I'm virtually sure that they're hauling from other produced zones besides the Delaware.

Q. So the provided testimony indicates they were hauling from a variety of places --

A. I would expect --

Q. -- the Delaware --

A. -- I would expect the TDS on the water their injection -- they are injecting, to be somewhere between

50- and 100,000 parts per million.

Q. So this information would be inconsistent with Mr. Friesen's theory?

A. Well, yes, it would be inconsistent.

Q. And I think you heard Mr. Friesen testify that water quality data means nothing as far as trying to analyze the effects of disposed water from Gandy's well and other locations. Did you hear that testimony?

A. I did hear that testimony? And water quality data where fluid is moving is a slam-dunk. In this case, where there is a limited or no amount of fluid moving, the correlation would be more suspect. Water quality data at the wellbore face of the Gandy well is absolutely critical to the successful operation of that wellbore.

Q. Does this water quality data provide useful information on responding to the allegations?

A. Oh, I think so. The Snyder A Number 1 is not TA'd, as Mr. Watson testified. At least, it's not TA'd in the public record. The information that we have is that the perforations in the Wolfcamp are still open, there were suspected liner lap leaks in the record all the way back to 1966, and I believe their testimony is, they've located some additional casing leaks over and above that.

So it's possible that water coming across from the Gandy operation -- and again, I can't quantitatively

rule that out -- is coming into the Snyder A Number 1 and down into the existing Wolfcamp perforations that, at least in the public record, are still open. The Snyder A Number 1 is -- it's not TA'd, it's just shut-in.

Q. Is it likely that the water that -- or the source of the water quality in Exhibit 6 is coming from a source other than Gandy's?

A. I would have to say probably yes.

Q. Would that -- Do you have a source for that? Do you have an opinion --

A. We don't know where that water is coming from. As I said, that wellbore is -- along with suspected casing leaks, is open all the way to the Wolfcamp, and I didn't investigate the quality of the Wolfcamp water in there, but I think that's even too salty for that horizon.

Q. Now, you heard Mr. Friesen testify that he -- it was his opinion that there are additional wells, or there are wells, producing wells, at risk. Do you recall that testimony?

A. Yes, I do.

Q. Do you agree with that testimony?

A. To the extent that Gandy's operation raises the pressure in the San Andres and Glorieta, that increase in pressure in the reservoir, which is a consequence of the injection operations, reduces the safety factor that is

designed into production casing strings.

Q. Do you think any of those casings are close enough to Gandy, and the reduction in that safety factor is sufficient enough where Gandy should be shut in?

A. I did not review all of those casing designs. The several that I looked at were 5-1/2, 17-pound N-80 casing, which would be more susceptible to corrosion issues than they would be external pressure issues, with regards to failure mechanisms. There's no cement across the San Andres, and the Glorieta formations, they would be more likely to fail in a corrosion mode than they would from a collapsed mode.

Q. So they're already at risk just by virtue of being -- not having cement and being in that --

A. That's a fair statement.

Q. Do you think the increased risk -- do you have an opinion whether the increased risk to the producing wells at the distance they are from Gandy's well is sufficient that Gandy's should be shut in?

A. The closest producing well, I think, was on the order of 2800 feet. And if that become policy, there's not many injection wells that would be operable in the State of New Mexico.

Q. So you don't think as a matter of policy or your opinion that --

A. That's --

Q. -- that those well are --

A. -- that is --

Q. -- that the significant --

A. I do not believe that there's a significant increased risk to those wellbores.

Q. Does -- was there a -- I'm not sure if I have the right name for this -- a tracer study done that corroborates -- confirms your opinion?

A. The Gandy people ran an injection survey on their wellbore, which showed approximately 160 feet of net interval accepting water.

Now Mr. Friesen alluded to the 34 feet of 15 percent that were used in my volumetrics calculations in some previous testimony, and the dolomitic limestone that is the San Andres and Glorieta does not respond very well to a formation density log. It does respond well to a compensated neutron log, and on today's modern lithodensity logs with cross-plot information provided by the logging companies, their true cross-plot porosity in those dolomitic limestones is much closer to the neutron porosity than it is to the density porosity.

I would defy any log analyst on the planet not to come up with well in excess of that ϕh in the State T Number 2, based on the log on the Watson 6 1.

Q. You used some acronyms there and some big words. Explain again, in just a little simpler terms, what you just said.

A. Well, the important factor is the combination or the product of porosity and height. That's what forms the volume that's available for the water to move into. Porosity is the portion of the rock that is void space, and height provides the bulk volume for the calculation of total volume.

So for example, if our porosity was 34 feet of 15 percent, or 160 feet of 4 percent, we get to the same place. And in this instance my assumptions were extremely conservative, as there's a gross interval of almost 2000 feet open in the Gandy wellbore.

Q. 2000 feet open, and the tracer survey showed 160 feet --

A. -- actively taking water, that's correct.

Q. And then explain again what the logs indicate is the porosity.

A. I think the porosity -- there's much more porosity closer to 15 percent than was alluded to by Mr. Friesen, based on my experience with log analysis.

Q. And I understand he looked at one -- basically one log. Are you relying on that same log, are you relying on --

A. That log and my experience with the more modern lithodensity logs that we're running today.

Q. In that same stratigraphy?

A. Yes.

Q. You're familiar with what they've --

A. Yes.

Q. And do you have substantial experience with the more modern logs in this same stratigraphy?

A. Yes.

Q. Describe what that experience is.

A. Well, we drill somewhere between two and five wells a year, and I'm responsible for the log analysis on all of those projects.

Q. And they're in this -- they would at least go through this stratigraphy; is that correct?

A. Most of my wells have been west and south of this, but we do have several shelf and platform projects that we've done over the years. And you are correct, I have seen this stratigraphy before.

Q. Okay, let's go through the exhibit book, if we can. Okay, Exhibit 2 is public record, correct?

A. That is correct. That's the notice of -- or rather the well record on the Snyder A Number 1.

Q. And explain the -- first of all, the -- when that was drilled and then what the significance of the liner

statement is.

A. Well, it's a 1957 well. It was set with 4700 feet of 8-5/8 surface pipe, cemented to surface. They then ran a liner, with the top of that liner at 4536 feet, TD'd at 10,719 feet, and tacked in the production string with 300 sacks of cement.

My own calculations showed the cement top on that liner up slightly higher than Mr. Friesen's, but I wouldn't argue with his numbers.

Q. Okay, where are the perforations?

A. The perforations are down below 10,300, as I recall.

Q. Okay, let's look at Exhibit 3. Is this a public record?

A. Yes, it is.

Q. And what does it show about the condition of the Snyder A Number 1?

A. Well, Energen apparently had rigged up or was attempting to rig up to plug and abandon this well in December of '02, and attempted to blow the well down unsuccessfully. And we don't know from this record whether that was gas, oil, water, or what the material was they were trying to blow down.

This actually was, I think, prior to any of the Gandy injection operations.

Q. Okay, if you look at the fourth page of that exhibit, is this -- in your experience, is this the proper procedure to follow to obtain an extension on a plugging requirement?

A. Typically a notice of intent to P-and-A will include the recommended procedure for that operation. The procedure is approved, and then if it cannot be carried out in a timely manner, extensions are requested for whatever the circumstances are.

I don't see in the public record where a request to temporarily abandon or a procedure proposed to plug and abandon have been filed.

Q. Look at Exhibit 4, please.

A. I have it.

Q. And is that a summary of the production from the Snyder A Number 1? First page, a summary of the public records that are attached?

A. I believe that is correct, yes.

Q. And what -- if you'll -- what is your understanding as to what happened in 2004 with respect to this well?

A. Well, the well was shut in in late 1996, and it appeared to me that it was shut in as uneconomical. I believe the last month's production record was a barrel of oil and about 40 barrels of water per day.

The -- It basically stayed shut in until DKD attempted to produce it for two months in 2004, the first month, 60 to 70 barrels of water a day, as I recall, and the second month, about 15 to 20 barrels of water per day, at which point they threw in the towel.

Q. Okay, look at Exhibit 5, please.

A. Okay.

Q. What is this information?

A. Well, these are alleged to be surface pressure readings on the Snyder A Number 1, taken from October 1 of '04 up to just about the present.

Q. Have you compared the pressure readings on Exhibit 5 with the information on the last page of Exhibit 20?

A. There are inconsistencies. In several instances DKD is reporting pressures higher than the injection pressures that Gandy is reporting, which would lead one to believe, as Mr. Friesen pointed out, that the data could be in error because there's no fluids moving the wrong direction at that point.

Q. Look at Exhibit 18, please, and is that the cover letter for the tracer survey you testified about?

A. I believe that is correct, yes.

Q. And if you look at Exhibit 20, are you familiar with -- or have you reviewed that document?

A. Yes.

Q. Is that the approval for the injection well -- pressure?

A. Yes, that is correct. In my conversations with Mr. Dale Gandy, he indicated that they had performed step rate injection tests on their well to submit to the Oil Conservation Division, requesting approval for an increase in our injection pressure. Step rate test was basically straight-line, and that approval was granted.

Q. Now, what would -- in your experience operating disposal wells, what would the appropriate action be if on April 21st the injection pressure went over the permitted pressure?

A. I would have shut the well in and tried to ascertain the source of the problem.

Q. And what kind of notification would you make, if any?

A. That's a good question, and I don't know the answer.

Q. And in your research on this project, did you try to determine what Gandy Corporation did when the pressure exceeded the permitted pressure?

A. Well, again from my conversations with Mr. Gandy, I believe they shut the well in, tried to determine the source of the problem.

MR. DOMENICI: And I indicated, Mr. Hearing Examiner, that I'd ask Mr. Scott just to summarize the production from the Snyder B.

Q. (By Mr. Domenici) Can you indicate what the production of the Snyder B was back in 2003, 2004, 2005?

A. In 2005 there was no oil, gas or water reported --

MR. HALL: Excuse me, what exhibit number are we referring to?

MR. DOMENICI: I didn't make this an exhibit, this is in response to the Hearing Examiner's questions. Let me show that to you, it's just the public record.

THE WITNESS: This is the Snyder B Number 2 production records.

MR. HALL: Is this the ONGARD?

THE WITNESS: Yes.

MR. HALL: Do you have extra copies?

MR. DOMENICI: No, we haven't. We weren't planning -- we just want to answer his questions.

Q. (By Mr. Domenici) What was 2004?

A. 2004 was zeroes all the way across. Total production for 2003 was 318 barrels of oil, 888 MCF, and 69 barrels -- or no water, rather.

The last full year of production looks like it was 2002. The well made 2584 barrels of oil for the year.

Q. Okay, one additional exhibit, 21. What is Exhibit 21?

A. Exhibit 21 is a decline curve of the oil and water production on the Snyder A Number 1 from 1983 to the present time.

Q. And what does that demonstrate?

A. Basically, the well ceased production in late 1996, with the exception of the two-month period in 2004 when DKD attempted to produce it in -- it looks like August and September, maybe, September and October.

Q. Do you have an opinion as to whether or not as a consequence of Gandy's operations of the State T Number 2 well there is any reasonable likelihood that there will be a waste of hydrocarbon reserves in the future?

A. I do not believe that there will be a waste of hydrocarbon reserves.

This well in particular was showing characteristics of producing about the same volumes of fluid that it was producing before it was shut in, and it's my opinion that if they'd stayed with it a while longer they would have been in the 30- to 40-barrel-of-water-a-day range, with a slight show of oil.

Q. Do you have an opinion whether the continued use of Gandy Corporation's disposal well will impair correlative rights?

A. I do not believe that continued use of that well will impair any correlative rights.

Q. Do you have an opinion whether continued use of that well will result in contamination of fresh water?

A. There's no evidence been presented whatsoever that there's any danger to freshwater resources with this operation.

MR. DOMENICI: Okay, I would move to admit Exhibits 2 through 7, 18 through 21.

MR. HALL: No objection.

EXAMINER JONES: Mr. Scott [*sic*], do you want that Snyder B 2 production data to be made an exhibit?

MR. HALL: It's up to them, it's their exhibit.

MR. DOMENICI: No, we don't need -- I would -- just before I leave this witness, there are -- Exhibits 13, 14 and 15 are all previous orders in this case, and so I'd move for their admission. They might have been part of your --

MR. HALL: They're in already.

MR. DOMENICI: They're in already. Okay, then I --

EXAMINER JONES: Okay, we'll admit Exhibits -- this is Gandy Exhibits 2 through 7 and Gandy Exhibits 18 through 21.

MR. DOMENICI: That's all I have of this witness.

CROSS-EXAMINATION

BY MR. HALL:

Q. Mr. Friesen [*sic*], I want to ask you something about the reporting process here, both formally and informally. You referred to your Exhibit Number 5 in your exhibit book. Those are the pressures reported for the Snyder A 1. And you said when you compared them to the C-115 reported pressure they are inconsistent?

A. Well, I don't think the Snyder A Number 1 has been reporting any pressures to the C-115 database.

Q. And do you know if it's been reporting on the C-120s?

A. I cannot answer that question, I don't know.

Q. Is there a requirement to report pressure on a well like that, it's not an injector?

A. I don't believe there is, no.

Q. Okay. Let me ask you how -- if you're familiar, Gandy Corporation reports their pressures. If you would refer to, in our exhibit notebook, our Exhibit Number 6. That's one of the C-115s for the State T 2 well. I believe that's from September, 2005. They reported 210 pounds of pressure in that month. Do you know how that particular pressure was calculated or determined?

A. I do not.

Q. Do you know if it's a one-day pressure during the

month, or is it an average pressure?

A. I don't know that information.

Q. And if you would turn to our Exhibit Number 5, that's the reported pressures on the Gandy State T 2. Would you agree with me, Mr. Scott, that you have more than monthly pressure reports here, you have multiple days reported within one month; isn't that correct?

A. I would absolutely agree with that.

Q. And that gives you more data to work with?

A. I would absolutely agree with that.

Q. And I understand you're an expert in saltwater injection wells, and yet you don't know how pressures are reported to the State for injection wells?

A. I know how mine are reported to the State.

Q. You don't know how Gandy's are reported?

A. No, sir, I do not.

Q. Did you design this particular system?

A. The SWD system?

Q. Yes.

A. No, sir, I did not.

Q. You indicated you had designed the Pronghorn system; that's a different system?

A. Oh, that actually was in -- yes, that was a different system.

Q. Okay. Mr. Scott, what is the data that you

utilized to determine that the perfs in the T 2 well were clogged?

A. The conversation with Mr. Gandy that they had accepted unintentionally a -- what he called a load, I believe, of well circulation material that impacted their filter system to the point of rendering it inoperable and causing the pressure spike. That was an interview with Dale Gandy.

Q. And when was that load accepted?

A. I'm going to say April of '05.

Q. If you will turn to our Exhibit Number 9, and for purposes of the question if you will assume the accuracy of the pressures reported here --

A. Yes, sir.

Q. -- would you agree that the pressures reported on both the T 2 and the A Number 1 wells showed inclines before April, 2005?

A. I would agree with that, yes --

Q. Okay.

A. -- that this chart shows that.

Q. All right. We had several attempts to overcome the problem, whatever it was. We have an acid job, correct?

A. Uh-huh.

Q. And we have substantial additional perfs,

correct?

A. Okay, you probably need to address those questions to a different witness, because I was not present during the planning or execution of any of those operations.

Q. Okay, I just want to know what you know about those, but you recognize there was an acid job?

A. Yes.

Q. And additional perforations were put into the well?

A. Yes.

Q. I think we had perforations on top of perforations?

A. That would be correct.

Q. And we also had the installation of a -- what, 350-horsepower motor on the pump?

A. I believe Mr. Gandy did mention the installation of a pump. I can't speak to the horsepower.

Q. All right. Was there anything else done out there that you know to try to overcome the problem?

A. There was a second attempt at some later date to clean the wellbore out with coiled tubing equipment, but I don't know that I have those dates available.

Q. Wasn't it one of the purposes of adding additional perforations to overcome the clogged perfs?

A. Yes.

Q. And as a result of that, isn't it the objective to get additional water back into the reservoir?

A. At a lower pressure.

Q. Did that happen here?

A. I'm of the opinion that these pressure inclines that are noted here on the Gandy well could be substantially near wellbore formation damage. My personal experience with commercial disposal was, truckers tended to bring whatever they had on board, and that seldom included strictly clean saltwater. It included tankbottoms, it included paraffinic materials, it included piles of scale and in this case included drilling mud with lost circulation material in it.

Q. All right, what data did you have or what data did you use to support that proposition that there were impurities in the loads disposed of into the T 2 well?

A. My data is from my personal experience operating a commercial disposal system and my conversation with Mr. Gandy. I don't have samples of the material.

Q. All right. Do you have any San Andres production anywhere?

A. Yes.

Q. What can you tell us about the San Andres? Are there salts within the San Andres layers in this part of

the world?

A. In this particular area, the water resistivities in the San Andres would indicate few salts present, because the resistivities, as I recall, were on the order of .165 ohmmeters at 100 degrees, which is relatively fresh, indicates total dissolved solids in the 30- to 50,000-part-per-million range.

There are differing San Andres water resistivities, depending on which area of southeast New Mexico you're working, but the Roswell geological society data is what I used, along with -- our southeast New Mexico water resistivity table.

Q. For the salts that do occur in the San Andres, would they be dissolved and washed out by injection fluids?

A. Yes.

Q. Mr. Scott, what is your explanation for the flows of water to the surface of the two Energen wells?

A. I think they have -- there is a possibility that they were impacted by Gandy's operation.

Q. Mr. Scott, I believe you calculated pore volume for this well, when was it, back in 19- -- I'm sorry, 2004? Strike that, 2002.

A. Exhibit 12.

Q. If you look at our Exhibit 12.

A. Yes.

Q. And at the time you did that, you only had available to you the well log from the T 2 well; is that correct?

A. That is affirmative.

Q. And that's a 1950s vintage well?

A. That is correct.

Q. Could you take our Exhibit 8 in front of you there and look at the well log for that well? It's the cross-section, right there, right by it. There you go.

EXAMINER JONES: Which one?

MR. HALL: The T 2.

THE WITNESS: Okay, we have it.

Q. (By Mr. Hall) Can you show us on there where you see 15-percent porosity in the injection interval?

A. Actually, this is not the log that I looked at. I believe the one that I had was a microlog, and I used the microlog/e-log separation to determine permeable intervals, and that's what I used for this report.

Q. All right. On this log that's reflected on Exhibit 8, can you show us -- can you describe for the Hearing Examiner where 15 percent porosity might be found?

A. I can't describe 15 percent porosity because this log will not directly measure porosity.

Q. How did you calculate 15-percent porosity off the microlog?

A. There was no direct calculation of 15-percent porosity off the microlog. What we used there was the separation between the microlog and the deeper resistivity tools to develop the areas that were permeable and made an assumption of 15 percent.

Q. The log that's available on Exhibit 8 for the T 2, what's the best porosity you could ascertain from that?

A. SP development in places where the resistivity is breaking back toward --

Q. And what --

A. -- lower values.

Q. -- what percentage, what range percentage, would that be?

A. Well, it would be in the range of 3 to 20, probably.

Q. Okay. Is it -- Is the CNL a better tool than the density log specifics?

A. Oh, absolutely, for porosity development, you're exactly correct.

Q. Is the tool that was used in the older well log, was that a lithodensity log -- lithodensity tool used on that?

A. In Exhibit 8?

Q. Yes.

A. I don't believe it was, although it might have

been new enough to have been a lithodensity.

Q. What's the standard way of calculating cross-plot porosity from that?

A. Well, in previous years I had basically averaged the density and the neutron readings to come up with an average. The density was reading 2, the CNL was reading 12. I would have averaged that to come up with a porosity of 7 percent.

Modern logs, particularly in the dolomitic limestones, emphasize CNL porosity over the FDC porosity, and the cross-plots that they produce are much closer to the CNL porosity than they are the FDC porosity. My old averaging technique was pessimistic.

Q. Let me ask you about your Exhibit 21.

A. My Exhibit --

Q. The decline curve.

A. Okay, got it.

Q. Is it correct to say that it's your position that Snyder A 1 passed the economic limits?

A. I think that's a fair statement.

Q. Okay, and when would you say it passed economic limits?

A. I would have said, oh, probably late 1996. I have several wells that I produce at two barrels a day. In shallow, low-water-type situations, those are economic.

Q. All right. And I believe you may have testified before that in order for a well like this to be commercial in the San Andres, that you would have to have oil saturations of at least 25 percent; do you recall that?

A. Yes, I do recall that in previous testimony.

Q. And what part does commodity pricing come into play on that?

A. Oh, certainly a factor.

Q. Yeah, in 1996 oil was how much, would you say?

A. In 1996 we'd have been selling for around twenty dollars, I suspect.

Q. Yeah.

A. Eighteen to twenty dollars.

Q. Do you know what pricings were in the area today?

A. Today's posted prices are on the order of $68 a barrel.

Q. Okay. And you're also talking about lease operating expenses, including disposal costs, correct?

A. Disposal costs are certainly a portion of the operating expenses.

Q. And if those disposal costs are eliminated, does that favor well operational economics?

A. It favors it. You still must contend with the high cost of tubulars, pumps, rods, electricity, chemical and operations.

Q. But like you say, a two-barrel-a-day well can be economic in this environment?

A. I would agree with that.

MR. HALL: Nothing further, pass the witness.

EXAMINATION

BY EXAMINER JONES:

Q. Mr. Scott, the -- on your injection wells, do you keep -- do you have some commercial injection wells?

A. Not at the present time.

Q. Okay. Do you believe in filters on injection wells? Some people don't.

A. Yes, I do believe in filters on injection wells.

Q. Who changes them?

A. Well, our pumper is supposed to change the filters.

Q. Okay, and when a load of water comes to a commercial injection well, is that normal for a commercial operator to keep records of every load of fluid coming to the well to be disposed of?

A. That is correct. And I believe that the upcoming witness will testify to the fact that they identified the source of the problem, and that has caused some financial consideration to take place, but I'm not privy to those conversations.

Q. Okay. But you've got 2000 feet of interval here,

and I understand the cost of re-perforating 2000 feet of interval would be pretty expensive. It looks like in 2000 feet of interval you could find more than 160 feet of net pay in the San Andres-Glorieta. Do you think they should be -- more fracturing -- maybe a short-radius frac job on this well or something like that, or some pip tool liners to open up all the perfs, or --

A. Well, it looked like when they were able to keep the foreign material out of their injection water that -- at least there in Exhibit 20, they had many months in the 210- to 350-pound range, which is not bad for an injection well at all.

Q. On a commercial well, what is the actual rate going into the well? Isn't it kind of slugged, depending on when the truck drives up, or how is it evened out to where it's not a real extremely low rate and then high rate with a big pressure spike and that kind of stuff?

A. That would be a function of individual pump designs, and the bigger the pump, the more horsepower put into that -- into those hydraulics, the greater the fluctuation between operating and shut-in. Most operators will design a fair amount of safety factor into their pump capacity in order to provide for several trucks coming in at one time.

Our own internal design criteria was to move that

fluid with about a 50-percent utilization rate, but I don't know whether that was Gandy's criteria or not.

Q. So they make an assumption about the amount of loaded trucks coming that they're going to have, and they design their tank capacity and their pumps to --

A. That is correct.

Q. -- to not overload their well at any one time?

A. And there's really no standardized methodology for handling that fluid that comes in either. Normally, they'll run through a series of several tanks, trying to drop the heavies out and float the lights out and just leave the good stuff in the middle. But in my conversation with Mr. Gandy, their filter system in a couple of instances has just been overwhelmed, resulting in dramatic pressure increases.

Q. This Exhibit 21, the water production kind of jumped up in -- January? Or the first part of 1988, I guess. Over that year the water production dramatically increased up to --

A. It's about 30 barrels a day, roughly, 30 to 40 barrels a day.

Q. So is that putting on a pumping unit? Is that what that was?

A. I suspect it was already on a pumping unit. I don't have an explanation for --

Q. Was it a casing leak --

A. -- the increase in water.

Q. -- that would have happened in that well?

A. That is certainly one possibility.

Q. But -- So you mentioned that you thought that if Mr. Watson would put a pump on the well, he would get the water production down to about that level?

A. I think if he produced it long enough there would be a fair chance that as he pulled that water off the formation, that he would get a little oil coming with it --

Q. Yeah.

A. -- but it might -- it might take a while.

Q. These water analyses that you ran -- or that you researched and show here, the timing on when they were -- when those waters were caught, can you talk about that a minute?

A. Oh, I don't know that I've even investigated the timing of when those samples were caught.

Q. What I mean is, is it after this April of 2005 magic time period or --

MR. LAKINS: That's our 6.

THE WITNESS: Our 6. Wrong 6. Looks like the dates 17 September 2004 and 20 January 2005, both would have been prior to April of '05.

Q. (By Examiner Jones) Okay, and this -- the Snyder

-- when it says DKD Snyder 1, that means DKD Snyder A Number 1?

A. I have to assume so, yes.

Q. Okay, and then that one showed almost saturated brine, or pretty high anyway. But there was no actual displacement there, though, was there?

I mean, there was -- so you're saying the Wolfcamp was still open, so --

A. The Wolfcamp is still open today.

Q. -- so -- today. So if some fluid makes its way from Gandy's well over through the San Andres-Glorieta into that wellbore, it would go down in the Wolfcamp?

A. I cannot rule that out.

Q. But we've heard testimony earlier that there was, about that time period, more pressure on the well, so the Wolfcamp --

A. -- may not be taking water.

Q. -- may -- might not be taking any water.

A. Yeah. There was -- I could find no attempts by DKD to attempt to isolate the source of the pressure, to isolate the producing zone from the potential bad casing. It doesn't look like there was any investigative efforts made to determine really what was going on in the well.

Q. Okay, costs a lot of money, I guess, to do a lot of that --

A. Oh, without question.

Q. -- work, and -- Let's see here. The producing wells -- so you -- are you maintaining that they're not in danger, there's no danger of waste due to this well?

A. That's what I'm maintaining.

Q. Okay. So no danger of waste in the Wolfcamp from production, even though, like has been pointed out, the oil prices are high enough now that when rigs get available to people they come around and start putting some of these wells back on pump or -- Energen obviously didn't plug their well, or they didn't even TA their well when it was sitting there for a long time, and there must have been a reason they didn't want -- didn't get around to plugging their well. Maybe they thought maybe they'd put it back on someday?

A. With regards to which wellbore, Mr. Examiner?

Q. The Snyder B 2 is what I was thinking of.

A. I thought -- well, I must assume that they felt like the well was uneconomic, from --

Q. They weren't doing anything with it.

A. Exactly.

Q. But they didn't make any effort to even TA the well --

A. Well, as you've already pointed out, well work is expensive. And for a barrel a day with limited or no

upside, that's probably the decision that I would have made also.

Q. What would you do if you owned that well yourself?

A. The Snyder B Number 2? She'd be plugged and abandoned.

Q. Okay. You agree there's no cement across the San Andres, though, in pretty much this injection interval?

A. I would agree with that, yes, sir. Now the cement jobs on the intermediate strings were all pretty solid jobs. I believe everything I looked at circulated to surface.

Q. Did you see DV tools in these --

A. I recall DV tools in a couple of wells in Section 6, although I don't think I can put my finger on them.

Q. Okay. But the reason the San Andres is not good out here, you testified to that in the last -- one of the last hearings, I remember. I think you said something about it being a little bit wet in this area, but the porosity development -- you're saying here that you're still assuming around 15 percent?

A. I think there are several intervals that will get you to 15 percent or higher. I actually believe my assumptions here were extremely conservative.

Q. But what about that log on the offset well?

A. On the Watson 1-6?

Q. Yes.

A. Well, if you look down in the base of that San Andres zone to the Glorieta --

Q. Uh-huh.

A. -- and emphasize the porosity developed on that CNL tool --

Q. -- up to around 10 percent?

A. -- I think you'll find there is significantly more porosity there than Mr. Friesen alluded to.

Q. But not 15 percent. It looks like it went up to around 10 percent.

A. Well, I would have to go back and review my notes, but I'm pretty sure that --

Q. -- it might have been higher than 10.

A. -- it was higher than 10.

EXAMINER JONES: Okay, I -- Okay. That's -- Gail, do you have any questions?

MS. MacQUESTEN: No questions, thank you.

EXAMINER JONES: Any other questions for this witness?

MR. DOMENICI: Just -- you were -- I think you were talking about the Snyder B Number 2, you were asking --

EXAMINER JONES: Yes

REDIRECT EXAMINATION

BY MR. DOMENICI:

Q. That is already plugged and abandoned; is that your understanding?

A. Yes, that's correct.

EXAMINER JONES: Energen did plug and abandon that well?

THE WITNESS: Yes, along with the Snyder A Com Number 1 also, they're -- both appear to me to be properly plugged. The only wells that would not be in the vicinity, that well, the Littlejohn 6 or something to that effect, back to the southeast, and the two Watson wells, or the two DKD wells.

EXAMINER JONES: And do you know who operates over in Section 1 here of the offset township?

THE WITNESS: I do not know.

MR. DOMENICI: No further questions.

EXAMINER JONES: Further questions?

MR. HALL: Just briefly, if I might.

EXAMINER JONES: Sure.

RECROSS-EXAMINATION

BY MR. HALL:

Q. You talked about the Energen wells. Do you know, Mr. Scott -- isn't it true that the last reported production rates on the Snyder B 2 is about 8 barrels a

day?

A. Back in 2000 --

Q. If you know?

A. Well, I believe I have that here. The last reported production on the Snyder B Number 2 was 122 barrels of oil in the month of June, 2003.

Q. Do you have the last reported production for the A Com Number 1?

A. I don't believe I have that in front of me.

Q. Does 18 barrels a day sound about right to you?

A. No, sir, that sounds high to me, although that -- I believe I recall that being a better well, maybe on the order of eight or nine barrels a day.

MR. HALL: Nothing further, Mr. Examiner.

EXAMINER JONES: Okay, thank you a lot, Mr. Scott.

LARRY D. GANDY,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. DOMENICI:

Q. State your name for the record, please?

A. My name is Larry Dale Gandy, from Tatum, New Mexico.

Q. Let me focus your attention on the disposal well

we've been talking about today. First of all, there was a question as to how the C-115s were prepared. How is the C-115 report prepared by Gandy Corporation?

A. The C-115 reports are prepared by our bookkeeper. He is in contact with our lease operator, our pumper, he gets the monthly high from our daily gauge reports, and from there it is submitted to the oil and gas reporting services.

Q. So the number that goes in the monthly report would be the high number?

A. Correct.

Q. And let's discuss the source of the liquid that's disposed in that well. When you first started using that well for disposal, who disposed in that well?

A. When we first started operating it, only Gandy Corporation's water trucks were allowed to haul in there.

Q. And did that change?

A. Yes, sir.

Q. When did that change?

A. We started injection, or Pronghorn did, in September of '03. We opened up the unloaded facility in January of '04 to the public.

Q. And did you have problems with the quality of the liquids you were disposing for the public?

A. Yes, we -- quite a bit of trouble.

Q. Did you ever adopt policies or make changes to address that?

A. At the beginning of this year we cut out everybody besides our own trucks hauling into our disposal.

Q. Beginning of 2006?

A. Correct.

Q. So between the beginning of '04 and the beginning of '06, it was Gandy trucks and other dumpers?

A. Correct.

Q. Did you have any specific problems with any specific loads that you can recall?

A. We had two specific instances. The first one was either late March or early April of '05. Choice Oilfield Service dumped two loads of mud and lost circulation material into our tanks. It proceeded through our tanks, through the gunbarrel system, through the pump, blowing out the bottom of our filter cases and making it all the way to the wellbore.

Q. And as a result of that, did Gandy Corporation take any action against Choice?

A. Yes, we did.

Q. What was that?

A. We contacted them immediately. Our unloading facility is monitored by TV security. We contacted them, worked out a deal with them, and charged them $40,000 for

the cleaning of our unloading facility in the well. They signed a note, they paid $10,000 and then defaulted on the rest of the note, and we're in a suit with them right now.

Q. Did the -- around that time period, did pressures rise in the well over the permitted amount?

A. Dramatically.

Q. And what happened -- what did Gandy Corp. do when they received information that the pressure exceeded the permit?

A. We immediately shut it in.

Q. What was the other incident?

A. The first of this year, we had another trucking company haul in several loads of drilling mud from the closed-loop system and brought it in early one morning.

Q. And what impact did that have on the system?

A. Our wellhead pressures are extremely high again.

Q. And did you take action with respect to that company?

A. Yes, we did.

Q. What action did you take?

A. They came and cleaned up the unloading facility, they come and cleaned it up themselves.

Q. And is it your understanding that the system is still impacted from that?

A. The well is still impacted.

Q. After that happened, what decision did you make regarding --

A. We immediately cut out any other competitors from hauling into our facility.

MR. DOMENICI: That's all I have.

EXAMINER JONES: Mr. Scott [*sic*]?

MR. DOMENICI: If I may?

EXAMINER JONES: Okay, go ahead.

Q. (By Mr. Domenici) Did Mr. Watson have your permission to come take readings off your well?

A. That well was on our private property, and he has never had permission to ever enter our property or check our wellhead pressures.

Q. Did he ever share the results with you prior to this hearing?

A. If he would have asked, we probably would have obligated him.

Q. If he wanted to take tests, he would have had to tell you what he found?

A. Uh-huh. Yes, correct.

Q. Did your surveillance -- would your surveillance be such that you would notice him coming on that property?

A. Our injection well is approximately a mile from our unloading station. Only our unloading station is under surveillance.

MR. DOMENICI: Okay, that's all I have.

EXAMINER JONES: I'm sorry, Mr. Hall?

CROSS-EXAMINATION

BY MR. HALL:

Q. Mr. Gandy, if you would take your set of exhibits before and turn to your Exhibit Number 20, would you turn to the last page of that exhibit? It's the summary of the C-115 reports there. Do you see that? Do you have that in front of you?

A. Yes, I do.

Q. You indicated just a moment ago that you had taken a bad load in March and April of 2005; is that right?

A. Correct.

Q. Do you know when in March that might have occurred?

A. I don't have the exact date with me today.

Q. But was it multiple loads running into April?

A. No, sir, I could not remember if it was early March or late April -- excuse me, late March or early April. It had to have been late March.

Q. Okay. Do you keep records on the loads that are brought into your facility in the form of run tickets or anything like that?

A. Absolutely.

Q. And do any of those records indicate the content

of the fluids that are being delivered?

A. All the truck drivers put down is "produced water".

Q. Okay. And so the way you're able to determine this particular driver was by reference back to your run tickets for that date?

A. That and our surveillance camera, and also our own truck drivers.

Q. Okay, and so that correlated in time to when you experienced the clogged filters?

A. Correct.

Q. Okay, if you'd look at your Exhibit 20, the last page there, you were reporting in March pressures of 1300 p.s.i.; do you see that?

A. Yes, I do.

Q. And as I understand it, that would be your monthly high?

A. Yes.

Q. Okay. Do you know what your monthly average would have been?

A. I don't have it in front of me.

Q. Okay. I understand that the way you report on your C-115s is that your pumper calls in to your office and reports those pressures; is that right?

A. Correct.

Q. Does he do that on a daily basis?

A. No, sir.

Q. How does he know when to do that?

A. Our bookkeeper will all him when he gets -- when he's preparing the report.

Q. Okay. Do you know what day this 1300-pound pressure reading was taken?

A. I do not.

Q. So that was dictated by the bookkeeper?

A. Yes.

Q. And it could have been March 1st, as far as we know?

A. Yes.

Q. If you refer back again to that same page of that exhibit, if you'd look back in July of 2004 and after that, at that time you were running on vacuum; is that right?

A. Correct.

Q. And what is your explanation for why you started to indicate a positive pressure after that point?

A. If you'll notice that our volumes come way down. That was the time that the Division issued an order to shut in our disposal well.

When the Division rescinded the order and allowed us to open our well back up, we immediately come on pressure.

Q. And that's with lower volumes; is that your testimony?

A. No, sir, the pressure come up because the well had been shut down and the possibility of solids settling down into our perforations, filling our wellbore up.

Q. After you were shut in by the Division, did your disposal volumes increase or decrease after they reinstated your injection authority?

A. It looks like they remained pretty consistent after we opened back up.

Q. I asked questions of Mr. Scott about the various steps that were taken out there to try to overcome the problem, whatever it was, that would allow you to inject more volumes at lower pressures, and I think we've identified an acid job, we've identified a higher horsepower pump motor, we've identified the additional perforations. Is there anything else out there that was done, we haven't talked about?

A. Along with what Mr. Scott said, trying to clean the well back up after we'd gotten the lost circulation dumped in there, material dumped in there, after the perforations and acid job, when we didn't receive the lower injection pressures we hired Cudd Well Pressure Control to come out and -- with a cold tubing unit and clean out our wellbore.

Q. Okay. I wonder if you could clear something up for me, Mr. Gandy. Before the hearing we asked your attorneys to provide us records for the State T 2. Among the things we were provided was what I've marked as Exhibit 24. Let me ask you a little bit about this. Do you recognize this as an invoice from BJ Services for a frac job?

A. Yes, I do.

Q. And if you look at it, it appears that it was for the State 3 well. If you look on page 3 of that exhibit it shows the State T 3 in Section 18, 10 South, 37 East.

A. Yes, it does.

Q. And then -- but if you look a little bit lower than that on the line item entries for well data on that third page, it shows perforations similar to what we have for the State T 2.

What I want to know, is this frac job for the right well, or is there a misidentification here?

A. There's just a misidentification on the paperwork.

Q. You didn't do a frac job on the T 2?

A. No, sir.

Q. Okay. If you would take our exhibit notebook now and return to our Exhibit 17, it's a letter dated April 26th, 2005, from EverQuest to Gandy Corporation. Are you

familiar with this letter?

A. I've seen it, yes, sir.

Q. Okay, and can you tell us what was the purpose of having EverQuest come out to the T 2 well? What were they doing for you?

A. EverQuest is also a consulting firm. They have their own production, but they're also a consultant. My father and I don't have extensive well experience. I have had a number of years at it, but on certain jobs that require an expert, we'll hire a consultant to come in and help us.

Q. If you look at the second sentence of that letter, can we draw from that that the re-perforations were not successful?

A. No, I believe that it is in hopes that our injection pressures will go down following the re-perforation.

Q. Okay, and why would you try to lower your injection pressures?

A. Well, we did not want to exceed our pressure limits set by the Division. There's also related cost at pumping water at higher pressures.

Q. Was there any concern that by injecting at the higher pressures water would escape out of zone?

A. There is always that concern, yes.

Q. And did you discuss that with Mr. Duffey from EverQuest?

A. I wasn't the one that visited with Mr. Duffey on this project.

Q. Okay. Do you know what he discussed with anyone at Gandy Corporation?

A. I was not -- I did not know the whole conversation that Mr. Gandy may have had with Dale.

Q. Okay. Do you know whether he discussed the possibility of water getting out of zone?

A. There's that possibility.

Q. I'm just asking you if you know.

A. I do not know.

Q. Okay. There are a couple of references here to the problems that Energen was experiencing in the offsetting wells. Tell us what you know about that.

A. Just basically what is written down here. The wells are in the same vicinity of our well.

Q. All right. Anything else you know?

A. That Energen lease operator comes -- drops in our office every day for coffee.

Q. And who is that?

A. His name is Albert Hobbs.

Q. Did Gandy -- anyone from Gandy Corporation ever discuss with Mr. Hobbs or anyone else at Energen the

problems they were incurring in their offsetting wells?

A. Mr. Hobbs notified us that they were having troubles with their wells, but we did not further discuss them.

Q. Why would he have come to Gandy Corporation to report that?

A. Mr. Hobbs is in our office --

MR. DOMENICI: I'm going to object --

THE WITNESS: -- on a daily basis.

MR. DOMENICI: -- that misstates his testimony, that he came to report that. I think -- I don't think that was the previous question or answer.

Q. (By Mr. Hall) Why would Mr. Hobbs have discussed it, as you say, with Gandy Corporation?

A. I don't know.

Q. How long has Gandy Corporation actually owned the disposal well?

A. I would have to go back through our records, I can't remember the exact date when we purchased the well from Pronghorn.

Q. Does Gandy Corporation have a saltwater disposal easement from the State Land Office?

A. Yes, we do.

Q. Let me hand you what we've marked as Exhibit 25. First let me ask you, have you ever seen Exhibit 25 before?

A. Yes, sir, I believe I have.

Q. All right. Is Exhibit 25 a copy of the saltwater disposal easement Gandy Corporation has from the State of New Mexico for the T 2 well?

A. I believe it is.

Q. Okay. And you received that disposal permit -- it's dated July 22, 2003, the very first sentence at the top of the disposal easement form itself, second page of the exhibit?

A. Yes.

Q. And if you'd look down here below, there's a line there for institution. Below that it says, To have and to hold. Isn't your disposal easement for a period of two years from 2003?

A. This is the agreement with Pronghorn Management.

Q. Do you have a separate saltwater disposal easement for Gandy Corporation?

A. Yes, sir, I believe we do.

Q. And in fact, isn't it expired?

MR. DOMENICI: Let me just object. That's irrelevant to this proceeding.

MR. HALL: It gets to his authorization to inject. It's totally relevant.

MR. DOMENICI: It's not relevant to this party's claims, it's beyond their scope. It's beyond the

Application also, it's not referenced anywhere in the Application.

MS. MacQUESTEN: This is a brand-new issue, and it wasn't raised in the Application. They had no notice that you were going to raise this as an issue. They would have no opportunity to have the documents here to disprove it, if such documents exist.

MR. HALL: Want me to respond to that?

MS. MacQUESTEN: I'll give you the chance.

MR. HALL: Is that why we're staring?

I would say, indeed, they've asserted to this agency that they do have regulatory jurisdiction to conduct injection operations, and that's -- consists of two components.

One, ownership. They have provided testimony earlier about their ownership of the facility. This goes directly to that. They have -- purport to have authorization from the Division. And part and parcel of that, they must also have landed permission, they must have an easement from the State Land Office to conduct that operation as well. This goes directly to their authorization overall.

MR. DOMENICI: Same objection. It's still beyond the scope of this hearing, and it's a surprise, and it's -- you know, it goes well beyond the standing we should confer

on private parties to come in at any time and challenge someone's title.

We didn't apply, this isn't a permit hearing, we don't have the burden.

MS. MacQUESTEN: We will not allow it. I'd like to point out that one of the reasons we enacted the new Rule on compliance actions was to provide some sort of framework of procedure for compliance actions. If you were to look at our procedural Rules, there is no mention of how to handle compliance actions. That's why we enacted that Rule.

Part of the purpose of that Rule was to make sure that operators who were being brought to hearing on compliance actions would have the appropriate due process and be notified of what they were being -- charged with, for lack of a better word.

In this case, we did not see this issue in the Application. It was not in the -- even in the direct testimony in your case; you're now bringing it up as almost a rebuttal. And I don't believe it's appropriate or relevant to the action that's been brought.

Let's move on to another issue.

MR. HALL: Is there a ruling?

MS. MacQUESTEN: Yes, it's not admissible, we're not going to pursue this.

Q. (By Mr. Hall) Tell us about your new pump motor. When did you put that on?

A. I believe in February of '05.

Q. And what horsepower is that motor?

A. I believe it's a 250-horse.

Q. And is that a higher horse than what you had on there before?

A. Yes.

Q. And why were you trying to increase the horsepower of the motor?

A. To handle our injection pressures.

Q. Was it also to enable to move more volumes of water into the reservoir?

A. You can use it for that, correct.

Q. And was it also to increase the injection pressures in the reservoir?

A. Yes -- no -- Excuse me, rephrase that question or ask that again, please.

Q. Did you also install a higher horsepower motor to increase the injection pressures in the reservoir?

A. That was not the purpose of putting the pump on.

Q. As a result of putting the higher horsepower pump in, did you cause higher pressures in the injection reservoir?

A. That is possible.

MR. HALL: That's all I have, Mr. Examiner.

EXAMINATION

BY EXAMINER JONES:

Q. Okay. Mr. Gandy, how much did you backflow the well to try to get the gunk out?

A. About 3000 barrels.

Q. Okay, and do you guys have any production operations? Just disposal and -- Other business?

A. We have a few other San Andres wells.

Q. Production wells?

A. Production.

Q. Okay. This -- But you don't have anything in this general area right here?

A. No, sir, we do not.

Q. And do you know who the operators are that do operate?

A. There are several operators, I couldn't tell you --

Q. Okay.

A. -- exactly who every one of them are.

Q. But definitely Energen is one of them; is that right?

A. Yes, sir.

EXAMINER JONES: Okay, excuse me a second.

(Off the record)

Q. (By Examiner Jones) Okay, I'm sorry. Mr. Gandy, do you guys -- does your company and Energen have any kind of an agreement out here, business agreement?

A. No, sir.

Q. Okay. What about this Exhibit Number 24? Can you -- I know you answered the question that Mr. Hall asked about it, but is the -- is this -- the State 3 well in a totally different area or what?

A. We do not own a State Number 3.

Q. Okay.

A. It was just an error on their bookwork, their paperwork there.

Q. Okay, BJ gave this to you?

A. Yes, sir.

Q. Okay. Okay, so I'm still trying to figure out why --

MR. HALL: It was to get clarification. It was produced to us with records for the --

EXAMINER JONES: Oh --

MR. HALL: -- T 2 well --

EXAMINER JONES: -- okay.

MR. HALL: -- when we couldn't understand why -- we saw the similarity in the perfs --

EXAMINER JONES: Okay.

MR. HALL: -- and I guess I wanted to know if you

paid the invoice.

Q. (By Examiner Jones) Yeah. Well, I guess one more question. The rates and pressures, are they daily -- daily reported on this well?

A. Yes, sir.

Q. So you watch it pretty close to make sure things are happening to it?

A. Yes, sir.

EXAMINER JONES: That's all the questions I have. Gail, do have any questions?

MS. MacQUESTEN: No questions, thank you.

EXAMINER JONES: Any other questions?

MR. DOMENICI: Nothing further.

EXAMINER JONES: No more witnesses.

MR. HALL: Mr. Examiner, we would briefly recall Mr. Friesen for rebuttal.

EXAMINER JONES: Mr. Friesen?

Thanks, Mr. Gandy.

THE WITNESS: Thank you.

GEORGE FRIESEN (Recalled),

the witness herein, having been previously duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HALL:

Q. Mr. Friesen, you've heard testimony from Mr.

Scott about the methodologies he utilized to calculate what he determined was 15-percent porosity in the injection interval. Can you discuss that -- whether in your view he correctly utilized the data available to him, first from the well log from the T 2 well?

A. Well, I think Mr. Scott did say -- and I just want to clarify -- that you cannot read perm- -- you cannot read porosity from either an electric log or a microloge.

And I would also like to agree with him that in the modern lithodensity log, those are new tools, different technology, different type of response, it's the latest stuff out. And I agree with him, and those type of response, when you've got the density and the neutron, the cross-plot porosity is a little closer to the neutron than it is the density in these dolomites.

But I would also like to say that on this exhibit, when we're talking about the Watson Number 6 well, the porosity log -- and Mr. Scott also said that as a normal course of business and when he looks at older CNL, FDC logs, non-lithodensity, older technology, you know, different tool vintage, that he averaged the two, he'd average the density and he'd average, you know, the two. And that's exactly what I do, by the way, too; I agree a hundred percent.

But I just wanted to point out that I do not

think this is a lithodensity log because, first of all, on a lithodensity display you'll get the cross-plot porosity, it will be on this log. And now a well was drilled in 1998 -- I don't really know when those tools came out, but even if they were around, I just don't believe this is the lithodensity.

So I think we have to go back now and use that simple average. And my only comment would be that you've got a zero-density porosity, and you've got -- if I were going to average, you know, you -- at best you've got maybe 10-percent CNL porosity, so if you do a simple average you have 5-percent porosity. Five-percent, roughly, average porosity. Unless someone sets in here and does a foot-by-foot calculation and, you know, weighted average or whatever.

But just looking at this, it's about -- you know, 5-percent would be the average. Now -- you know, and so that's -- that's -- you know, there's just a couple of -- you know, what I'd call a couple railroad track lines down there. They average about 5 percent.

But I don't see -- there's no logs, no data that can -- that -- the ES log, the microlog, that can calculate a porosity, no method that I know of to do that.

MR. HALL: That's all I have, Mr. Examiner.

MR. DOMENICI: Nothing further.

EXAMINER JONES: Okay, thanks, Mr. Friesen.

(Off the record)

MS. MacQUESTEN: In light of the hour, does either party wish to make a closing statement? Would you prefer to make any kind of closing in writing, or would you like to do it tonight?

MR. HALL: We'll waive ours. I understand that Mr. Domenici will be filing a written motion to dismiss.

MR. DOMENICI: What I would like to do is, give me -- if you could give me a deadline to file that, I'll let you know if we're even going to file it. I need to consult that with my client. And we would prefer not to do a written closing. We have a very short closing, or we're probably prepared to waive it also.

MS. MacQUESTEN: Okay. On the motion to dismiss, is this the pending motion to dismiss --

MR. DOMENICI: Yes.

MS. MacQUESTEN: -- on the authority of the Division?

MR. DOMENICI: Yes.

MS. MacQUESTEN: If either side would like to comment on that issue, should we set a deadline for receiving any written comments on that?

EXAMINER JONES: We won't get the transcript for two weeks.

MS. MacQUESTEN: Do you need the transcript for that? That's more of a legal issue than a --

EXAMINER JONES: Okay.

MS. MacQUESTEN: -- a factual issue.

MR. HALL: Yeah, I'm just wondering when I'm going to get time. If you would give us two weeks on that --

MR. DOMENICI: I would concur. That would be nice if we could have that.

EXAMINER JONES: Yeah, that's true.

MS. MacQUESTEN: Just for housekeeping, then, we'll ask to receive any written comments on that issue in two weeks.

EXAMINER JONES: May the 11th.

MS. MacQUESTEN: And Mr. Hall, we're hoping to receive copies of the letter or letters to the OCD.

And Mr. Domenici, if you have the copy of the Applicant's Exhibit 23 that's the clearest version, we can give that to the court reporter.

MR. HALL: Ms. MacQuesten, for the record, there was one letter to Mr. Fesmire on -- I think in about February. I'll get that to you.

MS. MacQUESTEN: Okay, thank you.

MR. HALL: And if you want to make that part of the record, that's fine.

MS. MacQUESTEN: Okay.

MR. DOMENICI: Could I get a copy of that?

MR. HALL: Yes.

MS. MacQUESTEN: All right, those are the only housekeeping issues I have, so now it's before you whether you want to make any sort of closing statements now.

MR. HALL: We'll waive ours. If the Examiner prefers, we'll be glad to provide draft order.

MR. DOMENICI: Provide what?

EXAMINER JONES: A draft order.

MR. HALL: If you --

MR. DOMENICI: In this case?

MR. HALL: -- we'll provide it, that's going to take more time --

EXAMINER JONES: Yeah, I don't need one --

MR. HALL: Okay.

EXAMINER JONES: -- draft order.

MS. MacQUESTEN: Mr. Domenici, did you --

MR. DOMENICI: I'll just make a one-minute closing.

MS. MacQUESTEN: All right.

MR. DOMENICI: We think it's the burden on the Applicant in this case. This is not a permit hearing, this is a complaint they filed, and we don't think they've met their burden on any of the elements of what -- give the

authority, assuming you have jurisdiction, but any of the elements that would give you authority to take action in this case.

The injections that were done were pursuant to a valid permit. The -- there's many allegations in the complaint about violations. I don't think there's any support for those that's shown up, that there were violations. The one time we exceeded, we shut down, and I don't think there's been proof of any of the other elements to a preponderance that would allow you to take the action they request.

MR. HALL: Briefly, I would say the evidence clearly establishes a direct hydrologic connection between the injection well and the offsets. They have not refuted that, a preponderance of the evidence supports that.

With respect to the Division to grant the relief requested, that's something that we will address to you in our brief.

That's all we have.

MR. DOMENICI: Just one point, I didn't make it clear. There is no correlative right in the disposal well, and there's no threat to the disposal well. And there is no potential waste to a disposal well -- I think that's clear -- because the disposal well is injecting disposed fluids. So there -- and the other well, we don't think, is

protected. It needs to be plugged, it should have already been plugged.

And with that, I don't think the testimony is accurate. There are no other producing wells that there's testimony to the effect that -- there's speculation, but there's no proof.

And so that's all.

MR. HALL: That's all we have. Thank you very much.

EXAMINER JONES: Thank you all. And with that, we'll take Case 13,686 under advisement and close this hearing.

(Thereupon, these proceedings were concluded at 6:43 p.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____ heard by me on _____.

_____, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL May 10th, 2006.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006

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:	)	
AMENDED APPLICATION OF DKD, LLC, FOR AN ORDER REVOKING THE INJECTION AUTHORITY FOR THE GANDY CORPORATION STATE T WELL NUMBER 2, LEA COUNTY, NEW MEXICO	)	CASE NO. 13,686

OFFICIAL EXHIBIT FILE
(1 OF 2: DKD EXHIBITS)
EXAMINER HEARING

BEFORE: WILLIAM V. JONES, JR., Hearing Examiner

April 27th, 2006

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, WILLIAM V. JONES, JR., Hearing Examiner, on Thursday, April 27th, 2006, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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EXHIBITS

DKD, LLC

CASE NO. 13686

APRIL 27, 2006