STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ORIGINAL

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

CASE NO. 14330

APPLICATION OF GANDY CORPORATION FOR AUTHORIZATION TO INJECT.

REPORTER'S TRANSCRIPT OF PROCEEDINGS

SPECIAL EXAMINER HEARING

September 21, 2009
Santa Fe, New Mexico

BEFORE: WILLIAM JONES: Hearing Examiner
DAVID BROOKS: Legal Advisor

This matter came for hearing before the New Mexico Oil Conservation Division, William Jones Hearing Examiner, on September 21, 2009, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive, Room 102, Santa Fe, New Mexico.

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I N D E X

A P P E A R A N C E S

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HEARING EXAMINER: Let's call this docket to order. This is Docket No. 33-09. This is September 21, 2009. I'm William B. Jones. This is David Brooks, division attorney, and he's going to be handling the procedural issues today.

MR. BROOKS: That means I can just go ahead and rule on any objections and I don't have to go through the procedure of advising the Examiner. So I'll rule on objections, but he'll do everything else.

HEARING EXAMINER: Okay. And first let's call the only case on the docket, let's call Case No. 14330, Application of Gandy Corporation for Authorization to Inject. Call for appearances.

MR. LAKINS: Good morning, Mr. Hearing Examiner. My name is Charles Lakins, attorney for the Applicant Gandy Corporation, along with Pete Domenici, Jr.

HEARING EXAMINER: Good morning. Other appearances?

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe office of Holland and Hart. We represent V-F Petroleum, Inc. And I have two witnesses.

HEARING EXAMINER: Okay. Will all the witnesses who intend to testify today, please stand, state your names and then be sworn in.?

MR. DUFFEY: My name is Terry Duffey.

MR. SMITH: My name is Jeffry Smith.

MR. WHITE: My name is Phelps White.

MR. BEALL: I'm Tom Beall.

MR. MAZZULLO: Lou Mazzullo.

HEARING EXAMINER: Okay. Do you guys want to do any opening comments?

MR. LAKINS: Yes, sir. Mr. Hearing Examiner, this is a very straightforward application for authorization to inject production fluids.

The Applicant, Gandy Corporation, has been in the oil business for a number of years, has operated other injection wells, has been before this Division and the Commission in the past.

And what they have applied for is an application to inject in an existing wellbore that -- What the evidence is going to show, this is an excellent candidate for injection, and it is perfectly suited for injection.

And under 19.15.26.10, this particular well can be operated in such a manner as it will confine the injected fluids to specific intervals. And of course, the operator will take all necessary actions to prevent surface damage, et cetera, pollution.

Through the application process, what has happened here is that this application was filed in

January of this year. We had initial hearings set in July of this year.

Based upon certain factors, here we are today, but essentially, we're looking at coming up on a year, before we know it, before a decision is made on this application.

The Applicant took all necessary measures to notify all of the existing operators within the half mile area of review. The only protestant was V-F Petroleum.

V-F Petroleum has one well within that half mile area of review. And what the evidence today is going to show, is that when you look at the proposed injection well, and the Blue Fin well, which is V-F's well, that in our proposed injection areas, particularly the Wolf Camp, you will see that we have two proposed injection intervals in the Wolf Camp.

The upper zone on our mudlog showed that it was a good candidate for production. So the current operator, Primero, which is here under Mr. White, tested that. And low and behold, it turned out that was 100 percent saturated with water.

When we also looked at our mud logs for the lower potential Wolf Camp injection zone, that had a good show on the mudlogs too, but low and behold, that zone as well tested 100 percent water.

When you look at the two Wolf Camp proposed injection intervals and the mudlogs that were obtained and compared, what you will see is that the upper injection zone, there isn't any good show at all on V-F's mudlogs. And the lower zone isn't even there because it's been pinched out. So what we really have is a demonstration that there will be no impact on correlative rights.

Plus, when we look at the existing Blue Fin, it's a current production gas well. It's cased, and the areas where we propose to inject is protected. It's operating right now as a gas producer and it's a good gas producer.

It doesn't look like from a commercial standpoint there would be any reason to stop gas production and reopen that well into the proposed injections -- or our proposed zones, because there's just water there already.

And so what we're going to show today is that we have taken all the necessary steps required by the administrative process for our application.

The only protestant is here today. And when you look at the mud logs, all the information, the geology, et cetera, et cetera, it will be demonstrated that this well is a prime candidate and a perfectly suited candidate for injection operations. Thank you.

HEARING EXAMINER: Mr. Carr?

MR. CARR: May it please the Examiner. Initially, I think it's important to know that V-F Petroleum is before you today objecting to the proposed injection into the Permo-Penn.

And you're going to hear a number of terms. You're going to hear it called the Wolf Camp. You'll maybe hear it called Cisco Canyon. But we're talking about Permo Camp interval.

Gandy Corporation stands before you today wanting to inject into a 1,780 foot open hole interval in the Albacore well. And our first concern is that the interval is simply too large. They want to inject both into the Abo, which we do not object, and into the Penn, to which we do.

Within the area of review, we have one well, our Blue Fin well that's only 2,100 feet away. And yes, it does produce from a deeper interval. But when you look at the information that will be presented today, you will see that there is potential uphole, and that if you allow this injection across this huge interval, they're going to be putting potential reserves at risk.

They say they -- there are two intervals. They have tested two intervals within the Wolf Camp or the Permo-Penn, but they are going to inject in all of them

and they won't even know where the water they put in the well is going to go.

We believe what they are proposing will impair our correlative rights and will ultimately result in the waste of hydrocarbons.

HEARING EXAMINER: Okay.

MR. LAKINS: Mr. Hearing Examiner, before we proceed here, I just want to make sure that we are correct in our understanding that the protest is only into the Lower Permo-Penn, Wolfe Camp and that V-F is not protesting to our proposal to inject into the Abo.

MR. CARR: That's correct.

MR. LAKINS: So we will proceed accordingly. All right, Mr. Hearing Examiner, I would call Mr. Phelps White.

PHELPS WHITE,

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

DIRECT EXAMINATION

BY MR. LAKINS:

Q. Mr. White, good morning to you.

A. Good morning.

Q. Could you explain to us your current business company that you operate?

A. I own Primero Operating. We're an operator in

southeast New Mexico, west Texas, and operate several wells in this area.

Q. How long have you been in the business of operating wells?

A. About 30 years.

Q. And by training, do you have any sort of education background concerning petroleum?

A. My degree is geology from New Mexico State.

Q. Have you ever utilized your geology experience in your business?

A. I have.

Q. Have you testified before the Oil Conservation Division before?

A. Yes, I have.

Q. Was that as an operator or as an expert witness for somebody?

A. As an operator.

Q. Okay. Turning your attention to the Albacore 25 well, is that one of your wells?

A. Yes.

Q. And how long have you been the operator on that well?

A. I think about a year and a half.

Q. Now, if I could turn your attention to Exhibit No. 1 there, have you seen that exhibit before?

A. Yes, I have.

Q. And could you explain to me when you saw that?

A. I built this as we worked on the well. We did some work over -- operations on the well, and this is part of my drilling report.

Q. Was that drilling report attached to the C-103 that's Exhibit 2 before there?

A. This wellbore diagram was attached to the C-103.

Q. Okay. Let's go through what you did on that well that resulted in your building this diagram, Mr. White.

A. Well, we went in and we tested several wells for several zones. We tested the Atoka and we set a bridge plug, came up the hole. We tested what I'm calling the Wolf Camp No. 1 zone 10,660 to 10,665. We acidized it. We got water, a lot of water. We set a bridge plug above it.

Came up to Wolf Camp 2, tested that zone, got a lot of water. And both those zones were on vacuum. We came up the hole, set a retrievable bridge plug. We tested the Abo. It tested high, no shelves, water or gas.

By the way, I'll mention, Wolf Camp 1 and Wolf Camp 2 zones, we saw no sign of gas or oil at all. Swabbed a lot of water out of those zones.

At that time, we were looking at coming back to

plug the well. And I had talked to Gandy, oh, in the prior year asking me if I knew where there might be a candidate for water disposal.

So anyway, I went in and I talked to Gandy and I said I got this well out here I'm fixing to plug. Looks like it'd be a good candidate. Would you be interested? And that spurred their interest in the deal.

I helped them operate -- They did an injection test into the Wolf Camp 2 zone. They were satisfied with the injection rates. Came back the next day, drilled out the cast-iron plug between the Wolf Camp 1 and 2, tested both zones together. Took a lot of water on vacuum there. So that's exactly what they were looking for.

Q. Do you recall how much water was used for testing this well?

A. They pumped about a thousand barrels of water into those zones. Or they actually didn't pump it, it took it on vacuum.

Q. Both before and after you took out the plug?

A. Correct. After we took out the plug, that lower Wolf Camp was the zone that was quite a bit stronger as far as taking water. But both of them were taking water.

It should be noted that during that injection test, the Abo was open also. Based on my swab reports and whatnot, I don't believe the Abo was taking much fluid.

Q. Now, you could describe for me the condition of the casing as far as you know it in this Albacore wellbore?

A. Well, the casing is fairly new. The well was drilled by Chesapeake Operating probably two years prior. And we had a cement bond log there. Before we tested these zones, it looked like we had real good cement bond behind all zones, and everything looked like a real stable wellbore.

Q. Are the proposed zones perforated, the proposed injection zones?

A. Yes.

Q. Did you undertake doing that?

A. Yes.

Q. Okay. Were those perforations done after you had taken over the operation of this well?

A. Yes.

Q. Okay. Now, could you describe to me your knowledge of where this well is exactly perforated, or if you've got some large, open intervals?

A. There is no large, open interval. Exhibit 1 shows that I've got the Abo open 8,918 to 22, 8,926 to 32, 8,936 to 46, 8,948 to 52, two shots a foot.

We go down what I'm calling Wolf Camp Zone 2 which is the upper zone there that's open. Perforations

are 10,506 to 12, 10,514 to 22, 10,526 to 32, 10,534 to 42, two shots a foot.

And Wolf Camp zone 1, which is the lower one, at 10,660 to 65, 10,674 to 90, two shots a foot.

Q. Now, would you describe this well as mechanically good?

A. Yes.

Q. In your opinion, is this well mechanically sound for injection as proposed under Gandy's permit?

A. Yes. We went in and isolated these zones and there was no communication. And it just seems like it's very -- all these zones are isolated.

Q. Do you have an opinion about the economic assistance of this well to the oil and gas production in the proposed area?

A. Well, it's always good to have a nearby place to put your water. And there's quite a bit of production in the area. Seems to me if Gandy put a water well in there, it ought to save a bunch of folks some money to dispose of their water.

Q. Do you think it would be good for the oil and gas industry to have this injection well done?

A. Yes.

Q. One of the things you had just spoken to Mr. White about was the isolation?

A. Yes.

Q. Could you explain to me your basis and your experience in being able to give that opinion?

A. Well, when we drilled out our -- well, when we acidized our Abo zones -- I'll go from the top to the bottom -- which was the last zone we tested, the treating pressures were substantially different.

We swabbed the well dry. There was no indication of any fluid coming from outside that zone. We knew that the zones below there were just making massive amounts of water.

And they treated our vacuum and -- The Abo is not connected with either of the Wolf Camp zones based on any kind of logical sense on what we did out there.

The Wolf Camp 2 zone, which was the first injection test we made, was taking about 3 1/2 barrels a minute, I believe, on vacuum. And when we drilled out that -- Well, we did actually load the well with that. It was taking our vacuum, but the well was loaded.

When we drilled out the plug between Wolf Camp 1 and Wolf Camp 2, just -- the bottom fell out. So I know Wolf Camp 2 isn't connected with the Wolf Camp 1, or we wouldn't have had the increased rate of injection, and it was substantial increase.

Q. Mr. White, have you done this kind of analysis

and been involved with other wells?

A. Well, in any well you ever do, you want the analysis, you want to be sure you're isolated on your zones. Because if we would have hit oil in the Wolf Camp 2 and the ocean in Wolf Camp 1, we wouldn't have been able to produce the well.

So it's always important to know that you've got your zones isolated. And I've been doing it 30 years, so the answer is, yes, I've done this before.

Q. So from the production and injection standpoint, do you have a lot of experience?

A. I have never operated an injection well -- I've operated injection wells, but I've never operated a disposal.

MR. LAKINS: Nothing further at this time, Mr. Hearing Examiner.

MR. CARR: Mr. Carr?

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. White?

A. Yes, sir.

Q. I may be mistaken, but do you happen to be friends with Examiner Jones?

A. We knew each other at NMSU back in the day.

Q. Do you believe he'll be fair and impartial in

this case?

A. I've known Will to be pretty fair and impartial.

Q. I want to ask you, what is the relationship between Gandy and Primero?

A. Well, Gandy, in the 30 years I've been working, they've hauled a lot of my disposal water over the years. And I've used their roustabout crews, their dirt contracting crews. They're a big service company in the area. And I've not known them personally, but I've sent a lot of money their way.

And my relation on this -- Like I said, I was driving through Lovington, stopped in their office one time, and one of the guys there behind the desk -- and I don't even know his name, but said, "Hey, what are you doing with that Shoebar well over there in Buckeye? We sure would like to see a disposal well over there."

And I said, "Well we're still producing it. We don't have any use for that -- or we don't have any interest in getting rid of it." And he said, "Well, we sure would like some injection wells in the area."

So anyway, I just filed that away. About a year later I was working on this well. Like I said, we went in there, it was a total failure on my part to find any commercial production.

So I thought, well, maybe the guys would like

this well, it's close to their shop. I think he knows the rancher, I think he'd make a good deal. There's a paved road all the way over to it. It'd be a perfect place for a disposal.

So I went to talk to his brother John, and he said, "You bet. We'd like to take a look at it." So at that time, I said, "Well, you guys are free to come out here with some frac tanks and some fill trucks, pump in there, see if you guys like it. If you don't like it, don't worry, I'll plug it. If you like it, we'll go from there."

Q. The application in this case is filed by Gandy Corporation?

A. That's correct.

Q. Who is the operator of the well?

A. I am, Primero.

Q. And who will be the operator of the well?

A. Gandy.

Q. When will Gandy become operator of the well?

A. The deal I have with them is it's conditional on them getting a permit. In other words, they're not going to take over operations unless they can use it for disposal.

Q. And if this application should be denied, then you will be responsible for plugging it?

A. Yes, I'll plug the well.

Q. And if the application goes through, and Gandy then will formally assume operations and they would be responsible for the well?

A. That is correct.

Q. What is the relationship between Primero and Everquest?

A. I've just met them through this case. As far as I know, he's contracted by Mr. Gandy to do the engineering services.

Q. Okay, but there's no long-term relationship between Primero and Everquest?

A. No. In fact, this is the first time I've ever done this. I'm the operator of the well. Frankly, I'd just as soon not plug it. And they're in the water disposal business. Frankly, they would love to have a water disposal well in the area. And that's our only relationship there.

Q. If the application is approved and Gandy assumes operations of the well, will you assign the acreage or just the wellbore --

A. Only the wellbore.

Q. And you will be the owner of the acreage?

A. That is correct.

Q. And so Gandy will be injecting in this well but

will not own any of the oil and gas rights to run the well?

A. That is correct.

Q. And let's go to your Exhibits 1 and 2, the schematic and C-103 that you filed.

A. Yes.

Q. Was this schematic included in the application filed in this case?

A. I believe that Everquest created their own wellbore diagram based on my report.

Q. As I understand what you're proposing, you're proposing to inject in an interval from 8,910 to 10,690?

A. Okay, I'm not proposing anything. Let's be clear about that. But what they --

Q. Are you the person to ask about what intervals you're proposing to inject in?

A. No, I think that would be them. They're the ones that are applying for --

Q. So I should reserve those questions for them?

A. Yeah. You can ask me anything about wellbore integrity, our tests, what we did, because I did all that work.

Q. Are you the individual that picked the Abo, the Wolf Camp 2 zones, and the Atoka to do this well?

A. Me and a contract geologist there that lives in

Roswell picked those zones, and some of those looked like they didn't really have much of a chance in the first place.

Basically, we found ourselves with the wellbore there that we had farmed out to Chesapeake. Part of our farmout was that before they plug the well, we had the option of taking the wellbore over.

Q. Is this entire interval cased?

A. Yes, it is.

Q. And have you done anything to test to make sure you have a good cement job and nothing is going on behind the casing?

A. Yes. We have a cement bond log. If you'll notice, I put that the top of the cement is up inside the surface casing.

Q. And you have a bond log all the way through the base of the Wolf Camp or Permo Camp?

A. Yes.

Q. You're proposing to inject in this well into two pools, the Abo and the Wolf Camp or Permo Camp, correct?

A. Again, I'm not proposing.

Q. All right. Did you have any say in the configuration of the wellbore that those might be segregated or not?

A. We inherited the wellbore from Chesapeake. They

tested several zones down in the bottom of the hole. And then, like I said, we got the wellbore back.

Q. But in terms of construction of the well and how zones might be segregated, I should ask one of the other witnesses about that?

A. Well, no, Chesapeake is not here. They're the ones that designed the wellbore.

Q. But you submitted the schematic on the wellbore?

A. Yes.

Q. I don't see any plugs in the schematic that would segregate the Abo from the Wolf Camp.

A. Oh, okay. No, the Abo is open, yes.

Q. All right.

A. I'm sorry, I was misunderstanding you.

Q. And what we're talking about when we're talking about the Abo is one pool, Townsend Abo, and we're talking then about down in the Wolf Camp about the Townsend Upper Permo-Penn pool, these are separate reservoirs?

A. You know, I'm not sure of the designations of those two Wolf Camp zones.

Q. You did testify they were separate sources of supply, did you not? You didn't see communication between the Abo and --

A. That is correct. That is correct.

Q. Did you pick these zones, labeled them as Wolf

Camp and Abo, was that something you did, or --

A. When we got this wellbore, we turned around and found a group of investors. And so I put together a sales package which said we're going to test these. So I called them Wolf Camp 1 and 2.

I notice they're calling them by a slightly different designation. But theirs is maybe Zone 1 and 2. But anyway, yes, I'm the one that --

Q. Are you the one that concluded the perforations from 11,236 to 46 in the Atoka?

A. Yes.

Q. And is there a clear marker that defines the Atoka -- between the Atoka and the Permo-Penn geologically?

A. I don't know.

Q. So you don't know. If we go to your Exhibit No. 2, the C-103 -- And correct me if I'm wrong on this, but I believe Exhibit 2, that's a form that is signed by you, is it not?

A. That is correct.

Q. And this was filed with the Commission back in June of 2009; is that right?

A. Yes.

Q. And it shows the production tests that were run on the zones that are shown on the schematic; is that

correct?

A. That is correct. And I hope they all match up.

Q. And I do, too. In the notice letter that was sent out in this case, it contained the statement,

> "These proposed disposal zones were production tested by Primero Operating during 2008. Each interval was determined to be nonproductive of oil and gas as they produced 100 percent water only."

Are these the four zones -- Is this the testing you were referencing?

A. This is the test -- Yes. And keep in mind that there is bridge plug there between the top set of the Atoka. And so you would take the -- what correlates to the wellbore diagram that we've got here are the bottom three perforation sets there. The top one is behind a cast-iron plug.

Q. Tell me what you mean when you say production testing, because I'm not sure what that means.

A. Well, I wouldn't have chosen that term, that's something they chose. But we went in, we perforated the zones, we swabbed them dry to see if anything came in natural, and then we acidized those zones. I believe we acidized each of them with 2,500 gallons in separate

stages, and then we swabbed the lower back.

In the case of the Wolf Camp 1 and 2 zones, we swabbed and -- we swabbed back all our load which is the amount of acid and water we pumped into the well, plus quite a bit extra.

We had a stable fluid level of right around 4,000 feet from the surface. In other words, no matter how fast we swabbed, the water level stayed there. Each morning we would go out there, there would be no pressure, which indicates there's no gas there, and we would check the first run and there would be no oil on top of the fluids.

So I don't know if I would call it a production test, I would call it a test. And -- Anyway, both those zones had very similar fluid flows with the No. 1 zone being quite a bit more permeable.

Q. If we look at the Wolf Camp No. 2 zone, the second entry on this C-103, it says that you swabbed 250 barrels. Is that the amount of fluid you took out of the well-bore when you tested it?

A. Yes.

Q. And then it says there was a steady fluid level at 4,700 feet from the surface?

A. That's right.

Q. When you stopped swabbing, there was still fluid

in the well, was there not?

A. Yes.

Q. Why did you stop?

A. Well, it probably got dark, or we finally decided, you know what, there isn't going to be any oil or gas here, so let's just stop and move to the next zone.

Q. You show that that test took place between August 26th and August 29th?

A. Yes.

Q. Three or four days. During that three or four day period, tell me what did you do on the well? You go out, and then tell me the process that you used to run this test.

A. Well, we have a pulling unit out there, which is a service rig. And it's got a big, long line, steel line with rubber cups on it that are roughly the size of the inside of the tubing.

They will go through the fluid, and when they come up, they swell and they pull the fluid out, like a reverse syringe that's swabbing the well.

So we just went in repeatedly, pulled the fluid, pull fluid, pull fluid, pull fluid. What you would hope is that eventually the well would kick off. You'd started seeing some gas. Maybe it would kick off flowing or at least be swabbing enough oil to say, you know, this -- we

got it now, let's put the pumping unit on it and start producing. We never saw any shows of oil or gas in those lines.

Q. Did you then perforate after you -- I'm trying to figure out, you say perforate, you acidized and swabbed?

A. Yes.

Q. What's the order of that?

A. Well, we perforate.

Q. First?

A. Yes. And if I've got time, usually I like to swab the well dry before I put any acid in the zone. And I can't recall -- One of these I probably did that, one of them I probably didn't.

Anyway, perforate the hole, and we throw acid in the zone and try to clean the perforations out so wellbore fluids can come out. And we swab the acid back. If it won't flow back, then you have got to swab it. It's the only way to get it back out of the wellbore.

Q. In this well, you were running these tests to determine whether or not you could return it to production; is that correct?

A. Well, yeah, we were hoping to find a lot of oil and gas for us and our investors. That was the purpose we were out there. Believe me, I wasn't looking for an

injection well, I was looking for a well we could all get rich on.

Q. And do you operate other wells in this immediate area?

A. Yes.

Q. In your experience, is swabbing a well for just a couple of days adequate time for you to know whether or not it will produce?

A. With the kind of fluids that we've got coming out of this well, yes.

Q. And would you say that two or three day production test was adequate for both of the Wolf Camp zones?

A. Well, we -- I believe we did two or three days for each zone.

Q. Two or three days swabbing on each zone?

A. That's correct.

Q. Same thing in the Abo?

A. The Abo swabbed dry. I mean, we swabbed it dry immediately and waited the next morning and came in and swabbed dry immediately again and -- with no shows.

Q. You also swabbed the Atoka, did you not?

A. I meant the Atoka, as well. That's the one I swabbed dry.

Q. And how long did you swab to get that zone dry?

A. Twelve runs would be probably half a day.

Q. So you were only swabbing on the Atoka for half a day?

A. Well, we came back the next day and swabbed again. The problem with swabbing is, once you swab it dry, you can stay there all day long and pay the pulling unit and you're still not going to get much fluid back.

Q. You show 12 days working on the Atoka on this exhibit, what were you doing in that 12 day period?

A. Let's see here.

Q. What I have says that you were on the Atoka --

A. Yeah.

Q. -- from 8/15 to 8/25.

A. Well, I would imagine what we did -- and I've got my records here, I could tell you exactly what we did, but that's probably from the time we said crap, we don't have anything here.

And then I went and talked to Gandy and said, you guys -- you know, we started trying to go to Plan B here. What are we going to do next? And it took a few days to, you know -- I certainly didn't want to plug the well if I thought there was a chance to put it on somebody else.

Q. You picked these four intervals shown on Exhibit 2 from the mud logs, is that correct, or how did

you --

A. Well, some of those didn't have mud log shows, but the electric logs looked worth testing. And like I said, some of these wells I'm almost embarrassed to have tested because -- well, when you have a free wellbore, might as well.

Q. You had a mud log throughout this interval?

A. Yes.

Q. And did you only see shows in four or less intervals when you looked at your mud log?

A. Well, the primary show -- the only one where the mud mudlog said, you know what, this is the zone we want really look at, would be the Wolf Camp Zone 2, the Upper Wolf Camp part, and that had pretty good shows.

Q. But my question was, when you looked at the mud log, did you see any other zones in which you thought there was a show other than the four that you tested?

A. It's been a while since I've looked at that. I think there were some isolated shows that didn't correlate to any porosity on the logs.

Q. That's all I have. Thank you.

HEARING EXAMINER: First of all, I apologize, Mr. Lakins, to your witnesses, what are they going to testify to, are you going to have another geologist show up or --

MR. LAKINS: No, actually, Mr. Hearing Examiner --

THE WITNESS: I wasn't testifying as a geologist.

MR. LAKINS: He wasn't here as a geologist, that was just as his background. He's just really here for the well and what he did, the testing before. Essentially, we turned it over to Gandy. Mr. Duffey is going to testify about the application process, what we did and Mr. Smith here is the geologist that's going to do the comparison.

HEARING EXAMINER: Okay, well, I might as well ask Mr. White here about a couple of things. This looks like it says, "Swabbed 5 percent oil on the Atoka."

THE WITNESS: That's correct.

HEARING EXAMINER: So I guess you were hoping something would happen on the Atoka?

THE WITNESS: Well, yeah, we tested it. We thought it had a chance. And we did get 5 percent oil but very little fluid. Just wasn't commercial. That's why we moved up the hole.

HEARING EXAMINER: Yeah. Now, this first zone up the hole, you went from almost 11,000 to 106 --

THE WITNESS: Yes.

HEARING EXAMINER: So did you notice any barriers between those two zones or -- Based on the

performance of the well, can you tell if they were isolated from each other?

THE WITNESS: I feel like they were. I know that on the electrical logs -- I don't have them here on me, but Mr. Smith can probably testify to that. There are lot of tight spots in there.

HEARING EXAMINER: Okay. I guess I better wait and ask him on that. The cement top below the DB tool, do you think it circulated below the DB tool?

THE WITNESS: Yes, it is up through the DB tool -- or there's good cement through the DB tool.

HEARING EXAMINER: Okay. And do you know why they put DB tools at that particular spot in that -- or this well or any surrounding wells?

THE WITNESS: Well, I couldn't tell you other than they probably wanted to circulate cement and might have wanted to keep the hydrostatic off the lower zones.

HEARING EXAMINER: Off the Abo maybe?

THE WITNESS: Well, not -- The Abo is pretty tight out there. The wells I operate are out there. I would expect it was somewhere down the hole, lower down the hole, maybe even this Wolf Camp.

HEARING EXAMINER: Okay. But this went from, basically, Pennsylvanian gas up into Permian oil; is that correct?

THE WITNESS: That's right.

HEARING EXAMINER: And at what point do you think it switches from -- Between the Atoka and the Wolf Camp, usually you have the Strawn. Did you look at trying the Strawn out here at all?

THE WITNESS: We didn't see anything worth doing. Frankly, I went through there and picked out some spots to shoot, and we shot them, and I wasn't thinking about what zone it was or anything else when we looked at this thing.

HEARING EXAMINER: Did you look at the producing offsets to see if what, in conjunction with looking -- even your contract geologist --

THE WITNESS: Well, we knew that the Atoka had produced out there in that area, and we knew that Wolf Camp produced out there. In fact, one of my wells produces from the Wolf Camp back to the west.

And then the Abo was our main objective out there when we got in the area in the first place. We bought this acreage with the producing well that was back to the west of it, and that's how we came across this acreage.

HEARING EXAMINER: Okay. So basically, you didn't research the records of surrounding wells except for the wells you own yourself, basically you already had

this knowledge?

THE WITNESS: Our contract geologist -- his name is Floyd Ferguson there in Roswell, he did a regional study. And he's got an override in the thing, so he's pretty careful not to leave anything out.

HEARING EXAMINER: Okay. I just wondered. There seems to be some other producing pools around this area that show up on our records.

THE WITNESS: Well, the Blue Fin over there produces. It was a big producer down there. And that's actually why Chesapeake came in and farmed this out from us was they were hoping to find something like what they have.

HEARING EXAMINER: That Wolf Camp, it would be water saturated and probably water wet; wet is that correct? Probably water wet?

THE WITNESS: I would guess, yeah.

HEARING EXAMINER: But it definitely wasn't an oil prospect, it wasn't a gas prospect?

THE WITNESS: Well, we would have settled anything we thought we could sell.

HEARING EXAMINER: Okay.

THE WITNESS: We figured the Atoka would be gas. But we figured the Wolf Camp would be oil. And we were very sure that if the Abo was there, it would be oil. So

I don't really distinguish when I'm looking for something like that.

HEARING EXAMINER: Okay. And you didn't look at the other Wolf Camp wells it to see if they were gassy or not in that area?

THE WITNESS: I think they make gas and oil.

HEARING EXAMINER: Okay. So there's nothing below the -- I guess Chesapeake did a good job of testing everything below the Atoka in this well, and you may not have even gotten the rights to anything below that anyway, but --

THE WITNESS: Well, I think we had a back end or something. They've got a lot more money than I do. I'm sure they did a good job of testing it. In fact, they produced it for quite a well marginally.

HEARING EXAMINER: Chesapeake has had a lot of interesting issues here lately, you know. Up hole, is there any other potential up hole, like in the Upper Permian or maybe St. Andres or --

THE WITNESS: Not that I am aware of. We certainly would have tried it.

HEARING EXAMINER: Okay. So the Abo looks tight, based on what you were able to swab and --

THE WITNESS: That's correct. We swabbed it dry.

HEARING EXAMINER: Okay. But the Wolf Camp for some reason -- could you have predicted that from looking at the logs?

THE WITNESS: Well, we knew the Wolf Camp was going to be permeable, and even though we had the oil and gas show, it did look a little wet. I was pretty nervous about doing it anyway, but the shale looked good on the mudlog, so we went ahead and gave it a shot.

Q. So the porosity resistivity looked dangerously wet, but --

THE WITNESS: I'm not going to say dangerously wet, but it sure looked like that was a good shot.

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HEARING EXAMINER: Okay. But if it was -- if it did have extremely good permeability and porosity --

THE WITNESS: It looked like a good permeable zone, it had almost a porosity to it, and it looked not scary enough that we convinced ourselves and other people that it was worth spending the money on.

HEARING EXAMINER: Okay. You don't think that porosity and permeability would have masked some of the mudlog shows while they were drilling through it? In other words, your mudlog wouldn't have shown --

THE WITNESS: Well, I've seen good permeable zones that didn't have a show that made production, and

I've seen places that had great shows that didn't make production. You got to try it.

HEARING EXAMINER: Worth trying.

THE WITNESS: Yeah. That Wolf Camp 1 did not have a show that I'm aware of, but the logs looked pretty good, so we gave it a shot.

HEARING EXAMINER: Okay. But it just turned out to be too high on the resistivity?

THE WITNESS: (Indicating affirmatively.)

HEARING EXAMINER: Okay. Or I guess low.

THE WITNESS: Low.

HEARING EXAMINER: Low, yeah. Okay. Mr. Brooks?

MR. BROOKS: Just out of curiosity, I've heard testimony in a number of cases that in many areas there's not a clear distinction between the Abo and the Wolf Camp. Mr. Carr made that distinction here. Is there a clear distinction in this well between the Abo and the Wolf Camp?

THE WITNESS: Well, I'm going to be frank with you. I don't know. All I know is our geologist said, "This is Wolf Camp and this is Abo."

MR. BROOKS: So you haven't done a geologic analysis.

THE WITNESS: I came in here and they handed my

butt to me on a plate on this prospect when we were looking because of the -- same question he asked, where's the Atoka and where does the Morrow come in, where is this? Well, our geologist didn't know, I sure as hell didn't know, and they grew up there. Stagner drilled me for 45 minutes on that, so I'm not even going to get into these tops here.

MR. BROOKS: Okay.

THE WITNESS: But from my understanding, there is a good distinction there, and perhaps Jeff can...

MR. BROOKS: Very good. Thank you.

MR. CARR: Mr. Examiner, one thing. I had questions on the injectivity test. Is Mr. White the proper witness, or is there another witness I should address those questions to?

THE WITNESS: I could probably.

MR. CARR: I'm just a little confused as to who is covering what.

HEARING EXAMINER: I think he would definitely know about the swabbing, and that would be maybe related to what happened on the injection tests later. And I don't know if he was there.

THE WITNESS: I'll let the attorneys here decide who would do that. My purpose here is to say, this is what I saw, I was out here personally during these

operations and --

HEARING EXAMINER: There might be a point where you can ask him and he can always tell you. Is that correct, Mr. Brooks?

MR. BROOKS: Yes.

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. White, I'd like to ask you a couple questions about the injectivity testing. The C-108 stated that an injection test that isolated the Abo zone from the Wolf Camp perforations indicated good injectivity. Here again, I'm not sure I know what injectivity testing is, so I'm going to ask you, what is an injectivity test.

A. Well, m that would be better by them. Because all I know is, we pumped a lot water down in this well. That's what I can testify as to.

Q. And do you know what zone it was going into?

A. It was going into the Abo, Wolf Camp 2, and -- Excuse me. The first injectivity test was going into the Abo and the Wolf Camp 2. We went out and drilled out the cast iron plug we but in between the Wolf Camp 1 and 2, and the second test was into all three of those intervals.

Q. Can you tell me if the first test isolated the Abo from the Wolf Camp, or did you -- The first test was into either both zones or just the Abo, and that's what

I'm trying to find out.

A. Yes. The first injectivity test, there was never an injectivity test other than when we acidized the well, it isolated the Abo.

Q. And did the Abo take water?

A. It took water but not much.

Q. Well, what do you mean by not much?

A. Well, I don't remember taking hardly anything on vacuum. When we acidized the well, we were pumping probably four barrel a minute, I can tell you that, but at pretty high pressure.

Q. Okay. You don't know the pressure?

A. No But I can get it for you. My guess from the experience in the area would be probably about 2,500, 3,000 pounds. That was during the acid job.

Q. And you were doing about four barrels a minute, you said, at that --

A. Yes.

Q. This is a commercial disposal well which you're proposing, correct?

A. I'm not proposing it, these guys are. These guys are proposing it for a water disposal well, yes.

Q. "We talked about this being a good place to put water"?

A. Yes.

Q. Those were your words?
A. Yes.
Q. Whose water?
A. This would be a good place to put my water, their water, anyone else in the area's water, in my opinion.
Q. Where are you putting your water now?
A. These guys are hauling it somewhere, and I don't know where it's going. Well, I'm not even sure these guys are hauling anymore. It's a cut-throat business right now with those trucks.
Q. If this application is denied, are you going to have to shut down a well?
A. No.
Q. That's all I have. Thank you.
HEARING EXAMINER: Mr. Lakins, do you have anything further?
MR. LAKINS: I have nothing further, Mr. Hearing Examiner.
HEARING EXAMINER: Okay. Is anybody going to want Mr. White to be here for the rest of the hearing?
MR. LAKINS: We might.
HEARING EXAMINER: Okay. Sounds good. Let's go off the record and take a quick break.
(Note: A break was taken.)

HEARING EXAMINER: Okay, are we ready to proceed?

MR. LAKINS: Yes. I call Mr. Terry Duffey.

TERRY DUFFEY,

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

DIRECT EXAMINATION

BY MR. LAKINS:

Q. Good morning, Mr. Duffey.

A. Good morning.

Q. Could you tell me what business you're in?

A. I'm an oil and gas operator in the state of New Mexico and also do some engineering consulting work.

Q. Could you describe for me your educational background?

A. I have a BS in petroleum engineering from the University Texas, 1977.

Q. And what about your work background after college?

A. I worked for several major companies through the years down in the gulf coast off shore. Moved to Midland back in the late '80s and have been there ever since working more independent companies, more in the operating side of things during those years.

Q. Have you ever testified before the Oil

Conservation Division here before?

A. Yes.

Q. Were you qualified as an expert when you testified before?

A. Yes.

Q. Do you recall what you were qualified as an expert?

A. I believe as a petroleum engineer.

Q. Now Mr. Duffey, could you describe for me your involvement with this Albacore 25 well?

A. Yes. I prepared the application for salt water disposal on behalf of Gandy Corporation.

Q. Do you recall approximately what time you got involved with that, what month?

A. Probably about the time that Primero was verbally talking to Gandy about the possibility of taking this well over. After they had done a little bit of injectivity testing, Dale called me and asked me if I would look at it from my perspective and let him know if it looked like a good injection candidate.

Q. Did you do that before you prepared the application?

A. Yes.

Q. Tell me what you did.

A. I'm familiar with the requirements of the

application as far as mechanical integrity trying to isolate your injection to a particular interval, protect fresh water, protect correlative rights. So I looked at it from that standpoint and qualified it on all three points as a viable place to put water.

And it looked to me that as far as getting approval for the application, it had a very good chance. I didn't see anything that would be something that would come back and probably be a problem sometime into the process.

Q. Okay. Let's turn to Exhibit 3. You have that there in front of you?

A. Yes.

Q. Is that your signature down there at the bottom?

A. Right.

Q. All right. When we look through this application, if you turn to the map that's in there, this page --

A. Okay.

Q. Now, did you prepare this map?

A. I did.

Q. In your preparation for this application on this map, is that circle that's on this map, does that represent the half mile area from the wellbore?

A. Yes.

Q. Did you do a search for all the existing operators within that area?

A. Yes.

Q. Did you ensure that all those operators were notified of this application?

A. I did. And there is also a requirement that if acreage is unleased, that you've got to notify the current mineral owners. So most of the land was fee acreage owned by the State, so that was a pretty easy process, but there were some fee minerals that were owned by quite a few parties, so it increased that list of notification to like 25 parties.

Q. How did you ascertain those mineral interest parties?

A. I believe that Dale retained a qualified landman to search the records with the county clerk in Lea County.

Q. Okay. And you ensured that all those people were notified?

A. Yes.

Q. Now turning to the next page in this application for the proposed well, could you explain to me the information that you determined about the proposed Albacore well?

A. Yes. This is kind of a required table in a format that the OCD likes to see that just shows how the

wellbore was constructed. It shows the various hole sizes that were drilled, where casing was set, how many sacks of cement Were pumped, did they see circulation to surface. So it's really to ascertain the mechanical integrity of the wellbore.

It also shows the proposed injection interval from top to bottom. They want to know how are you going to complete the well and configure it for injection. So it covers -- Type 2 being the packers, anything that would be used to the try to isolate the injection interval from anything up or down the hole.

Q. From your review of the existing well to the proposed configuration for the well for injection purposes, was there any work that needed to be done on the well before it would be suited for injection?

A. No I paid particular attention to the DV tool in the production casing, of where it was set, and looked at the type of cement that was pumped. Between the first and second stage, after they opened the DV tool and they circulate to try to see did they get any cement above the DV tool, they circulated out -- I think 65 sacks of cement.

So it gave a pretty good indication that the cement was up to the DV tool. And then pumped their second stage, ran a cement bond log that established that

type of cement well up into the intermediate casing. So I felt like all indications were they had a good cement job.

Q. Okay. Now if we turn to the next page in your application, the proposed injection configuration, after the current configuration, you've got one that is a proposed injection configuration.

Could you explain to us what needed to be done on the well to configure this as per your proposed injection of the well.

A. After the injectivity test was done, there really was very little they would have to do to set this well up for injection. Run an injection string that's plastic coded, a good injection packer, set it above the Abo.

They're already isolated from below the lower Wolf Camp with a bridge plug at 11,155 with cement on top of it. So they're pretty well set up at that point to inject into the proposed injection zone.

Q. Okay. And are you aware of whether or not there is any injection pressure that is anticipated for this proposed injection well?

A. Well, on the injectivity test, it was taking water on a vacuum, but rather than just say it's going to do that the rest of its life, we felt it was prudent to go ahead and apply for some injection pressure that would be

within the -- I guess the maximum the OCD would currently allow. So just give us a little cushion into the future.

Q. Okay. And if we turn to Exhibit No. 4, did you prepare that exhibit?

A. I did.

Q. Was that part of your application process?

A. Yes.

Q. Could you give me a quick rundown of the history of this well that you determined as set out in this Exhibit 4?

A. Well, the backup information that was used to construct this well history came from multiple sources. Much of it at the OCD website is public record. Since it did go through several operators in its lifetime, rather than just assume that a wellbore diagram that we've seen earlier that Primero prepared, I thought it would be prudent on my part to make sure I could corroborate what was done, and we both come up to the same conclusion. So Primero sent me all the test records after they assumed operations from Chesapeake, and I just used that information to construct this, and essentially came up with a very -- the same picture that they did.

But I paid -- there were a few things that -- I think you're going to see some typographical errors. I can remember the Abo perforations that were mentioned in

Primero's, said 8,112 to -- and went down to 89 something. I thought that seems like an awful long interval. And it turned out, it was really 8,912.

And I believe that Mr. White acknowledged that at one point that -- So you may see 8,112 on diagrams. If you do, it's supposed to be 8,912.

Q. And that's for the Abo?

A. Yes.

Q. Okay.

A. But, you know, I was looking at it the from a standpoint of -- especially with Mr. White's testing that was done, to see if, as an independent party, would I draw some of the same conclusions on the way things were tested. Were they isolated.

And I was looking for things that would maybe raise somebody's eyebrows saying, "I don't know about this." Maybe I wouldn't draw the same conclusion. So I just wanted to qualify from an independent standpoint would I feel comfortable in this application stating what is being stated in the application.

Q. And did you come to any conclusion about whether or not this particular well would be a good candidate for injection operations?

A. I can't think of one thing that I was uncomfortable with. I felt like all the information led

to what the application has on it with pretty reasonable conclusions.

Q. Did you think that this particular wellbore is sound?

A. I do.

Q. Do you think that there is any concern about injecting into these proposed intervals that there is going to be some mechanical problem with the well, with the wellbore?

A. No I don't personally think that much fluid will go into the Abo perforations, not based on what came out of them. I would think the majority of the fluid -- I've got no real science behind this, but typically, fluid is going to go the path of least resistance, which appears to be into these Wolf Camp zones that are perforated down at 10,000 feet.

Q. Okay. Let's move on to your Exhibit No. 5, hydrology. Is this part of your application, as well?

A. It is.

Q. And could you tell me what you did as far as the application process to ascertain hydrological information?

A. Yes. As part of the application, we need to identify if there are any zones that have useable drinking water as defined by the EPA. The State of New Mexico has a department that has a website that they gather all this

type of information that's accessible.

So I accessed the information in the vicinity of this proposed disposal well to look at -- where does fresh water, what depths do you see fresh water. What kind of quality of water do you find in those fresh water zones. So this is essentially just a narrative on what was found as far as the depths.

First of all, the Ogallala is the primary aquifer. Records from Section 25, which is the location of the injection well, show the Ogallala to be somewhere less than a hundred feet deep in the vicinity.

They also have samples that were taken. I didn't find any samples that were taken in Section 25, but to the west, one section in Section 26, they show chlorides that were taken from a well there.

Through time, from '79 to '90, would show the chloride concentration is essentially staying pretty constant, 60 to 65 parts per million.

So I felt like, hey, the aquifer looks like it's a good aquifer, good water. And the last piece of that puzzle was to go ahead and take a sample ourselves just to protect ourselves, have it in our files, Gandy secured a sample from a rancher I think within a mile of the proposed injection well.

Took it to an independent lab and had the

quality of that water checked. So once again, it confirmed that the chlorides -- it was a little bit high, a hundred parts per million, but it's still certainly in the useable drinking water.

Q. And did you come to any opinion about whether or not this proposed injection operation will impact on existing fresh water?

A. Well, I knew that the surface casing was set through the -- down to 300 or 400 feet. It was cemented to surface. So I felt like it was protected at least with one string pipe. But in this area they drill -- set intermediate pipe at about 5,000 feet cement into surface. So we had two strings of pipe that were cemented to surface protecting that fresh water. So I felt like, hey, we've got double the protection.

Q. Okay. Let's move on to Exhibit 6. Was this part of your application, as well?

A. Yes.

Q. And could you explain to me what you found within the area of review?

A. Yeah. The second Page is a little one-half mile radius circle around the Albacore disposal application. And there are, I believe, five wellbores that appear inside that circle.

Four of the five are producing wells. The one

to the very south right on the circle edge was a dry hole drilled back in the mid '50s. But records were available on all five wellbores to look at them at exactly how they were completed, which is the requirement of the half-mile review to look to see is there anything in the well that would maybe compromise keeping water in zone in our well that may be could come out someplace on one of these surrounding wells and cause a problem. So, this table --

Q. Is that Page 3 of this exhibit?

A. Yes.

Q. Okay. Please continue.

A. Table 3 shows the five wells, where surface pipe was set. All of them had surface pipe between 400 and 500 feet. All circulated cement to surface. They all had intermediate pipe set down close to 5,000 feet, and again, had cement circulated to surface.

Four of the five were completed as producers in one zone or another, and had five and a half or some sort of production casing set that was cemented in place. Top of cement in various places depending on which well. But it's all noted.

The well that I guess I paid probably the most attention to was the well that was drilled and abandoned in the mid '50s to look at exactly how they plugged the well, which they didn't recover any casing, placed plugs

where they were required, across the shoe in the intermediate pipe and below, as well as up at the surface. So they left it plugged, I would say, even in today's requirements, they plugged it as it would be required today to protect anything that may be a problem. But a couple years later, the well was reentered.

They tested the San Andres. It tested wet. And again they plugged it. No casing recovered. Squeezed the San Andres perfs, left a plug at the surface, and then low and behold, years later, five years later, somebody else comes out and tries another completion.

I believe that's -- reentered it, deepened it just slightly and tested something at 10,746, which -- I'm not a geologist, but I think that's probably somewhere what I would call Strawn. And once again, it's not a commercial and plugged the well for good. That's the condition it's in today.

Q. Okay. Did you perform some sort of analysis on the Blue Fin well that's listed in your table?

A. I did the same thing I did on the others, just looked at where casing was set, did they have isolation with their primary cement jobs. Once again, it looked to me like what was reported to the OCD, that they did have good isolation.

Q. Based upon your review of the information about

the Blue Fin, do you believe that the Blue Fin well is adequately cased and in the proposed injection intervals that would essentially keep the Blue Fin well safe from any injection operations again that you might conduct?

A. Well, in that particular case, a DV tool was set at 8,800 feet. If you recall, our proposed injection starts at 8,912, somewhere below that. When they pump the first stage in between the first and the second, they circulated 68 sacks of cement to surface, which tells me that they had cement up to the DV tool before they opened it, and then pumped, you know, over a thousand sacks on the second stage, ran a CVL.

It's protected up to 3,400 feet with top of cement, which again is up above the shoe on the intermediate casing. So, it looked very similar to the configuration of the Albacore proposed disposal well.

Q. All right. Let's turn to Exhibit No. 7, the geology information. Could you tell me what you did to obtain information about the geology in the area?

A. Most of this is -- I prepared this, and I will -- just upfront, I am not a geologist, but I used commercially available information to -- I looked at some regional maps on top of the Wolf Camp, and on the Abo, and just drew my own conclusions.

I knew that the Albacore was -- it went updip as

you went to the west, that there was a regional fault somewhere just east to the Albacore, and I felt like we were -- the well was sitting in a trough that to me is a great place if you're going to have on injection well, that if you're worried about where is that water going to go, there's a pretty good chance it's going to stay downdip where the well penetrates.

But I don't know that my terminology on Abo, Permo-Penn, I would agree with -- you know, it's very -- I think you could get several geologists in a room, you're going to get different designations on what they're called.

So Permo-Penn to me was just as -- pretty wide thick interval that included some Pennsylvanian and some Permian horizons.

Q. Okay. Now, did you do any research into areas outside the half mile area of review, look at any production, injection operations to make some comparisons and draw any conclusions?

A. Well, the fact that you have to notify operators in the area, and in the intent is to make sure correlative rights are protected. I feel like as a consultant, I need to look at this from the outside looking in..

And so, in answer to your question, I made a cursory look to see what wells were producing to the east,

to the south, north and the west. But it was more on a qualitative approach just to see what was out there.

Q. And what did you find? Let's go to your Exhibit 8. Is that a map you prepared?

A. Yes. This comes from a pretty well-known data base through Dwight's or IHS Energy. It's a commercial data service that connects up to the State where you can pull production data.

There are two different pages here. The top page, since the Abo was part of the application as far as where we were going to have a zone open to injection, I wanted to look, where does Abo produce in the general area.

There was no Abo production within a half mile radius of the well. As you continue to go to the west, I found 3 Abo producers that were pretty marginal relative to -- if you look to the south into this Lovington Abo field, it's been pretty prolific.

It looks like there was just a little spot up here to the west of the Albacore that had some Abo production but nothing near what kind of production you saw down to the south.

Did the same map for the Permo-Penn. The first thing that jumps out at you is the big Permo-Penn field just west of Lovington, the Townsend, Permo-Penn, probably

a hundred wells produced over the years. Pretty spotty after that.

Once again, you see some Wolf Camp, Permo-Penn, Pennsylvanian. People have different names for it to the west of the Albacore, and the same thing down to the south.

Q. Turning to Exhibit No. 9, could you explain to me where you got this information and what this information in Exhibit 9 really is intended to convey?

A. If you recall the second page of Exhibit 8, I mentioned that the Townsend, Permo-Penn field up to the north of the application?

Q. Right.

A. What I did is, I looked -- I knew there was some injection that took place up in that field into the Permo-Penn. And so I went to the OCD website and pulled the oil production and water production from two different sections that encompass pretty much the heart of this field, the Townsend Permo-Penn, and just -- I pulled the historical oil production, water production, and the injection from those two sections starting in 1995.

And I essentially wanted to see, you know, what impact is that injection having in some of the surrounding producers.

Q. Okay.

A. Since a picture is worth a thousand words, Page 2 is really just a summary of year-by-year water injection and water production. As you can see, until year 2001, there was very little injection into those two sections. But once they did start injection, they slowly climbed -- or pretty quickly climbed over a million barrels a year injected into two different wells.

And I wanted to see what impact did that have, and you can see on water production, it essentially had no impact. Water is not showing up anywhere offsets. So, you know, this isn't a water flood to have going. If it is, it's a pretty big failure. It's probably just a disposal project.

But the key to me was looking, hey, what kind of impact would you have nearby? And in a case where you have multiple wells, I don't see any impact -- that would be a negative impact on an oil producer, or a positive impact, for that matter.

Q. In the same proposed injection --

A. In the exactly same Permo-Penn interval.

Q. Okay. Thank you. Now, if we could turn to Exhibit No. 10, is that an exhibit that you prepared?

A. Yes.

Q. And could you explain to me the information that this chart that you have represents?

A. The application submitted a current production history on all of the wells that were inside the area of review. This is the Blue Fin 25 No. 1, produces down below the proposed injection interval in the Mississipian.

What I wanted to look at is what kind of life does this well have. And it's producing 100 MCF a day. It's probably classified as an oil well, but it's a high GOR well, and it's got a pretty shallow decline. And it appears to me that it's probably going to produce in the Mississippian for quite a few years into the future before they may be ready to try to recomplete it in some other zone.

Q. Now, did you form an opinion as to whether this proposed injection operation would impact on any correlative rights?

A. Well, I concluded that I didn't feel that this injection into the proposed well would compromise a producing well somewhere within that half mile radius of review.

Q. Do you have any reason to believe that this proposed injection well would compromise any operation farther than a half mile away?

A. No.

MR. LAKINS: Mr. Hearing Examiner I'd like to first tender Mr. Duffey as an expert petroleum engineer.

MR. CARR: No objection.

HEARING EXAMINER: No objection? Mr. Duffey is qualified as an expert petroleum engineer.

Q. Mr. Duffey, you were hired by Gandy Corporation; is that right?

A. Yes.

Q. After you were hired by Gandy Corporation, did you undertake any efforts to provide information to V-F Petroleum concerning this proposed operation?

A. Yes, I did.

Q. Could you explain to me what you did?

A. We received a copy of the letter from V-F's attorney, Mr. Carr, that notified us that they were going to protest the application.

Just as a -- Tom Beall and I know each other casually in Midland. I felt, let me call Tom and see if I can understand what their concern is. And my intent was to try to provide whatever information we could that if there was a lack of maybe understanding or miscommunication in the application, that -- you know, I indicated to Tom -- which we had one meeting face to face, technical meeting.

I brought information after the meeting. It was a very cordial meeting. We exchanged further information several weeks letter, things that came up in the meeting

that I felt like rather than just verbally say this is what we see in maybe the mudlog, we provided some detailed information on how Primero tested the intervals, what the mudlogs -- we send them mudlogs and -- With the intent that maybe just that they would see some additional information, that maybe that would change what they were protesting about.

Q. Could you explain to me what information you gave to V-F Petroleum?

A. I believe that the application that gets sent to the OCD is pretty extensive. What we're required to actually send to the offset operators is pretty limited amount of data. And so I believe that I took the entire application.

I don't remember that I gave them a copy of it, but I certainly didn't feel like it was any benefit to us to try to hide any information. So my intent was to try to tell them everything we knew and maybe we could head off some kind of a formal protest or hearing here in Santa Fe.

Q. Could you describe for me any information that V-F Petroleum provided to you about their existing well?

A. I don't recall that I tangibly brought anything back with me from the meeting. They voiced what their concerns were. I think we really felt like we really

couldn't make a decision on whether or not it was viable to continue to protest.

So I felt like, hey, leave them information, let them have a chance to work it into their understanding, and then, hopefully, we would get back together again to try to see if we were reaching a little bit closer understanding of where each party was coming from.

Q. At some time, did you provide V-F Petroleum with the mudlog for the Albacore well?

A. I believe that we sent sections of the mudlog that were across the intervals that we were -- had part of our application, across the -- I know it was across the Wolf Camp zones for sure, and probably the Atoka.

I don't recall, but I don't think it was the entire mudlog, per se, I believe it was just selected intervals that they expressed a concern about.

Q. Now, after you provided those documents, did you have further discussions with V-F Petroleum?

A. I had several phone calls just to follow up to find out where they -- you know, could we have further discussions, had they worked it into their understanding over about probably six week's time, probably two or three phone calls.

And was never really given a, hey, let's meet again, that they were ready. I think everybody's busy.

That information may or my not have been really integrated into their data sets.

But it finally reached a point where we had to go forward with this hearing, and we never even, I think, requested a hearing date, that was just kind of looming off into the future. Finally, it was Mr. Gandy's decision that, hey, we've tried to work this thing through, it's time to request a hearing.

Q. At any time during your discussions with V-F, did they give you any information or any documentation that gave you reason to question your opinions that you had formed about the viability of the Albacore well for injection purposes?

A. It was only -- only things verbally. I never had any tangible evidence that helped support what it is that they have sent to me.

Q. And all the things they told you verbally, did any of that lead you to question your opinions about using the Albacore well for injection purposes?

A. Well, it didn't really change my opinion that I thought we had a viable, good reason to want to inject water into the Wolf Camp, no. And I really felt like a reasonable -- if you give them enough time, they were going to draw the same conclusion. But that never happened.

MR. LAKINS: Nothing further, Mr. Hearing Examiner.

HEARING EXAMINER: First of all, do you want to admit these exhibits?

MR. LAKINS: Yes, Mr. Hearing Examiner, I'd like to admit Exhibits 1 through 10 at this time.

HEARING EXAMINER: Any objection?

MR. CARR: No objection.

HEARING EXAMINER: The exhibits will be admitted.

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Duffey, I think you testified you were an operator?

A. Yes.

Q. And a consulting engineer?

A. Correct.

Q. And today, is it fair to say, you appear as a consulting engineer?

A. Yes.

Q. Do you operate under the name of a particular company?

A. Yes, I do.

Q. And what is that?

A. That is Everquest Energy.

Q. Okay. Has Everquest ever drilled any wells in the immediate area of the proposed injection well?

A. No.

Q. Does Everquest operate any wells in this area?

A. I operate a well to the east.

Q. And how far?

A. I would say a mile to -- between a mile to two miles.

Q. And what formation does it produce from?

A. It produces from the Devon. I also have an injection well that complements that producer that injects back into the Devon.

Q. Is it a commercial well?

A. It is classified as a commercial well.

Q. Are you taking water from other operators and injecting it at this time?

A. No. Just to clarify, it is classified as a commercial, and that was done by the previous operator. I have operated the well since January of this year, and I've just except that designation.

Q. But what you're doing, if I understand you, is you're using that injection well to take care of water from your Devon producing?

A. That's correct.

Q. You prepared the C-108 in this case for Gandy?

A. Yes.

Q. You also were in charge of getting the notice letters sent?

A. Yes.

Q. And the notice letter provided basically that disposal zones for production tests produced one hundred percent water only. Were you involved in those production tests?

A. Directly, no.

Q. Did you just get your data and information from Mr. White on those?

A. Yes.

Q. You weren't involved with deciding how long to run the tests?

A. No.

Q. Or you didn't, as part of this study, any offset well or any tests run?

A. No I really had no prior knowledge of anything that had taken place between Primero and Gandy prior to starting on the C-108.

Q. I think you testified that you thought this looked like a good injection well, a good place to put water; is that fair?

A. Yes.

Q. In making that decision, did you do any

volumetric analysis from logs in the area to determine the volume that the reservoir could take?

A. I did not.

Q. Did you try and calculate an area that might be affected by the injection from this well?

A. No.

Q. What volumes are you proposing to inject?

A. The application requests, I believe, up to 5,000 barrels per day.

Q. And the way the well is constructed, if you inject 5,000 barrels a day, will you know how much goes into the Abo?

A. No.

Q. Or into the Wolf Camp 1?

A. You know, without doing some sort of maybe a tracer survey, some kind of -- we would have to do something to try to ascertain to quantify.

Q. But you're proposing to inject into these zones when you can't tell us today the volume going into the Abo, or the volume going into the Wolf Camp 1, or the volume that would go into the Wolf Camp 2; isn't that fair to say?

A. Yes.

Q. And what pressure limit are you seeking?

A. I believe it's 2,500 pounds max.

Q. And how did you get that number?

A. I believe that in the state of New Mexico, the accepted maximum is based on so many PSI per foot of depth. And I believe that it's .25 PSI per foot.

Q. If you needed to go above that, would you get a higher pressure approved by the Division by a step rate test?

A. If the step rate test would justify it, yes.

Q. I had some questions about injectivity tests. Were you involved in the actual injectivity tests that were run on the oil?

A. No.

Q. Do you have an opinion as to whether or not Gandy would still want to use the well for injection if it is only approved to inject into the Abo?

A. I can't answer that. I do not know.

Q. When I look at your Exhibits 9 and 10 -- Exhibit No. 8, I'm just trying to understand what this is, Mr. Duffey. Exhibit No. 8, first page, has two circles on it. What are those intended to show?

A. It's really intended to show kind of the relative -- just look at the vicinity of the proposed injection or disposal well just to look at what produces. For the lack of a better word, it's just kind of a production map that just points out where Abo produces or

where Permo --

Q. And then we go to the second page, which is, you would agree, hard to read?

A. Yes.

Q. This information -- what does this show on Townsend Permo-Penn on all of this data that sort of overlaps?

A. Well, first of all, I would agree it's hard to read. It points out what produces in the area, and it -- The reason it's so crowded up with information is, operators -- there hadn't been a real hard set definition of what is Permo-Penn, what is Pennsylvanian, what is Wolf Camp. So it kind of runs the whole gamut.

And I looked at what operators -- This is not what the OCD looks at the name of this producing horizon, it's what IHS Energy has been given. But it does show that there's a heck of a lot more wells that are producing Permo-Penn up to the north than there are as you work your way to the south.

Q. Does this map indicate anywhere what interval within the Permo-Penn these wells are producing from?

A. No.

Q. If we go to Exhibit No. 9, this oil production, water production, and water injection at the Townsend, Permo-Penn. Does this include all wells in that

reservoir?

A. It includes only the wells within those sections, Sections 1 and 6.

Q. So we've only got a portion approved?

A. Yes. And the reason that I limited it to those two sections is, it was only in those two sections that there was any injection taking place. So I felt to be fair, let me look immediately around the injectors to see what impact they have.

Q. Do you know the relative depth of the injection wells as opposed to the productive zones in this pool?

A. I don't know if -- I know I have a wellbore diagram of the well that is in Section 6 that I don't see here, but it shows the intervals that currently are perforated and are being injected.

Q. The injection well in 6?

A. Yes.

Q. Do we know how that compares to the producing wells in Section 6?

A. Well, with only these two things, I would say it's more of a qualitative. As far as specifics of identifying particular intervals, I wouldn't say that you could necessarily draw any of those kind of conclusions.

Q. Would you agree with me that to be able to understand the impact injecting in any well, the well

offset, would have on offsetting wells, it would be important to know what the injection interval is and what the producing interval is in these intervals?

A. I would say to study it in detail, you certainly would have to look at all that in detail.

Q. And this exhibit doesn't show us that?

A. No but what it does show is that if that water is going to show up someplace -- and these wells are very close together, that certainly are perforated in some of the same correlative zones as injection, that you would certainly expect that water to show up someplace nearby.

Q. And how many wells are you grouping together for the purpose of this exhibit?

A. I would say it's probably maybe 40 producing wells.

Q. And wouldn't you think if you really wanted to know if injection is impacting a single producing well, that you would want data on that well, not an average of 40?

A. I think that if I had seen that there was an impact when I looked at the whole picture like I did here, then it would have told me I really need to go look at that detail and find out where is that water coming from and is it just one particular well. But to be honest with you, I stopped at this point, felt like I'm not seeing it

in a big picture, so spending the time looking at the detail was probably not going to be time very well spent.

Q. Would you agree with me that in a reservoir like this, that of 40 wells, some would perform differently than others at this point?

A. Yes.

Q. So you really need to look at individual wells to know the impact of injection, don't you?

A. Yes.

Q. If we go to Exhibit No. 10, the production curve on the Blue Fin, I think you testified that it looked like it would be a long time before V-F might be coming up the hole to test these shallow horizons. Is that what you testified?

A. That is what I said.

Q. When they come up hole, whether it's six months from now, or six years from now, if the zones watered out, it will be watered out, isn't that right, if it is watered out?

A. Well, I can't really answer that.

Q. So as an expert engineering witness, you're saying if a zone -- this is a hypothetical, if a zone is watered out today, it would be okay six years from now to come back and probably it would not be watered out; is that your testimony?

A. That it would not be watered out?

Q. Yeah?

A. I mean, typically, if a zone is watered out today, five or ten years from now if you test it again, it's probably still going to be watered out.

Q. And so the point is -- the point of this question is, just because it may be a while before we get there doesn't mean you're not impairing our ability to produce the oil in that zone if you watered it out?

A. True.

Q. Now, if I look at the -- I think it's Exhibit 3, the C-108, in your area of review map, we've got the half mile circle around the Albacore well shown. Are you with me?

A. Yes.

Q. And some of the acreage is shaded and some is not. What is that shading indicating?

A. That was really looking to distinguish between what is fee acreage and what was state acreage.

Q. The tract on which the proposed injection well is located is fee acreage; is that correct?

A. I don't remember exactly, but I think that it's -- I believe it was state acreage.

Q. Is Gandy trying to acquire any interest in that lease or just in the wellbore?

A. I do not know.

Q. Do you know if there is a valid oil and gas lease on that acreage now that the well is no longer producing?

A. I do not know.

Q. If Gandy is proposing offsetting you, wouldn't you want to know how much water is going to go into any individual zone in the injection well?

A. On many.

Q. And wouldn't you want to know the volume that the injection zone would probably hold?

A. Well, those are a little difficult to answer. When I say maybe I would want to know how much water is going where, if I had no idea, if I knew that water was going to go both into the Abo and into the Wolf Camp, I maybe would like to know, well, how much is going to go into the Abo.

But I feel like it was reasonable looking at the test information that the Abo is tight, and that it probably won't take very much water. So I didn't really feel like it really mattered all that much.

Q. Do you know where that water is going to go?

A. I could tell from the injectivity that a lot of it was going to go into that Upper Wolf Camp zone, and then when they knocked the plug out and exposed the lower

interval, that, you know, it just increased the amount of fluid that was going.

Q. But the increased volume, do you know how much into each of those zones?

A. No.

Q. Do you know how far from the wellbore it will migrate out?

A. No.

Q. Don't you think that if V-F wants to inject next to you, they ought to at least be able to tell you what they estimate the impact of that injection to be on your property?

A. Within the half mile review area? I would think that they have every right to calculate what they deem necessary to see what the impact would be.

Q. And it would be up to us, not you, to calculate the impact you're having on other operators?

A. I think from V-F's standpoint, that would be something that they would probably want to calculate. From Gandy's standpoint, they certainly don't want to start injecting and a year from now the whole injectivity changes and they find that maybe this thing is smaller and it starts to pressure up and here they sit with a injection well that now they have to start putting a pump on it to try to put the water away.

Q. Wouldn't a volumetric analysis of Gandy determine that?

A. Well, when you start doing volumetric calculations, it's based on what the available information is. We've got some, what I think a reasonable person could assume what the porosities are, what the saturations are, and probably come up with a ballpark number. But on the same hand, if they had done volumetrics on how much oil they thought was in this zone before they tested it, if they had a good show, the would have gotten a number. So it's only as good as the assumptions that go into it.

And the Wolf Camp, Permo-Penn is notoriously difficult to analyze quantitatively on what the porosity is, much less to assume what the extent that porosity is laterally away from your wellbore.

Q. And why is that?

A. It's just the nature of the Wolf Camp, Permo-Penn, that -- it's a carbonate that comes and goes as porosities -- If nothing else, the exhibit that showed that Townsend Permo-Penn, I think it points out that it's hard to predict what you will impact with injection in nearby wells.

But if you look through the wells that -- or the areas that are being water flood in the Permo-Penn, there's not really very many successful water floods, and

it's for all these reason, continuity.

Q. Here we're talking about an injection well, one well, in the Permo-Penn and the Wolf Camp. If I understand your testimony, you can't tell me today what zone the injection water will go into or where it will go; is that right?

A. Yes.

Q. And when I look at the information presented, V-F Petroleum would have to go out and run these calculations and make these assumptions and try to determine whether or not their hydrocarbons are going to be impacted. Is that what you were saying? Do you think they would do it?

A. Well, to back up just for a second, you know, we looked within that area of review, was there anything that appeared productive in the interval that we planned to inject. And the answer to that was no. We felt like the test we did in the zone proved that downdip, we're wet. We see that the structure climbs going to the west, it felt like you had to get outside the area of review.

So there was really no sense for us to do those calculation. We were looking at it from an injectivity injection standpoint.

Q. And you're talking about the production tests that showed to be wet as opposed to the one by Mr. White?

A. Right.

Q. And as an operator in the area, you've been involved in running production tests, have you not?

A. Yes.

Q. And in this area, do you believe that a two or three day production test is sufficient to evaluate the Permo-Penn?

A. In my experience, I would say they gave sufficient opportunity for hydrocarbons to be produced during the test period in the well, in both instances, of the Upper and Lower Wolf Camp.

Q. Mr. Beall, V-F Petroleum, with whom you have talked, has expressed concern to you about the impact of what you're proposing on reserves they own; is that not correct?

A. Yes.

Q. And you have suggested that if he's really concerned, that there are certain tests and things he should have undertaken to ascertain if the effect; is that right?

A. I don't know that I would say that. I'm not privy to the information he does have to make his conclusions at this point.

Q. But you haven't made the volumetric calculations, you have not asked Gandy's representative if

they've done these things, correct?

A. I have not personally done those.

Q. And is that because you have no oil and gas reserves at risk, or are you just wanting to inject water?

A. No I don't think that entered into my --

MR. CARR: That's all I have.

HEARING EXAMINER: Okay. Mr. Duffey, I guess I better ask you about the notice again real quick. This map that you have, this area of review map, you have that entire -- looks like Section -- Oh, no the southwest quarter of it colored in yellow. That means it's its own contiguous fee tract; is that correct?

THE WITNESS: Are you in Section 26, southwest -- Southeast 25?

HEARING EXAMINER: Yeah.

THE WITNESS: I believe that -- it's been a while, it was January or earlier that I was coloring these things, but I believe that that was state acreage.

HEARING EXAMINER: This has been going on for a while here, hasn't it?

THE WITNESS: Yes.

HEARING EXAMINER: Okay. When we pull up our data base, it shows it to be fee, but do you have in here all the people you noticed and --

THE WITNESS: I know that was in the

application. We do not have it as an exhibit.

HEARING EXAMINER: But it's in the application?

THE WITNESS: Yes. I believe there were 25 parties that were notified via certified mail.

HEARING EXAMINER: I saw a whole bunch of notifications. Runnels was one of them?

THE WITNESS: I'd have to look. That name does not ring a bell.

HEARING EXAMINER: The former senator from New Mexico? Dorothy Runnels, they own some land between Lovington and Hobbs. I thought I saw it. It's on your map here too.

THE WITNESS: Okay.

HEARING EXAMINER: So basically, all the evidence of the exhibits is in the application. And which landman did you work with?

THE WITNESS: You know, Dale -- I believe Mr. Gandy retained those services. I never met the man. I don't know.

HEARING EXAMINER: But it was a real landman that worked on this?

THE WITNESS: As far as I know.

HEARING EXAMINER: Okay. That's fine. And you're okay with setting a bridge plug within 200 feet of the lowermost curve if this is approved for injection,

you'd be okay with that?

THE WITNESS: Yes.

HEARING EXAMINER: And the Wolf Camp is covered by cement in the entire area of review?

THE WITNESS: Yes.

HEARING EXAMINER: And the Abo is also?

THE WITNESS: Abo, as far as I can tell, it was.

HEARING EXAMINER: Okay. Those DV tools, do you have an opinion about why they were set in these wells, what they were protecting against?

THE WITNESS: I don't, but I see that it wasn't just a one instance, that it appears that as time has gone on, and maybe there's been depletion in the area that, you know, operators are worried about it and they don't want to take the chance of getting a bad cement job. So I'm only assuming that there was something that they saw that led them -- Unless it's just that herd mentality that somebody does it and everybody does it.

HEARING EXAMINER: I understand the herd mentality. So it could be either an issue of corrosion problems in the upper zone -- I'm worried about the San Andres being covered with cement, or it could be worried about the breakdown of intervals below if you put too much hydrostatic on --

THE WITNESS: My opinion would be that it's

something up above the Abo that they're worried about, okay? And that they wanted to make sure that they got that covered -- if they were worried about getting the cement job deeper, I think they probably would have set the DV tool deeper. If they're worried about something even further up the hole, it may have been two DV tools. So it appears to me, just based on the evidence, it's probably something up shallow.

HEARING EXAMINER: Okay. But not too far above the DV tool? Maybe the Abo or --

THE WITNESS: I don't know. I'm getting into guess work.

HEARING EXAMINER: Okay. What about any other potential injection zones in this well, could there -- there wouldn't be any others, right?

THE WITNESS: Not that are open up in this wellbore.

HEARING EXAMINER: But that could be open in the future?

THE WITNESS: You know, to be honest with you, I think we would love to put water into something like the Devonian. But you got to find a wellbore that's set up for you to do that in lieu of drilling a well top to bottom yourself.

HEARING EXAMINER: Okay.

THE WITNESS: And the fact that they set casing above it, you start to limit the hole size and you start getting into issues that -- I think your risks start to increase.

HEARING EXAMINER: Okay. There's a lot of oil pools that appear to be in this vicinity, and what I saw, there's -- let's see if I can find that. There was quite a few of them. It appears that this is actually in one of the oil pools. You guys weren't planning on moving to contract any of these oil pools that -- to -- it looks like this well is in the Shoebar Wolf Camp oil pool, and it's undesignated from a whole bunch of others, which means it's within one mile of other pools. Looks like the Upper Penn, the Abo, and the Chester, which is --

THE WITNESS: Deeper.

HEARING EXAMINER: Deeper?

THE WITNESS: Yeah. I'm not sure. And maybe Mr. White could say. When they filed the paperwork to test the Wolf Camp and the Atoka, there probably was some kind of a designation of a field, unless they use Wildcat, but I'm not sure what they were going to intend to classify it as, but it has been productive.

HEARING EXAMINER: But do you agree that one of the big issues here is whether this disposal operation would affect any hydrocarbons, and -- What do you think?

You don't think it would?

THE WITNESS: Well, I think that you'd have to get well outside the half mile radius. I believe you'd have to get substantially updip.

HEARING EXAMINER: In what formation?

THE WITNESS: In the Wolf Camp.

HEARING EXAMINER: So the Wolf Camp is on a -- Well, we can talk to the geologist about that later.

THE WITNESS: Yeah, I think let him -- But from what I recall, it shows that this well sits in a trough in the Wolf Camp.

HEARING EXAMINER: Okay. Do you have any idea of the volume of water you'd be disposing and for how long a time?

THE WITNESS: Well, the fact that it's a commercial designation that -- You know, you're really limited by what's the demand. The water has to be trucked in to the location. So you're somewhat limited, I think, from just a logistical standpoint.

HEARING EXAMINER: But you don't have a -- you're not proposing a certain volume of limit on this permit. We normally don't do that. But you wouldn't be proposing that like some other states do, in this case, to limit the affect of any hydrocarbons surrounding these other pools.

THE WITNESS: Well, you know, I don't think at this time we're wanting to set a self-imposed limit, let's put it that way.

HEARING EXAMINER: Okay. Did you look at the gas production on any of these other pools as to whether they were -- it was mostly oil -- I know these are oil pools, but are any of them high gas production?

THE WITNESS: I think the answer to that is some of them do have a pretty high historical GOR. So it's not unusual to get some pretty good gas recovery.

HEARING EXAMINER: Is that because they're below the bubble point, or because they're -- Some of them are just naturally initially --

THE WITNESS: You know, I didn't really look at the GOR history to see if you could see that you started out above the bubble point and at some point you get below it. The fact that the injectivity test, it's taking water out on a vacuum, tells me there's not very much pressure in this Wolf Camp. Now, I don't know if that's pretty normal or if -- exactly why it's taking it on a vacuum.

HEARING EXAMINER: Do you the know the pressure? Do you know the fluid level, static fluid level within the well?

THE WITNESS: All I saw was on the injectivity test after they pulled the bridge plug that isolated the

two Wolf Camp zones, that pumping four barrels a minute, they could never catch fluid. So it was something lower than four barrels a minute and they could never catch up to it.

HEARING EXAMINER: Have you had experience in other disposal wells in this Upper Penn Permo-Penn area?

THE WITNESS: I operate a field quite a ways to the north in Tatum, which is Wolf Camp Penn production, that we've got one disposal well that we dispose of just produced water into it. But it takes water on a vacuum. But again, it's had a lot of depletion surrounding that wellbore.

And the previous operator attempted to, for the lack of a better word, water flood the field and shut it down after a couple of years for the exact reason that I pointed out that Townsend Permo-Penn, they just never saw any oil bank building. They weren't, apparently, pushing oil into some of the surrounding producers, so they abandoned the --

HEARING EXAMINER: What happened to the water that they injected, was it cycling over to the producers?

THE WITNESS: No you just never see it again. There has to be a lot of compartmentalization in that case. So.

HEARING EXAMINER: And Wolf Camp, you didn't

draw a typical Wolf Camp decline curve to see -- I mean, do you have any idea the volume of Wolf Camp oil typical for a well or the typical decline rate?

THE WITNESS: I did not.

HEARING EXAMINER: Because this is considered totally a wet area.

THE WITNESS: Yes. I know that -- you know, on the little blip to the west of the disposal well that showed some Wolf Camp production, I believe one of the wells is operated by Primero. There's one operated by V-F. I looked at the production history of them, and I see that they were kind of not the greatest oil producers, you know, made 30,000 or 40,000 barrels. Certainly economic, but --

HEARING EXAMINER: Fast decline?

A. Typically a -- yeah, you make a lot of oil upfront and then it really streams down.

HEARING EXAMINER: And what about the water, what does it do?

THE WITNESS: I don't think they have very much water production at all from any of the wells.

HEARING EXAMINER: Okay.

THE WITNESS: Certainly less than maybe a couple thousand barrels of water per well, is what I recall.

HEARING EXAMINER: Okay. Was there anything

else on this -- when you were doing this C-108 that stood out that you would like to talk about?

THE WITNESS: Not that I really -- I think we've covered most of the points.

HEARING EXAMINER: David?

MR. BROOKS: Mr. Jones asked you some questions about the paperwork that was sent, that notice was sent to, and you were not, apparently, very well versed at the moment on that subject, but I take it, you, Gandy does not intend to call a land witness in this proceeding today?

THE WITNESS: Not that I'm aware of.

MR. BROOKS: Mr. Lakins, are you going to present an affidavit of notice?

MR. LAKINS: I believe that's in the application itself. We don't have that here as an exhibit, Mr. Brooks, but if I'm not mistaken, that's in the application.

THE WITNESS: Yeah, part of the original.

MR. BROOKS: Okay. Mr. Carr usually presents it at the hearing. Okay, well --

MR. LAKINS: I'll learn from Mr. Carr on that one.

MR. BROOKS: -- Mr. Carr and Mr. Bruce. I just mentioned Mr. Carr because he happens to be here. Since you obviously are not versed on that, I won't ask you any

questions about it. I'll look at it during the break and if I have any questions, I'll ask Mr. Lakins. I have no further questions.

HEARING EXAMINER: Any other questions for this witness?

MR. LAKINS: Yes, Mr. Hears Examiner.

REDIRECT EXAMINATION

BY MR. LAKINS:

Q. Mr. Duffey, if you could turn to the back page of Exhibit 3, I think it was testified to that the application was up to 5,000 barrels a day; is that correct?

A. That's correct.

Q. Could you tell me how much four barrels a minute on vacuum would be in a day?

A. Well, four times fourteen forty -- somewhere -- maybe 6,000 barrels a day, a little bit less.

Q. Would 5,767 be the right number?

A. That sounds -- like you calculated it.

MR. LAKINS: Nothing further.

HEARING EXAMINER: Mr. Carr?

MR. CARR: No questions.

HEARING EXAMINER: Okay. Thanks a lot, Mr. Duffy. And we probably should break for lunch. Let's come back at 1:15.

(Note: A break was taken for lunch.)

HEARING EXAMINER: Let's go back on the record and continue with Andy's case.

MR. LAKINS: Thank you, Mr. Hearing Examiner. We call Jeffry Smith.

JEFFRY SMITH,

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

DIRECT EXAMINATION

BY MR. LAKINS:

Q. Good afternoon, Mr. Smith.

A. Good afternoon.

Q. Mr. Smith. Could you tell us what you do for a living?

A. I'm a consulting geologist.

Q. How long have you been a consulting geologist?

A. Since 1978.

Q. Mr. Smith, could you describe for me your education, please.

A. I have a bachelor's degree in geology from Union College in Schenectady, New York. I have a master's degree in geology from Wensilary Polytechnical Institute in Troy, New York.

Q. What year?

A. 1970.

Q. Could you give me an overview of your work experience from 1970 up to the present?

A. Mobile hired me when I was still in graduate school. I had an interview with Mobile. They offered me a job, gave me a choice of five cities. Midland was the smallest one. I was a farm-town boy. I said, "Let me go to Midland." So I went to Midland.

Then a couple years later, they came in and said, "We have great news. You're getting a promotion. Your new job is in Houston." I said, "I've got some news, too. I'm not going." So I've been in Midland for 39 years.

I've worked for Mobile, Midwest, Signal, Texas Oil and Gas. And companies kept getting sold out from under me. I finally decided, why don't I just go to work for myself.

Now, I have affiliated with companies. Harvard Petroleum in Roswell, I was -- When Bill Lamay came up here, I took Bill's place and was a partner with Lee Harvard for four years.

It was a company based in California, LBO Energy. I managed the company. I did it as a consultant, but I managed the company. We primarily operated in New Mexico. I was responsible for, I don't know, about 70 wells in New Mexico.

Q. Now, in your time since 1970, has you geology experience been primarily in the oil and gas industry?

A. Yes, it has been.

Q. Have you worked in New Mexico and done geology work in the Lovington area?

A. I have. I have consulted for a lot of companies. And for a number of years, I've been a consultant for Exxon and for VP and some others.

I consulted for some time for EOG Resources and Pogo, and EOG and Pogo often have me working in this area. I just go out to drilling locations, evaluate shows, run logs for them, help them evaluate the logs. Say, okay, here's the ones I think are worth testing, here are the zones that I feel would be a waste of your time and attention.

So I won't tell you exactly where, but they were in this general area. I was on a number of wells there. Did a lot work for Mobile just south of here at Buckeye, but not so much Permo-Penn, it was usually the Abo, the Atoka and the Morrow.

Q. Have you had any specialized training for oil and gas related geology in your work experience?

A. Mobile decided to cross-train me as a petrophysicist, log analyst. So I did a log analysis for Mobile Oil in a number of places.

And I can fully admit I have not kept up probably as much as I should have with all the modern logs. Because most of these -- a lot of these logs weren't invented back then, as neither were calculators and computers. So we did it with slide rulers.

But I generally feel pretty comfortable when I look at a set of logs that I can figure what looks good, what looks bad, and what looks heavy.

Q. And I see by your card, you call yourself a petroleum geologist.

A. Yes, sir.

Q. Why is that?

A. Well, that's -- my whole area of focus is the petroleum business. I'm not a coal geologist, I'm not a uranium geologist, I'm not a hydrologist or groundwater geologist, I work in the oil and gas industry and have for coming up on 40 years.

MR. LAKINS: Mr. Hearing Examiner, I tender Mr. Jeffry Smith as an expert geologist with a concentration in petroleum geology.

MR. CARR: May I just ask a couple of questions?

HEARING EXAMINER: Yes.

MR. CARR: Mr. Smith, do you have experience in drilling Permo-Penn wells in southeast New Mexico?

THE WITNESS: Yes. Not for myself, but for

consultants, for clients, yes.

MR. CARR: And are you familiar with the layering of the various zones in the Permo-Penn in this area?

THE WITNESS: Yes, I am.

MR. CARR: I have no objection.

HEARING EXAMINER: Mr. Smith is qualified as an expert in petroleum geology.

MR. LAKINS: Mr. Hearing Examiner, thank you.

Q. Mr. Smith, could you describe for me your involvement with the Albacore well, what you've done?

A. I put together -- I took some work that was done by Floyd Ferguson, who Mr. White has referenced before, I took a map that he had and I expanded the map.

I gathered up as many logs as I could to see -- I kept the same marker. He called it Wolf Camp marker. If I had started from scratch, I may or may not have done precisely that.

But I was engaged at a time when there wasn't much time. We thought the hearing was coming up imminently, so I wanted to do it as fast as possible, so I expanded on the work that he did on this map.

I gathered up the logs that I could find, made a couple cross-sections, evaluated the logs, the electric logs, the mudlogs that I was -- that were made available

to me, and tried to determine what looked productive, and particularly within the statutory radius of investigation, the half mile, and said, is this a good candidate, first of all, in my mind to inject into. And if so -- At that point I knew that V-F objected, so I wanted to try to educate myself of what would be the reason they would object.

So I took a hard look at the Blue Fin well, which is just north of the Albacore, to see if it looked to me if there was any way that correlative rights could be impinged upon by injecting water into the Albacore.

Q. And what was your opinion?

A. My opinion was that the Blue Fin is not capable of producing oil and gas in commercial quantities or probably in any quantities from the proposed injection zones.

Q. Now let's start with your Exhibit No. 11 that's there in front you. Could you describe for me what all that on that exhibit says, those different colors of lines, et cetera.

A. Well, the different colors are -- I had met with Mr. Duffey and he had researched some data on the websites to show what zones each of these well produced from. I took that data and tried to color code the map.

I knew that there could be a couple of wells in

here that might possibly have produced or are producing from additional zones. But this was his original representation on the color coding of what each well produces from.

The structure was simply to show the relationship to the -- what I call the sink, the low spot here on the eastern side where the Blue Fin and the Albacore are located to the production up on the Shoebar. Even if someone wanted to quibble on the pick of the Wolf Camp marker -- and to be honest, I might perhaps myself quibble with it on a couple of wells, but it's not appreciable.

And what it does show is that it's approximately 350 feet, 400 feet, possibly, of structure from the bottom up to the producing feature.

Q. Okay. Please continue.

A. Okay, well, part of the reason for the information, you always make a structure map, that's what we do. And I also looked at the commercially available geomaps which are not in evidence, but they're commercially available.

And it shows a deep-seated sizeable fault slightly east of the Albacore that trends northwest/southeast, which made perfect sense.

You've got a popped-up structure to the east,

you have a popped-up structure to the west, and a big log in between. That was probably a fault dominated at depth.

And this big low at Permo-Penn age, is a reflection of that. Water is heavy, oil and gas are light, oil and gas go to the top, water goes to the bottom, and water also stays in the bottom.

And I felt this was a perfect place to put water here in the low. And the water would, by all reasonable interpretations, stay in the low.

Q. Along this trough that you're talking about?

A. Yes.

Q. And once again, where is this trough located?

A. The trough runs a little bit northwest and northwest/southeast, and I think -- You know, the water, if it was going to migrate, would very reasonably, you would assume that the water would migrate along the low and stay in the bottom. There's no reason this water should want to climb 350 or 400 feet uphill.

Q. Is there some sort of dip in the formation or slope in the --

A. Yes, that's what it is. It's dipped from up here at the top, take the 3-C well where I have it picked as minus 6,203 down the Albacore minus 6,658, that's 455 feet of dip.

Q. So that formation is basically sloping from high

on the west --

A. Sloping from the west to low on the east.

Q. Towards this trough.

A. Yes.

Q. Now, in your opinion, if the water were injected as proposed under this Albacore well, would that impact the Blue Fin or anything upslope to the west there?

A. I believe the water would migrate along the bottom. And from my interpretation, there wasn't anything in the Blue Fin that would be impacted.

Q. All right. Now, Mr. Smith, did you look at the Albacore well from a commercial viability standpoint for actual oil and gas production?

A. Yes. Actually, Mr. White had presented this to me as an investment opportunity. I'm surprised I didn't get it in because I got in almost every other dry hole for the last couple of years. But I reviewed the logs and it didn't look viable to me and I stayed out.

Q. What logs did you review and what did they tell you?

A. I reviewed those logs that are right here.

Q. Is this Exhibit 13?

A. The porosity log, mudlug, resistivity log.

Q. Could you go through Exhibit 13 and describe on there --

A. This is the resistivity log, mudlog, and actually, quite good show in this upper -- And I kept using the term Wolf Camp because they had begun with the term. I probably would have called it Permo-Penn myself, but without paleo data, I couldn't tell you if this was Wolf Camp or Cisco or -- I don't know.

But a pretty good show right here. But I've seen a lot of these with good shows that can't do anything.

Q. That was squared --

A. In the Upper Wolf Camp, what we're calling Zone 2 where this goes to the perforated interval. And it shows reasonable porosity. I know a lot of times these are depicted as being carbonates, a hundred percent limestone. More often than not, a lot of times there's some mercuric mixed in there. It would confound the log analysis in which you have a complete picture of the lythology. But you can make pretty good guesses.

And I evaluated the log, the porosity log vis-a-vis the resistivity log. The resistivity log shows very good permeability. Excellent permeability.

And to me, without truly knowing what the RW, the resistivity of the water in the formation is, I couldn't tell you exactly what water saturation was there, but it calculated wet to me. In my mind, I thought it was

wet, and so I stayed out of the project.

Q. Okay. And then did you look at that mudlog and analyze it from an injectivity standpoint?

A. No I did not.

Q. Okay. When you look at that -- did you look at this log and compare it to the Blue Fin log?

A. Yes, I did. At the time that this was constructed, I did not have the Blue Fin muglog. Now, when you say log, now we have electric logs, we have mudlogs. So I constructed this -- these are the Blue Fin electric logs, but I did not have the mudlog until somewhat recently.

Q. Okay. Comparing the electric logs for the Blue Fin and the information on there for the Albacore, what did that say to you?

A. It all figures like to me -- calculated very similar to the calculations here, which have been demonstrated to be wet.

Q. In the Albacore?

A. Yes.

Q. Do you have any reason to believe from looking at that electric log on the Blue Fin that it would be commercially viable in those proposed injection --

A. No I don't believe it would.

Q. And why is that?

A. Two reasons. One, this one has been tested to be wet.

Q. The Albacore?

A. The Albacore has been tested to be wet, the Blue Fin is quite comparable. Nothing sticks out in this that you go, boy, that's productive. The lower zone that was perforated on the Albacore is not developed. You see Zone 1 absent there, it's just not involved developed. It is not developed like it is here.

And I believe that my correlations are probably correct. I'm sure it's possible to argue a little bit between different geologists on correlations, but I feel these are supportive.

And the lower zone is not developed, the upper zone appears to me to be no better than the one we see right here.

Q. Now, did you then also take a look at the mudlog for the Blue Fin well?

A. I did, and there's no show evidenced.

Q. What do you mean by that?

A. There is no show of oil and gas. Go down to 10,500 feet.

MR. LAKINS: For the Hearing Examiner's purpose, here is the same exhibit. This is subject to the confidentiality order in this case. That's what he's

looking at right there.

A. There's a drawing right here, and there's really no show noted at all.

HEARING EXAMINER: What depth is that?

THE WITNESS: It is at ten -- it begins at roughly, I would say, around 10,525, 26, the better part of the drilling break.

HEARING EXAMINER: Okay.

Q. Mr. Smith, when you looked at this mudlog and the Albacore mudlog and compared them, did you draw any conclusions?

A. Yeah. I didn't think the Blue Fin has a chance. And I think it was too bad for Phelps that this one had a big show, because it caused him to spend some money and find out that it wasn't productive either.

Q. Do you have an opinion whether or not injecting into the Albacore as proposed would impact any correlative rights in the Blue Fin well?

A. I can't see how. I can't see how it would.

Q. Would injecting into the Albacore well waste any gas and oil reserves?

A. Certainly none that I can see. I think it's a good candidate.

MR. LAKINS: Pass the witness.

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Smith, just a couple questions. I believe you testified that there were a couple of zones where there were shows on the log on the Albacore, that they tested well; is that what you said?

A. I said one.

Q. One. And which one was that?

A. That's the one that we have demarked as Zone 2.

Q. Is that the Upper Wolf Camp?

A. Yes, it is.

Q. And when you say that it tested well, were you involved in the production testing or was that --

A. Unfortunately, no.

Q. That's all I have. Thank you.

HEARING EXAMINER: Mr. Smith, the Wolf Camp lower zone, that structure that you're talking about, is that on the -- where is that structure at?

THE WITNESS: Okay, you mean the marker on this map?

HEARING EXAMINER: Yeah.

THE WITNESS: It's actually one of those gamma markers that's between Zone 2 and Zone 1. And trying to follow the exact gamma ray fix from well to well on here, I would say it's imprecise, but it's close enough that it

gives you the flavor of the topography.

HEARING EXAMINER: The guy before you started it and you continued it?

THE WITNESS: Right.

HEARING EXAMINER: And you used the same marker?

THE WITNESS: Yes.

HEARING EXAMINER: And you drew the structure map. And you had reasonable control to draw this substructure map?

THE WITNESS: Yes, sir. You can see there are a number of data points in here.

HEARING EXAMINER: So all these wells you show here were your data points?

THE WITNESS: That's right. I was not able to find logs on all of those, so on some of those, I borrowed a pick that had been made by Mr. Ferguson.

HEARING EXAMINER: Okay. That Upper Wolf Camp, is that -- between the Upper and Lower, is it a similar thickness, gross thickness on these wells that you looked at?

THE WITNESS: Between these two here, yes, I would say yes. But you'll see some expansion and devolution between some of the other wells regionally.

HEARING EXAMINER: And why is that?

THE WITNESS: It's just the nature of how these

rocks were laid down. One zone can be quite thick in one well, it would just be a feather edge in another at the expense of some other zones. They're just thick at one place and a feather edge someplace else. There's some back and forth.

HEARING EXAMINER: Okay. What causes structure -- or what -- Does this structure extend on deeper into the --

THE WITNESS: Yes. These are fault-bounded deep structures. What we see in the Permo-Penn is a reflection of what we have been -- is fault-dominated at depth.

HEARING EXAMINER: Okay. This well, was it originally drilled by Chesapeake, and obviously, they must have been going for, what, Mississipian.

THE WITNESS: I think they were going for Mississipian. I know the Chesapeake geologist quite well, and I can't read his mind, but he was EOG's geologist in this area and I was his consultant. So he was always very attuned to these Permo-Penn zones that -- he looked at those pretty hard.

HEARING EXAMINER: Oh, you mean -- They tried the Mississippian and Morrow and Atoka, right?

THE WITNESS: Yes.

HEARING EXAMINER: And they didn't find it. And they didn't even bother to test the Wolf Camp?

THE WITNESS: Yes. And I'm not saying that I have spoken to him about this, but I have been his consultant in this area and I know his MO. So, it makes sense to me that he did not consider this Permo-Penn zone to be suitable.

HEARING EXAMINER: But this has gone through two different operators and they both tried to establish production in this well and they haven't been able to do that.

THE WITNESS: Right. And Chesapeake tried the Peek, and Primero tried the Permo-Penn and Abo.

HEARING EXAMINER: And the Abo. What about the Abo, is that the same structure as this, pretty much?

THE WITNESS: The structure, you're losing some structure. And this is typical. Structures are asymmetric. So you get a big, popped-up fault block deep and it continually spreads, and you lose as you gain. As you become shallower, it becomes broader with lower -- I do not have an Abo structure map, but I would not expect anywhere near as much relief at the Abo level as I would the Permo-Penn.

HEARING EXAMINER: Okay. What paleo fossil would you look at to determine the difference between the Permian and the Pennsylvanian here?

THE WITNESS: I personally hate fossils. I

would hire someone who's a personal friend of mine and Mr. Mazzullo's and I would say, "Please tell me what you see here." I never liked paleo.

HEARING EXAMINER: Okay. I seem to have noticed that this Wolf Camp was kind of gassy on the production, and I don't know whether that was because it was below the bubble point, and this Shoebar-Wolf Camp, and that's directly -- that's actually in that -- this well is considered in that pool. Do you have any comments on why it would be, or --

THE WITNESS: I would only assume that had something to with a Primero's operations trying to establish production from it. But I was not involved in it, and I had nothing to do with any of the filings --

HEARING EXAMINER: You mean the fact that it was included in the pooling?

THE WITNESS: Yeah.

HEARING EXAMINER: But the issue of the production from Wolf Camp being kind of gassy, do you have any opinion on that or why that would be?

THE WITNESS: No I wouldn't hazard a guess on that, sir.

HEARING EXAMINER: Okay. Nothing to do with the structure, in other words?

THE WITNESS: Well, we know there are Wolf Camp

oil fields, and there are Wolf Camp gas fields, and there are Wolf Camp gassy oil fields, and I don't want to hazard a guess as to why this one would be one or the other.

HEARING EXAMINER: Is it your opinion that the Wolf Camp is pretty stratigraphically limited?

THE WITNESS: To determine that would require a mapping individual advanced in the Permo-Penn, which I have not undertaken. I do not think it's limited, but I have not mapped individual events for the early extent.

HEARING EXAMINER: Okay, so if they inject water into this well, you said it would probably follow the structure, but from your looking at the logs from the control of this map, you did see the -- you were looking for that marker, but did you see the continuation of the Wolf Camp?

THE WITNESS: On some of the zones, yes. Like for instance, we're just depicting two logs here, two wells, but Zone 2 has a nice correlation between the Blue Fin and the Albacore. Zone 1, which is lower than the Albacore, is really not developed in the Blue Fin, but it is developed in some other wells.

HEARING EXAMINER: Okay. The gamma ray, is it the same -- is it just as clean in the Albacore as it is in the Blue Fin well or those Wolf Camp zones?

THE WITNESS: Well, you're quite similar on Zone

2, you're not on Zone 1.

HEARING EXAMINER: Zone 1 is --

THE WITNESS: Yeah. Zone 1 is very clear in the Albacore and --

HEARING EXAMINER: And it's not in the other one?

THE WITNESS: And it's not in the other one, the Blue Fin.

HEARING EXAMINER: Okay. What about the deep resistivity reading in those two wells, what you would give those two wells?

THE WITNESS: Deep reading resistivity up here is reading between 10 and 20 oms. And over here is reading between 20 and 30, but with, I think, a little bit less porosity development.

HEARING EXAMINER: So it's a little --

THE WITNESS: Slightly higher resistivity but with slightly lower resistivity.

HEARING EXAMINER: And that's the upper zone?

THE WITNESS: That's the upper, yes. And slightly lower porosity. They're also affected by the caliber log which is evidencing some fallout in wellbore integrity which will influence the porosity ratings.

HEARING EXAMINER: If somebody asked you to participate in a perforation of any of those Wolf Camp

zones in the Blue Fin, would you participate in it?

A. Not with my money. No, sir, I would not.

HEARING EXAMINER: Okay. David?

MR. BROOKS: The only question I have is the one I asked the other gentleman earlier, the Abo and the Wolf Camp, I gather, are clearly distinguishable in this area and in other places?

THE WITNESS: Yes.

MR. BROOKS: And the Abo, they said, was tight. So it's not a good prospect to put an injection --

THE WITNESS: No, sir, it is not.

MR. BROOKS: Thank you.

HEARING EXAMINER: Any other questions?

MR. LAKINS: Nothing further, Mr. Hearing Examiner.

HEARING EXAMINER: Thank you, Mr. Smith. Do you want to admit those exhibits?

MR. LAKINS: Yes. I'm going to move to admit Exhibits 11, 12 and 13, and of course, Exhibit 14 is subject to the confidentiality order, so that's not admitted.

HEARING EXAMINER: Any objection?

MR. CARR: No objection.

MR. LAKINS: And just for clarification on the notice aspect, the affidavit that's included in the

application is not an exhibit here, but -- and also, it wasn't raised as any issue for us to address either.

MR. BROOKS: Well, it's in the record and I have not had a chance to look at it, but do you break down the -- What I like to see is to have the tracts identified by the owners in each tract.

MR. LAKINS: I think we did exactly that.

MR. BROOKS: Okay, if you did that, that's fine. If not, I'd like you to supplement. Because a lot of times, people will just send a list and say, "We gave notice to all these people." It's not that I don't trust their word that they're the owners, but I'd like for somebody to at least represent that that's the case. Presumably, it's a landman that's gone out and done his work.

MR. LAKINS: We will double check and verify, and if it's necessary to supplement --

MR. BROOKS: I'd appreciate that.

MR. DUFFEY: We do show the tracts.

MR. BROOKS: Okay, good. That's fine. That's what I like to see. And everybody got noticed, you've got green cards for --

MR. LAKINS: The green cards are in the record.

MR. BROOKS: Okay. I'm through.

MR. LAKINS: That concludes our case.

MR. CARR: May it please the Examiner, at this time we call Louis Mazzullo.

LOUIS MAZZULLO,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your full name for the record, please?

A. Louis James Mazzullo.

Q. Spell your last name.

A. M-a-z-z-u-l-l-o.

Q. Where do you reside?

A. Golden, Colorado.

Q. By whom are you employed?

A. I am a self-employed petroleum geological consultant.

Q. What is your current relationship with V-F Petroleum.

A. V-F is a client and has been for a number of years.

Q. Have you previously testified before the New Mexico Oil Conservation Division?

A. Yes, I have.

Q. At that time, were your credentials as an expert

petroleum geologist excepted and made a matter of record?

A. Yes, they were.

Q. Have you testified before Mr. Jones and Mr. Brooks?

A. Before Mr. Brooks but never before Mr. Jones.

Q. Would you review your educational background?

A. I have a bachelor's degree in geology from City University in New York, and a master's degree in geophysical sciences from the University of Chicago.

Q. You would summarize your work experience?

A. I have over 34 years of subsurface geological experience in exploration for sedimentary type of deposits starting out with uranium, but shortly thereafter getting into the oil and gas -- into the petroleum industry where I've been since 1981.

Q. Do you have experience in southeast New Mexico?

A. I have considerable experience in southeastern New Mexico. I've been working in southeastern New Mexico since 1981.

Q. Do you have experience with the Permo-Penn formation in the area that is of interest in this case?

A. I have been working in the Shoebar area with Timber Sharp Drilling, with Fuel Products, and then V-F Petroleum since 1996.

Q. Have you published articles on these formations?

A. I have published numerous articles on the Permo-Penn depositional systems in southeastern New Mexico.

Q. Are you a certified petroleum geologist?

A. I'm a certified petroleum geologist with the American Association of Petroleum Geologists.

Q. Are you familiar with the application filed in this case on behalf of Gandy Corporation?

A. Yes, I am.

Q. Have you made a geological study of the area that is the subject of the application?

A. Yes, for the past 12 years or so.

Q. Did that study include a review of the mudlogs on the proposed injection well and the offsetting V-F Petroleum wells?

A. Yes, I did.

Q. And are you prepared to share the results of your work with the Examiners?

A. Yes.

MR. CARR: We tender Mr. Mazzullo as an expert in petroleum geology.

HEARING EXAMINER: Any questions?

MR. DOMENICI: Could I ask a question?

HEARING EXAMINER: Sure.

MR. DOMENICI: You said you're familiar with the

V-F mudlogs?

THE WITNESS: Yes.

MR. DOMENICI: What are those? What wells?

THE WITNESS: The Blue Fin 24 1 and the Blue Fin 25 1.

MR. DOMENICI: And were you involved in those other than reviewing the logs after the fact?

THE WITNESS: I was the one that caused them to be drilled as wells.

MR. DOMENICI: And you've been involved since the drilling?

THE WITNESS: Yes. I am also an interest owner in these wells as well.

MR. DOMENICI: No objection.

HEARING EXAMINER: Mr. Mazzullo is qualified as an expert in petroleum geology.

Q. Mr. Mazzullo, would you briefly summarize for the Examiners what it is that V-F Petroleum seeks in this case?

A. V-F Petroleum simply seeks the injection scenario proposed by Gandy to be limited to the Abo formation, and we feel that including the Permo-Penn would violate V-F's and their interest owners' correlative rights to the Permo-Penn which we feel can be productive in this area.

Q. Do you have an opinion as to the size of the injection interval being proposed?

A. To my way of thinking, I am not a petroleum engineer, it's a very long interval that includes the Abo formation, which previous testimony has shown to be perfectly capable of accepting the types of volumes of water that they're seeking to inject.

And my opinion is that the Permo-Penn should not be included because it would impair V-F's rights to produce from what we feel may be productive horizons.

Q. In the Wolf Camp?

A. In the Wolf Camp and the Cisco.

Q. And that's all in the Upper Penn?

A. That's all in the Upper Penn.

Q. Have you prepared exhibits for presentation?

A. Yes, I have.

Q. Would you turn to the one that has been marked for identification as V-F Petroleum Exhibit No. 1 and identify the exhibit and then review the information on the exhibit for the Examiners.

A. We have a 3-D seismic survey over this area which I have been utilizing for the past 12 or so years to determine new drilling locations and offset locations to our existing production.

And when I say "our," because I've been involved

in this area for quite a long time and I am an interest owner.

And we were using this to identify offset locations to existing Permo-Penn production that V-F operates, that being the Eidson 23 1 and the Eidson 26 1, which were identified on Gandy's Exhibit 11, as not productive from the Permo-Penn, but those are Permo-Penn wells.

And in the course of studying this entire area, that's one of our primary objective horizons in addition to the Chester and the Atoka.

Q. When we look at this exhibit, would you just tell us what is shown by the seismic line in the upper left-hand corner of the exhibit?

A. Okay. In the upper left-hand corner of the exhibit is a seismic record section that goes north to south through the Blue Fin 24, the Blue Fin 25, and the Albacore 25 No. 1.

On the upper right, you'll see a Cisco timed structure map that was generated from the 3-D seismic survey. It does show a trough going through that corridor as Mr. Smith has indicated as shown on the Wolf Camp. There's no disagreement to that.

But the seismic line shows a couple of features in the Cisco Canyon section, which is part of the

Permo-Penn that we're talking about here, that indicate the development of mound-type structures that are very typically formed in these environments in this area.

They're not only formed on in the Eidson 23 and 26 1, but you also find them in the deeper parts of the basin to the south of us in several different wells and several different fields.

The seismic line shows an orange bar. That orange bar is the interval over which Gandy is proposing to inject water, primarily in the Lower Wolf Camp, the Cisco, and -- in the Lower Wolf Camp of that section, and they did have some tests in the canyon part of the section as well.

But what we are looking for on seismic lines like this is evidence of the accumulation of these deposits which are basically carbonate mounds that form as a series of shingles, you might say.

And they can be found in the deeper parts of the basin as well as up on the structures. They're not confined to structures. We find them in deeper parts of the basin.

We find them off structure, on structure, because they're largely stratigraphic features, they're not structurally -- they're not necessarily structurally influenced except for, you know, establishment of oil,

water columns, and stuff like that.

But there is evidence on the seismic line from my experience in other areas, and I've worked areas like the Dagger Draw Field, and I've worked -- I developed a Cisco Canyon field up in Eddy County where you see the similar type of response on seismic that indicates these small scale mound developments.

And they can come anywhere in the section. I think it was alluded to in Mr. Smith's testimony that, you know, you have some that go a certain distance and pinch out, and others that develop.

And that's the nature of the Cisco Canyon. You have a lot of different units that are piled up on top of one another and you don't really know -- you really can't tell from simple correlation if one zone is in fact exactly correlative to another one just because they look similar on log responses.

You really have to look at a lot more information, including paleontological information, which I do believe in.

Paleontological information has proven to be very valuable in the discernment of these different reservoir groups in the Permo-Penn, and the seismic data helps us define at least the low order cyclicity of these mound sequences. And that's what I think I'm seeing on

this seismic section --

Q. So you've got the north/south section?

A. Right.

Q. And what we see in the Cisco is a feature that might be what Mr. Smith would call a thick zone with a feathered edge?

A. Yes.

Q. Okay. Now, if we go to the seismic section in the lower right, what does that show?

A. In the west to east section, yes.

Q. The west to east section.

A. Right. This is a section that's basically coming up from the high area down into the trough, and then back up onto another high area to the east.

And it too is showing -- the green shading and the purple shading that I show in the Cisco and the Lower Wolf Camp, respectively, are responses, are amplitude responses that are fairly typical of either mound development, or in the case of the Cisco, mound development with fracturing.

Which could be very significant, because those fractures could go through several different mound units that are vertically stacked on top of one another.

And again, the orange bar on that is the interval that they've tested through the production tests

and injectivity tests that they ran.

Q. And if you're able to tie into one of these thick zones with a feathered edge and get the water out of it, you can have a very --

A. Yes. Very commonly, very typically, the first thing you usually get out of these -- and this comes from being involved in the drilling of a lot of these types of things, is water. And a lot of water. Sometimes -- and I think Mr. Beall will talk about -- elaborate on this, a lot of times you can sit on that for weeks -- a couple of weeks, at least, before the hydrocarbons break through the initial water production that you get out of the zones.

Q. If you only swab those wells for two or three days, when you quit, they would still look wet?

A. Yeah, they might still look wet. But if you stay on them -- and we've got experience in that too, and -- For example, the Eidson 23 1, I believe we swabbed -- we, Timber Sharp Drilling, swabbed on that for at least 18 days before we got commercial production out of that Lower Wolf Camp zone that it produces out of.

Q. Is there anything else you want to show with Exhibit 1?

A. No.

Q. Let's go to your Exhibit No. 2.

A. Exhibit No. 2 is a structural cross-section that

basically follows that north/south seismic section from the previous exhibit. And I recognized early this morning that you probably couldn't read the depths on here, so I'm going to give you a couple depths to orient you where we are in the section.

In the Chesapeake Albacore 25 No. 1, the top of the Lower Wolf Camp, the black upper horizon is at 10,467. And below that, you'll see the two zones that Primero has tested and swabbed on it for three days and recovered water in that time period.

The top of the -- my top of the Cisco -- and, you know, this is -- top of the Cisco is subject to interpretation by different geologists, but my top of Cisco is at 10,974. And the top of the canyon marker, which is the blue horizon, is at 11,275. That's not the Atoka, that's the canyon sand. The Atoka is much farther down in the section.

What this cross-section shows in the color shading that I'm showing, the color shading yellow or green is either porosity and/or porosity with mudlog shows. Mudlog shows being either gas kicks and/or sample shows.

So as you can see from looking at, for example, the two Timber Sharp wells, you see quite a bit of green, which are what we would consider mudlog shows in our

experience. Because you're drilling through this basically with cut brine. And you don't always get the best looking shows out of best zone, out of ultimately best producing zones.

And as you see, we have quite a bit of porosity and show potential within the Blue Fin 24 and 25 No. 1, and even more so in the Chesapeake Albacore well. There are a number of zones in the Chesapeake Albacore well that I would have tested. Particularly, ones that weren't tested by the Primero program.

But that would have been -- you know, that's our call, that's what we would have normally done in this area.

The other thing that this cross-section shows, and most significantly, is a drill stem test that we ran in the Blue Fin 24 No. 1 down in the canyon.

And as you can read, it recovered 279,000 MCF of gas a day, gas to surface in six minutes on the drill stem test, 3,300 feet of free oil and gas, and sample chamber recovered gas and oil with no water. And that's below most of the zones that were tested -- supposedly tested wet in the Albacore well.

On that basis alone, we look at the shows that accompany that drill stem test and we look at some of the other shows above it, and we conclude that we are going to

be testing those zones, if not drilling wells, sometime in the future for the Permo-Penn itself because of the nature of the shows and the nature of the development of these mounds.

And we're not going to go into great scientific detail. These mounds are there because sea level might have dropped at some point in time, and even though this was a low area, sea level dropped to the extent where these mounds were able to drive.

And as sea level rose and fell in succession, you get these mounds shifting back and forth. And that's what I think you see reflected in the yellow and green patterns on this cross-section.

Q. If you go to the log on the Albacore.

A. Yes.

Q. And we have in the center of these log columns in black the areas that have been tested?

A. Yes.

Q. And we go to the lowermost, the one that was reported by Gandy as being in the Atoka?

A. Yes.

Q. Is that correct?

A. No, that's not the Atoka, that's the canyon sand. The Atoka is several hundred feet down below where you see -- it's below the Strawn. The Strawn carbonate is

a very distinctive and very correlative marker, and right below that is the Atoka.

Q. Okay. Is that interval in the Upper Penn that you show?

A. Yes.

Q. And if I look at this log, is immediately below an area where you see mud shows and porosity?

A. Yes.

Q. In that situation alone, would you not be concerned that injecting into that zone could damage correlative rights?

A. Absolutely.

Q. You indicated a few minutes ago you've been involved with the development of Dagger Draw.

A. Yes.

Q. What formation was that in?

A. The Lower Penn.

Q. Were you involved with the drilling of the initial well --

A. No, I was not involved in the drilling of the discovery well, but an interesting facet of the discovery, this is a field that now has over 480 wells in it.

And the discovery well was drilled originally as a dry hole in 1961, I believe. The dry hole tested wet on a drill stem test with a slight show of oil. No where

near as good as the show we had in the 24 1.

And it was reentered about four years later and kicked off a Dagger Draw field in the Cisco Canyon, which is part of the Permo-Penn sequence we're seeing here as well.

So, the fact that you get water production out of the Cisco Canyon or Lower Wolf Camp zone is not necessarily condemning of the potential of that formation to produce economic hydrocarbons. And Mr. Beall will elaborate on that a little bit more during his testimony.

But it's not something that I would walk away from just because we had a show of water. Because my experience with Dagger Draw and because of my experience with other Cisco Canyon fields that I helped to develop in Eddy County as well.

Q. If we look at the Blue Fin 24 and we look at the drill stem test in that well, that really tells the whole story, does it not?

A. Well, what it tells me, despite the fact that you don't have good sample shows, you have a good gas kick. If you -- I know the mudlogs are a little hard to read because they're small, but there is a big gas kick through that interval that was tested.

Samples shows didn't show very much because we're drilling with cut brine, pretty -- you know, not

terribly overbalanced, but with cut brine. And if you have any porous carbonates, if you have fractures in the carbonates, or if you have a well-developed porosity system, a lot of that show is going to be flushed back into the formation. You're not going to see it on a mudlog.

And I've seen this I don't know how many hundreds of times in my lifetime sitting wells and logging wells and looking at samples. Some of the most -- some of the best shows may not produce anything, but some of the worst shows might. It just depends upon the type of porosity system you have, the extent of fracturing, a whole number of different aspects. What type of drilling fluid was used, how much invasion, et cetera, et cetera.

Q. And the drill stem tests and the data obtained from that drill stem test is from a zone that had no oil shown?

A. That's right.

Q. Now, let's go to Exhibit No. 3. Would you identify and review that?

A. I apologize for the fuzziness of this exhibit, but that's the way it came out on the map. This is a section of the Lower Wolf Camp that is the producing zone in the Eidson 23 No. 1. It should say V-F Petroleum because they now operate this well.

The Eidson 23 No. 1, when we originally drill stem tested what was to become the producing zone, it tested gas to surface in 25 minutes at a much lower rate, calculated 24 hour rate and than this show was in the Blue Fin 24 No. 1, and it actually tested -- it reversed out heavy oil and gas cut and mud with no free oil.

We had a show in that one, a gas kick in that one, not much of a sample show, and if you look at the resistivity log, which is the left side of the log, it almost looks like it's going south, it's going wet.

But again, the resistivity response in a carbonate is entirely dependant upon the interaction between the types of porosity and the types of fluid in that field of porosity.

And seeing a low resistivity in the range of 20 to 50 or 100 oms is not necessarily a condemning factor. If we had thought so, we would never have perforated that zone and gotten 233 barrels of oil a day out of it.

So here is a case where if you were to believe the shows and the DST, you might not be tempted to produce the well, if you were to believe that three days of testing and recovering only water is condemning your reservoir, that too can lead you down the wrong path. You have to be able to assess every zone on its own merit and look at them individually because they're all going to be

a little bit different.

Q. Did you swab water out of this well?

A. I believe this well was swabbed on for at least 18 days. It produced a lot of water before it finally kicked off. And Mr. Beall will tell you about another instance of the same type in another well in this area.

But that's pretty typical. I've seen that time and time again over the last 28 years, particularly in the Dagger Draw area, and particularly in areas where you just have those individual carbonate mound units that seem to drink up a lot of fluid.

They drink up a lot of fluid because they've got very well-connected porosity systems for one reason or another, either because they've been -- they're very muddy or they've been fracture communicated.

Q. What conclusions have you reached from your geological study?

A. From a geological study, we had already determined before this issue ever came up that we were going to test the Permo-Penn in this area.

And my conclusion is that we risk the chance that injection of water into the Permo-Penn system here will risk the reserves that we might otherwise be able to produce on our acreage, on V-F's acreage.

Q. Can this injection cause the waste of

hydrocarbons?

A. Yes.

Q. Will it impair the correlative rights of V-F Petroleum?

A. Yes, it will.

Q. Do you recommend that the injection authorization, if granted at all in this application, be confined to the Abo?

A. Yes. I think it's already been proven that the Abo is capable of accepting the amounts of volume that they're seeking to inject.

Q. Were Exhibits 1 through 3 prepared by you or compiled under your direction?

A. Yes.

MR. CARR: I move the admission of V-F Petroleum Exhibits 1 through 3.

HEARING EXAMINER: Any objection?

MR. DOMENICI: No objection. Let me withdraw that as far as the objection. What I would like is the full logs of these, summarized of -- one, two, three, four, five, six logs. And I think it's appropriate that we have those full logs.

MR. CARR: Mr. Domenici could get anything he wants by subpoena or he could ask us, but this exhibit is a cross-section of log sections.

MR. DOMENICI: It's not to a scale that's useable or readable, so it's not the best evidence of these logs. The logs would be the best evidence.

MR. BROOKS: Well, aren't these logs on file with the New Mexico Oil Conservation Division?

MR. DOMENICI: Yes, sir, there are.

MR. BROOKS: Okay. I'll overrule the objection.

MR. DOMENICI: I'll withdraw that objection.

HEARING EXAMINER: Okay, we'll admit Exhibits 1, 2 and 3.

MR. CARR: And that concludes my direct of Mr. Mazzullo.

CROSS-EXAMINATION

BY MR. DOMENICI:

Q. Mr. Mazzullo, let's first start with your statement about the Abo. And I tried to write it down, but I'm going to ask you to restate it since you said it twice. You started your testimony with it, and then you ended with it.

So will you restate again your opinion as to that -- I think it's something like, "It's been well established that the Abo can take the volumes of water in this permit."

A. Well, correct me if I'm wrong, but I thought I heard this morning from at least two of your witnesses

that the Abo is capable of accepting four or four and a half barrels an hour -- a minute, rather, which is 5,500 or 5,700 barrels of water a day. Or did I get that wrong?

Q. You got that wrong.

MR. SMITH: You got that wrong.

A. I got that wrong? What were you trying --

MR. SMITH: That was in conjunction with the Upper Wolf Camp zone.

A. All right. Then I was confused by the testimony.

Q. Okay. But I want to go back to that then.

A. Okay.

Q. Because I think you did state that it's been well established that the Abo could take the volumes proposed in this permit. I just want to see what you were relying on when you made that statement. It may have been incorrect, but what were you relying on?

A. I was relying on the previous testimony.

Q. Okay, nothing else, no independent study of your own, that's what I'm trying to find out.

A. Independent study on my own? Only insofar as I know the Abo to be capable of producing hydrocarbons and water in large volumes -- or in large to moderate volumes. But other than that, no, it was dependent on the previous testimony.

Q. Okay. And you weren't relying on any data in here, any perforation experience, or anything like that?

A. No.

Q. And if you misheard that testimony, then your testimony would need to be changed, correct?

A. I don't know, because I'm not sure -- I'm not sure if I understand that the Abo -- what the Abo is capable of accepting.

I think the question was asked this morning, "Where is the water going to go?" And my understanding was that you weren't too sure. It wasn't really brought out to me where you thought -- you know, this water volume was going.

Q. I agree, but your testimony is that it's well established, and --

A. Well established -- I'll say that it's apparently -- it was apparent to me -- or it was inferred by the previous testimony that that's the case.

Q. Okay. Isn't it true what the previous testimony indicated was that the first test was of two zone -- perforations in two zones, the Abo and what we've called the number two zone, which is actually the higher zone in what's been called the Wolf Camp, and then that was the data that showed four barrels per minute?

A. Uh-huh.

Q. And so you can't infer really anything about the Abo off that, right?

A. I don't know, because I was not under the understanding that that was the zone that was accepting the four and a half barrels a minute. It was not clear to me -- and I don't know if it was clear to the rest of my party, but it wasn't clear to me that that, in fact, was the case.

Q. Okay. Well, let me ask you, you've been made an expert so you can make assumptions. Let me ask a somewhat -- you assume someone's going to stand up and clarify that and say that it went in to two perforated areas and there was no test done to distinguish where that water went with respect to either of those perforated areas.

A. Right.

Q. If you assume that, then in fact, you can't infer anything about what the Abo --

A. Perhaps not, but I could also infer that injecting four and a half -- if you're saying that four and a half barrels a minute will go into the Wolf Camp or the Permo-Penn zone, then it's a violation to our correlative rights in my experience and in my mind that that is -- you know, that's going to impair our correlative rights to the Permo-Penn preserves irrespective of where you might be able to inject whatever

water you want to inject.

We don't want the water injected into the Permo-Penn because we feel that there are recoverable reserves that are in jeopardy by that action.

Q. Okay, I was clear on that, but what I was trying to do was make it clear that with this clarification, you are not testifying that the Abo -- that it is well established that the Abo can take all that water, correct?

A. I guess not. I guess I can't make that assumption if that's -- if you are sure that that's where all the water is going to.

Q. Okay. What I am saying the testimony is going to say, there was a test of two perforated zones, not that I'm sure it's going to the Wolf Camp or to the Abo, but I'm saying you can't say it's well established that the Abo can take all that water, correct?

A. Correct.

Q. Okay. So that part of your testimony, if in fact, what I'm asking you to assume, that part of your testimony really is not part of this hearing, is really not something you are prepared to present to the Hearing Officer?

A. Oh, I can't attest to it unless it's made clear to me from the results of your testing that that, in fact, is the case.

Q. Okay. So then let's move on to the next issue --

A. Let's move on.

Q. -- which is -- I just want to clarify this, you're not presenting any testimony, and you're not planning -- you don't have any opinions that this well would affect fresh water, adversely impact fresh water, you didn't testify to that and you don't have any opinions on that, right?

A. I don't have any opinion on that. That is not the issue that worries us.

Q. Okay. So then your issue, as I understand it, is correlative rights and waste?

A. Yes.

Q. Okay. And what, as I understand, you've presented are three exhibits that have various types of information on them. What is difficult for me to tell on your -- let me use this document which is your Exhibit No. 2 -- is the distance from each of these wells to each other.

A. Uh-huh.

Q. Is that on here anywhere?

A. Yes. There's an index map in the lower, left-hand corner that shows where the wells -- This cross-section runs from north to south to the wells shown

on that cross-section.

Q. Okay.

A. So they're almost equally spaced apart.

Q. Okay. So as I understand, that gives a relative distance --

A. Right.

Q. Does that give an actual distance?

A. Well, if you were to measure it off, I'd say that they're all within about a half mile of each other from north -- the first four wells, and then between the Blue Fin 25 and the Albacore, that's something like 2,300 feet maybe, 2,300 feet apart, a similar distance to the well in Section 26.

Q. So what I was trying to do -- I think we could actually do this, is draw the purple line on Exhibit 11.

A. Uh-huh.

Q. And I want to be sure I understand which Blue Fin we're talking about as the same as the top one on your --

A. Yeah. Section 24 on the northwest corner of 24 is one that can you barely read. It says McPhearson. It's been renamed. You'll see it has a different name on my cross-section. But it's been renamed JD&B No. 1 on my cross-section.

Q. Can you circle that?

A. Yes.

Q. And maybe draw a line off there an put a number "1" on that or something?

A. Okay.

Q. Or whatever cross-reference you would use.

A. Yeah. And the Payne No. 1 is the well in the southeast quarter of Section 24. And then of course, the Blue Fin 24 is in the southwest of 24. The Blue Fin 25 is in the northwest of 25. The Albacore is in the southwest of 25. And the Slip Jack 26 1, it cuts across into the southeast southeast of 26.

Q. Okay. Each segment is in the range of a half mile?

A. Yeah, except for between the last three wells, they're a little bit closer to one another, I believe. But yeah, close to that.

Q. And the one that you have the inset on?

A. Uh-huh.

Q. Which one is that on the purple --

A. Southeast of 24.

Q. Okay. So if we wanted to do a distance from that to the Albacore, we'd be over a mile?

A. From that well to the Albacore?

Q. Right.

A. Looks like it's pretty close.

Q. Around a mile?
A. Yeah.
Q. Probably a little more?
A. Yeah, maybe a little bit more.
Q. Okay. And that is -- so the record's clear, that's the Blue Fin 24 No. 1?
A. Which one are you talking about now?
Q. The one that's about a mile apart.
A. There's one in the southeast quarter, the Payne No. 1. It's No. 2 on my cross-section, the second from the left on my cross-section.
MR. DOMENICI: May I approach the witness?
HEARING EXAMINER: Sure.
Q. What I was looking for, and maybe you didn't get my question, this inset seemed to be important to you.
A. Yeah. That's the drill stem test.
Q. Okay, the drill stem test. Now where is that well?
A. Oh, that's the Blue Fin 24.
Q. That's what I said.
A. That's that one right there. Not that one.
Q. Okay. So on your inset, where is that?
A. That's right there.
Q. Okay. So that's about a mile?
A. From the Albacore, just short of a mile,

something like 4,900 feet or something like that.

Q. Okay. Are you -- I know you gave testimony about affecting correlative rights for your client. Just so I'm clear and the record is clear, what correlative rights are you talking about?

A. In the Permo-Penn section, which on this cross-section includes the Lower Wolf Camp, the Cisco, and the Canyon. Okay? That's what I define as the Permo-Penn.

Q. Okay. And what rights does your client have to that?

A. You'll have to ask Mr. Beall exactly what rights, but I believe he has all zones.

Q. I'm talking geographically, though, where would the surface of those rights be located?

A. At the surface, from surface to total depth.

Q. Okay. Well, let me say it this way. So if your client had the Permo-Penn 20 miles away, his correlative rights would be affected?

A. I didn't say that.

Q. Okay, I'm trying to pin you down. You're saying correlative rights.

A. I'm saying his rights to the Permo-Penn production in the offset wells, the wells that offset the Albacore.

Q. Okay, in the existing wells. And which wells

are those?

A. That would be -- right now it's the Blue Fin 24 1 and the 25 1.

Q. Okay. And 24 1 is one mile away, and the 25 1 is -- where is that located? So that's 2,300 feet away?

A. Right.

Q. And that's the one that's currently producing that was testified about by two of Gandy's witnesses?

A. Which one now are we talking about?

Q. 25 1.

A. 25 1, yeah.

Q. And where on those two wells -- which are depicted on several of your maps but I prefer to use Exhibit 2, where would the interval that would be affected be?

A. Well, there's several. In addition to the zone that tested oil and gas in the Blue Fin 24 1, there are several zones. Anything that I show in yellow or green would be something that we might want to test, potentially test.

And this is on the basis of what we know from our current production in the other two wells in the area, the Eidson wells, which are even more than a mile away.

But we would certainly test some of those zones, particularly in the upper part of -- well, throughout the

Lower Wolf Camp section. The zone at the base of that red dashed line that I drew across there, which I think is a fairly good correlation of the top of the unit that's potentially a reservoir zone in both Blue Fin wells.

Q. Okay, so that's a red dashed line?

A. Yeah. That's just one. I just put that in there to give an example of a zone that might be correlative into two wells, in the two Blue Fin wells, and also correlative perhaps to a zone downdip from the Albacore well.

Q. And as I understand it -- it's taking me a little while to catch on to this, but both of these Blue Fin wells are producing?

A. They're producing currently from the Chester or Mississippian.

Q. And so what you're talking about is if there were changes made to those wells to perforate other areas, this would be the target area?

A. Not necessarily just in those wells. We entertain the idea of drilling wells just to the Permo-Penn in this area. Before oil prices collapsed, you know, we were entertaining that idea last year.

And we abandoned those ideas because of the economic situation. But not only in these wells, but these wells might lead -- if we were to do these first,

then they would probably set up some additional locations that we want to drill, or we might decide to drill off the seismic and drill a location particularly for the Permo-Penn.

Q. And what is the schedule for the 24 1 to perforate these zones?

A. You'll have to ask Mr. Beall, he's the operator.

Q. Okay, Exhibit 2 shows six wells. Do you have any plans or have you done any studies on any other wells that you would testify -- existing wells that you would testify that would be affected by this application?

A. I'm only concerned with V-F's position out here. No, just -- the Blue Fin wells are the most directly affected by this action. Because there is -- you can almost -- and I think Mr. Smith also showed it, you could show some continuity between wells in certain zones. And that, to me, is a red flag.

Q. Okay. But no other V-F wells are going to be affected?

A. Well, ultimately there's a chance that through time, it could affect wells updip. But, no, we don't have any other existing wells in the area that I would consider in immediate danger of being affected by this action.

Q. Okay. And what is the dip direction of those two wells?

A. Of which two wells?

Q. The two that you're concerned about.

A. Well, if you look at any one of these horizons, like the Lower Wolf Camp or the Cisco, dip is generally from -- apparent dip along this line of cross-section is from north to south towards the Albacore well.

And then when you come up on the Slip Jack 26 1, you're getting back up on the Shoebar high. So the dip is generally into the Albacore.

Q. Now, looking on your Exhibit No. 1, I just want to be sure I understand what the basis for the orange bar is on Exhibit 2.

A. Oh, that was simply to give everybody a visual of where your three production and/or injectivity tests were run, over that general interval, the two up in the Wolf Camp and the one down in -- that straddled the Canyon Cisco border, according to my correlations what -- the one on the bottom would be what you would call the Atoka, about 11,200 or some odd feet.

Q. Okay. So I think you heard the Hearing Examiner ask the question, "Would you put a steel plug 200 feet below the bottom of these?" For the record, I'm pointing at Exhibit 13. Would that occur if there was a steel plug 200 feet below the bottom of those two? Where would that be on the orange?

A. Let me see where his southern -- You're talking about with respect to Zone 2?

Q. No, the bottom one. I think what his question was, "Would you put a steel plug with a plate," or something, "200 feet," as I interpreted it, "200 feet below the bottom of one of those?" If that occurred, where would that be?

A. If that occurred, No. 7.

Q. Where would that be on your orange line?

A. Okay, give me a second and I'll tell you. That would be somewhere right at the base of that green shaded horizon on that south to north seismic section.

See where the green shaded horizon is in the Cisco? It would be somewhere in that interval, right at the base or straddling the base of that interval.

Q. Okay. I guess -- You put the orange line on a different well than the Albacore, so --

A. I put it on the cross line that intersects this line. This is the north to south line. That line that is on there, I just put it on there for visual purposes, it's not implying any more than giving you a visual guide as to where everything is.

Q. Okay. So that's -- if you look on the map next to it, it would be --

A. It would be right at that intersection between

the two lines.

Q. Between the two Blue Fin wells?

A. Yeah.

Q. Okay. If you put it on the Albacore, where would it be?

A. On the Albacore? The Albacore is that well right there. So it would be from here to approximately here. See, your lower set of perfs straddle -- according to my correlation, straddle this line.

Q. Okay, I'm asking my assumption of the Hearing Examiner saying where the plug would go. I'm asking --

A. First of all, what plug are we talking about?

Q. Okay, let rephrase this. The Hearing Examiner asked Mr. Duffey, he would object to putting a plug 200 feet below those perfs that are on Exhibit 13.

A. For what purpose?

HEARING EXAMINER: I'll go ahead and answer that. It's just to isolate the injection interval. We usually require a cast-iron bridge plug within 200 feet of the bottom most perf, just to make sure there's not corroded casing below that that starts taking water down below your perfs.

A. Yeah.

Q. In fact, even if it was 50 feet below, I would try -- My point is, if there was a cast-iron plug 200

feet, 50 feet below where we were actually intending to inject, not where we tested, these maps would be different. These orange lines would be different, they would be shorter --

A. Oh, they would only come up to the Lower Wolf Camp. But the Lower Wolf Camp is a prospective zone to us. So you'd be injecting in a zone that we feel might potentially be productive in the area.

Q. I understand we don't all agree on that, but I'm just trying to agree that -- I'm not sure the orange line is useful for anything, and they're not injecting in the orange line area.

A. No, no, I -- the orange line was simply to guide my visual reference as to where your perfs -- where these two sets of perfs and the one down below what you call the Atoka, where they were in the scheme of things on this seismic, just to get, you know, a feel for where that was.

Q. So it's not meant to depict the injection --

A. No, no.

Q. On your Exhibit 2, for the two Blue Fin wells, where would the injection intervals as shown on Exhibit 13, where would they show up on your Exhibit 2?

A. Approximately correlative to -- well, the upper zone, are you talking about all three of the --

Q. Just the two.

A. Okay, just the two would be approximately correlative to the yellow and green packages within the upper, say, two-thirds of my Lower Wolf Camp section.

Q. Okay. Could you go ahead and circle those?

A. I say approximately correlative, because these individual units interfinger quite -- maybe a little more than that.

Q. Okay. So would you circle and crosshatch those where you contend show where the Blue Fin wells were?

A. Yes. That's assuming that, you know, there is integrity across each one of those sets of perfs if you were to inject into those sets of perfs.

Q. And as I understand it, you've done a lot of work in the Permo-Penn?

A. Uh-huh.

Q. And there is water in the Permo-Penn?

A. Yes. There's water lots of places in the Permo-Penn.

Q. That's all I have. Thank you.

HEARING EXAMINER: Mr. Lakins, any questions?

MR. LAKINS: No, sir.

HEARING EXAMINER: The Dagger Draw, is that an extremely extensive reservoir, is it considered one reservoir, or is it a whole bunch of different little mounds?

THE WITNESS: A bunch of different mound sequences.

HEARING EXAMINER: Okay, sequence of mounds.

THE WITNESS: Sequence of mounds that occurred at various stratigraphic levels. Probably over an interval of approximately 600 feet of different mounds sequences, which is kind of similar to this.

HEARING EXAMINER: So Upper Pennsylvanian, Lower Permian?

THE WITNESS: It might extend into the Lower Permian. I don't have paleo on it.

HEARING EXAMINER: But it's Upper Pennsylvanian, then?

THE WITNESS: Yeah. It's certainly in this range somewhere (indicating).

HEARING EXAMINER: Okay. And it's got low TDS waters in it; is that correct?

THE WITNESS: That particular field, yeah, I think it's sulfur, the water is sulfurous.

HEARING EXAMINER: Sulfurous water, but it's relatively low total dissolved solids?

THE WITNESS: As I recall, yes.

HEARING EXAMINER: Is that one of the identifiers of mounds is the TDS?

THE WITNESS: No. The water quality -- water

counterstream water quality, and in fact water volumes, vary across the board in the Permo-Penn, and even sometimes within a field.

HEARING EXAMINER: Okay. So why would it be so low TDS there at the Dagger Draw?

THE WITNESS: That's a slightly different reservoir mechanism in Dagger Draw. You're talking about a strong water drive reservoir. Highly fractured, vertical fracture.

HEARING EXAMINER: Okay. And yet they're able to put those big volume pumps on there and actually draw the --

THE WITNESS: Draw the water off and -- That's what made Dagger Draw a field, was that when they started doing that, then it went from 19 wells to 480 wells in a hurry.

HEARING EXAMINER: And they have to handle that water somehow?

THE WITNESS: Yeah.

HEARING EXAMINER: You would have to handle water somehow here.

THE WITNESS: They put it in the Devonian in that case in that field.

HEARING EXAMINER: Okay. So in this case, you think -- Okay, a little bit more diagnostics on these

mounds. How do you see these mounds on -- Do you see them on logs, do you see them on drill stem tests, do you --

THE WITNESS: Well, you see them on seismic if you have good seismic control over the area. You see them in samples. I run a lot of samples, and I can identify the different types --

HEARING EXAMINER: Limestone?

THE WITNESS: Yeah, through sample evaluations, running vertical sections.

HEARING EXAMINER: They're just limes, just different --

THE WITNESS: Yeah, they're made up of different -- usually specific to the Permo-Penn -- through the Permo-Penn and the Strawn has the same similar type of development in this well, the algal to graphites (phonetic) type mound sequences. Just like Townsend field and all those fields around there.

HEARING EXAMINER: Townsend is that way?

THE WITNESS: Townsend, it's in -- Yeah. The entire Permo-Penn complex is generally that. That's what drives it. In the case of a Dagger Draw or an Indian Basin, it's heavily dolomitized because of all the fluids that have come up through the fracturing and whatnot.

But here it's a little bit different. That's why I'm saying, every field is different, every chemistry

is a little bit different, water volumes are different from one to the other. You can get a field that is absolutely dry gas, and then go to the next township and it will be wet -- you know, oil and water production.

So it's very hard to predict. And you can't really predict it necessarily from electric logs alone, you have to look at a lot of different factors.

HEARING EXAMINER: You have to look at -- and you run all three porosity logs to look for --

THE WITNESS: Yeah. I always recommend looking at a sonic log, looking at a compensated neutron density, and -- An FMI is actually the most ideal way to do it.

HEARING EXAMINER: The most expensive.

THE WITNESS: The most expensive, but you can see everything at that point. And that's how I define potential in these types of systems and other places where I've tried to convince my clients to complete.

HEARING EXAMINER: Is it Pinnacle Reach you're talking about or are you talking about mounds.

THE WITNESS: They're mounds. They don't grow up, they grow out and down.

HEARING EXAMINER: Out and down.

THE WITNESS: They usually grow in quieter waters which is why you can find them in low areas, particularly since you have a lot of sea level variation

in the system. As soon as you drop sea level, that stuff will prograde on out into this basinal areas, as they do in Townsend, in fields like North Vacuum, you know, that type of situation.

HEARING EXAMINER: North Vacuum Abo.

THE WITNESS: North Vacuum Permo-Penn, or Wolf Camp, whatever they call it.

HEARING EXAMINER: I guess I'm not familiar with --

MR. SMITH: We had sea level changes before man made global warming.

THE WITNESS: That's right. We had global warming up the wazoo in the Permo-Penn.

HEARING EXAMINER: Okay. Well, there's a lot of water that they tested in this well, and we've seen it's low on structure, and you even said it's low on structure.

THE WITNESS: Yes. There's no denying that. I show it on my seismic time map.

HEARING EXAMINER: It's low on structure. And you mentioned something about you would have tested more zones in this well.

THE WITNESS: Uh-huh.

HEARING EXAMINER: You're probably not willing to talk about which zones you'd test.

THE WITNESS: Well, in the Permo-Penn. I would

have tested some of those shows we saw in the Permo-Penn. It took all -- you know. We spent a considerable amount of time completing one of the Eidson wells that I referred to.

Because the operator at the time didn't believe and we just prevailed, you know. "Just keep testing on it, don't give up on it." And, you know, it broke through. It took some time to break through to -- 18 or so days before it broke through, but it did.

HEARING EXAMINER: But there's a caprock on it to seal the --

THE WITNESS: Well, every one of those -- If these mound units are not tied vertically -- and a lot of them are going to be because they overlap, any tight carbonate, any nonreservoir faces between them could be an effective seal.

You don't need shales or anything like that, just a hard carbonate. I've seen as little as a foot of carbonate as an effective barrier between two precious separated zones in the Upper Penn.

HEARING EXAMINER: Is there a lot of other companies or other geologists looking for these Dagger Draw look-alikes or --

THE WITNESS: Yeah. I mean, that's the Holy Grail of the Permo-Penn.

HEARING EXAMINER: There's a lot of wells around Tatum and Lovington that are used for disposal into the zone, isn't there?

THE WITNESS: Yeah. There are some that are being used as water flood, which I find -- you know, which I agree is a hard nut to crack in the Permo-Penn when you have, you know, shingles like that. Because you don't know where the water's going for sure, but it's going somewhere.

But to my knowledge, at least not the area that I'm currently working in, I don't see a lot of disposal in the Permo-Penn. If they dispose anything, they dispose it into the San Andres, which is a great receptacle here, or the Devonian.

HEARING EXAMINER: Yeah, the Lower San Andres.

THE WITNESS: Yeah. These are cased to the top of the San Andres, and then they blow through and then you've got all kinds of porosity developed -- wet porosity in the San Andres.

HEARING EXAMINER: So you're not interested -- or your client wouldn't be interested in buying this well and trying some horizontals, you're trying for some more pumps on it.

THE WITNESS: Well, I can't afford it. You'll have to ask my client.

HEARING EXAMINER: I would, but I'd probably forget the question by the time you'd bring him around, so I asked it now. But this Blue Fin well and this Albacore well, you think, are pretty equivalent as far as potential in the Permo-Penn?

THE WITNESS: Yeah. I may have tested -- If it was me doing the testing, I might have picked a couple other zones to test in there.

But that's because I have a lot of experience in this area, and some things that might be overlooked by some because maybe they haven't done enough or worked enough in this area, we have the benefit of, you know, prevailing on the operator to test on things that might not normally be looked at as prospective.

I might have picked a couple other zones there, but certainly, we have a number of potential zones here in the Blue Fin wells that we don't want to be impacted.

HEARING EXAMINER: Okay. The other Shoebar, Wolf Camp production, is that mounds?

THE WITNESS: Yes.

HEARING EXAMINER: Okay. And were those wells -- could you drill and produce those wells and make decent economics?

THE WITNESS: We have. Yeah. It has been done. It has.

HEARING EXAMINER: How long a life and how many barrels per well would you think?

THE WITNESS: Well, it really varies quite a bit in this area. There are wells down in the deep basin around townsend or east of -- not Townsend, Vacuum north and east of Vacuum north, they make upwards of 300,000 to 400,000 barrels of oil, plus associated gas per well.

HEARING EXAMINER: A lot of gas?

THE WITNESS: Pretty high gas-to-oil ratio. Yeah, they are gassy. And then there are wells that will make, you know, 87,000 to 90,000 barrels of oil, but they'll make it -- you know, they'll just go on and on if you let them, or you can frac them and try to accelerate production in that manner, or drill several close to space wells.

But they are capable in this environment, in this equivalent environment for making upwards of 300,000 to 400,000 barrels of oil. And that's just oil. So if you count equivalent gas, you're talking about half a million barrel potential in some zones in some wells.

I'm not saying that that's what we've got here, we might have more of 156,000 or 160,000 barrel potential like we have elsewhere in an equivalent environment, but that's a sizeable reserve.

HEARING EXAMINER: Yeah. Now, this injection,

if there was some disposal here and you have some depleted Shoebar wells to the west, wouldn't your injection go that way?

THE WITNESS: Maybe, maybe not, it just depends --

HEARING EXAMINER: Maybe it would go off structure, do you think?

THE WITNESS: It might go along structure. There are faults that intervene here. Not any significance faulting, especially not at this level between here and the top of Shoebar where the Eidson wells are, but there is some deeper faulting.

And that's -- the deeper faulting actually has something to do with how these units step out into the basin, as well. So that underlying structural-imposed potter fee helps create these deposits where they are.

HEARING EXAMINER: But they're not Permian, they're Pennsylvanian-aged faulting?

THE WITNESS: No. The major faulting that bounds the west side is actually Wolf Camp, but some of them go up to the Atoka.

HEARING EXAMINER: So you got your Shoebars to the west, and it was productive, and now you're on the other side of a fault here that tested wet.

THE WITNESS: No, we're downdip.

HEARING EXAMINER: Downdip. Okay. What about the -- So there's nothing that they could inject into the Wolf Camp that would not potentially affect --

THE WITNESS: I'm not saying that the whole interval is necessarily productive. There could be wet zones. They could be the water leg of a zone that develops in oil lakes slightly updip of it.

Like between the Albacore and the Blue Fin 25, or the Blue Fin 24, you could have -- and we've seen this time and time again -- water, oil, water, oil, like that syndrome.

HEARING EXAMINER: Laterally?

THE WITNESS: Separate oil/water context. It's not one big connected reservoir, they're separate water/oil contacts, separate oil systems in the section. So you could see that.

And that's what bothers me the most, is even if you convince yourself and test it long enough to prove that that was an actually wet zone, that doesn't mean that that one is going to be.

HEARING EXAMINER: Okay. But disposal would not help sweep more oil to your well?

THE WITNESS: It may, depending on whether or not that zone extends laterally in that direction, but it may also flood the zone.

HEARING EXAMINER: Sweep it out.
THE WITNESS: Sweep it out.
HEARING EXAMINER: So you don't know for sure?
THE WITNESS: You don't know. You don't know.
HEARING EXAMINER: But you said something earlier, that you didn't think Wolf Camp was a decent water flood potential, as well. So you're looking at primary production only as your --
THE WITNESS: You're looking at primary production. The water flood potential on it really depends upon the conductivity of the different mound units.
HEARING EXAMINER: Okay, stratigraphic, geologic --
THE WITNESS: Yeah, it's very stratigraphically controlled, and you don't know what that architecture is going to look like.
HEARING EXAMINER: Okay. The Abo has reefs also?
THE WITNESS: Yeah.
HEARING EXAMINER: So you're not worried about -- Is Abo not a target here?
THE WITNESS: Abo is not a proven target except on the very top of the structure. And there, I think there are several wells on top of the Shoebar field in

Section 26 that made -- I think the best well may have made 77,000 of oil.

HEARING EXAMINER: Okay. What about a separator between this Abo and this well in the Wolf Camp?

THE WITNESS: A separator?

HEARING EXAMINER: Separating -- In other words, if they do only use the Abo as an injection and put quite a bit of pressure on it, are you worried at all about --

THE WITNESS: Well, not being an engineer, I don't know what implication that might have for channeling behind casing or through cement or anything like that, but geologically, no, it doesn't -- You know, there's enough of a gap between the section, enough hard rock between them. Unless there is a mechanical reason for it.

HEARING EXAMINER: Okay. Well, that's all my questions.

HEARING EXAMINER: Mr. Brooks?

MR. BROOKS: No questions.

MR. CARR: That's concludes my examination of Mr. Mazzullo, and that concludes the presentation of V-F Petroleum. I do have closing.

HEARING EXAMINER: Okay.

MR. LAKINS: May put on some rebuttal testimony, Mr. Hearing Examiner?

HEARING EXAMINER: Does rebuttal testimony sound

okay?

MR. BROOKS: Yes. If they want it, they have the right to put on rebuttal if it's responsive to something Mr. Carr put on. And I'm sure if it's not, Mr. Carr would object.

MR. LAKINS: Could we take five before we do that, Mr. Hearing Examiner?

MR. BROOKS: Sounds good to me.

(Note: A break was taken.)

HEARING EXAMINER: We're back on the record.

MR. DOMENICI: Okay, we'll call Mr. Duffey. I have like one or two questions on rebuttal.

HEARING EXAMINER: Okay.

REBUTTAL EXAMINATION

BY MR. DOMENICI:

Q. Mr. Duffey, now, you've heard quite a bit of testimony since you testified.

A. Yes.

Q. And you also had a chance to look at some of the exhibits presented by two geologists. And my question to you is, as a petroleum engineer, have you heard anything that would change your opinion that the use of this well for the injection purposes requested would affect correlative rights -- aversely affect correlative rights or cause waste?

A. Well, the way I understand it, it appeared to me, just looking at the cross-sections, you know, one, there's a lot of detail on here.

But just taking it kind of as a qualitative look at it, what I heard was, the Cisco Canyon appeared to be what -- the majority of interval that they were concerned with correlative rights.

And if you take that out of the equation -- because we have no intention of putting water into the Cisco Canyon -- and just keep that water up to these Wolf Camp zones up at the top and just limit it to there, which is what we intend to do, we're not really going to impact the rates down in those zones that they're concerned about down in the bottom below the Wolf Camp.

I heard testimony that said, yes, we are downdip, confirmed our picture on the structural implications, yes, that the Wolf Camp does typically produce or can produce a lot of water, which we confirmed in the tests that we made.

You know, they pointed out this Blue Fin 25 1, which is a half mile away that may have an interval that could be tested in this Lower Wolf Camp. I think that we've demonstrated that -- we believe that it's wet. I don't think anything was presented that would change our idea on that.

As far as these carbonate mounds go, and they pointed out a well that's well over a mile and a half away that is supposedly in some kind of a mound, I'm not really sure what bearing that may have on -- on down where we are down in the lower area. But they alluded to that maybe we didn't test for water long enough -- or we didn't test long enough, that when they tested a well further on one of these mounds, after 18 days -- We don't know what they saw during the 18 days. You know, what kept them out there testing? Did they see a little bit of oil? Did they see a rainbow that got better? We just don't know what they saw.

But to sum it up, I didn't hear anything in the testimony that said we're going to be infringing on somebody's correlative rights by injecting into the Upper and the Lower Wolf Camp.

Q. That's all I have. Thank you.

HEARING EXAMINER: Thank you, Mr. Duffey.

MR. BROOKS: Does that conclude your rebuttal?

MR. DOMENICI: That's my rebuttal.

MR. BROOKS: Okay. I'm always confused at the OCD by the way people do closing statements in some kind of order where people choose which -- Because I'm accustomed to the plaintiff goes first, then the defendant, then the plaintiff gets a rejoinder. But I

guess since the custom around here is to ask people's preference --

MR. CARR: I don't care.

MR. DOMENICI: We don't care either.

MR. BROOKS: If they're not going to object, you can go ahead, Mr. Carr. Then I'm going to let them sum up, which would be their right anyway.

MR. CARR: May it please the Examiners. Gandy Corporation is before you seeking authorization to inject into a 1780 foot interval in the Abo and the Upper Penn formations.

They are not the operator of the well. They will become the operator of the well only if this is approved, and they will only own the wellbore. In this circumstance, they have nothing at risk. They have no correlative rights.

V-F Petroleum offsets the property. They have a well 2,100 feet away, and they object because they believe what is proposed would put reserves at risk causing waste, and their correlative rights will thereby be impaired.

As the Oil Conservation Division, it is your duty to prevent waste and protect correlative rights. And you are the two who will have to review the evidence in this case and decide whether or not their application can be granted without causing waste and impairing correlative

rights.

And the decision is yours, not Mr. Duffey's. We know what he thinks. We know that he thinks there are things about what we presented they didn't know. But they didn't ask.

And now they will try and suggest by calling their engineer to pass judgment on all our geologists, they somehow should be able to influence your decision and your petroleum engineers. You're attorneys, you can make these decisions.

But it seems like when we're talking about correlative rights, maybe we ought to go back for a minute and remember what they are.

Correlative rights means by statute the opportunity afforded to each interest owner in a pool. We're the only interest owners in this pool before you today to produce without waste our just and reasonable share of the reserves in that pool. It is the opportunity to produce.

And Gandy coming in here owning just a wellbore with an idea of it will help them make money, doesn't have a right to inject. They have to come in here and show you that if they do, it won't cause waste and it won't impair correlative rights. And I will tell you that they have failed to meet that standard for several reasons.

First, the injection interval is simply too large. Two pools. They're not going to segregate this. When they put a barrel of water in the ground, you don't know if it's going into the Abo, you don't know if it's going into the Wolf Camp if you approve their application.

But they came in and they said, "We're not going to hurt anything because the zones are wet because of the production tests. They have given information on it in their Exhibit 3. Nothing more than what's on the C-103 filed with you.

And when I asked Mr. White about, "What is a production test? Is this a production test?" You may recall, he shied away from calling that a production test.

And we asked Mr. Duffey about the production test. And he said, "Well, I got that from Mr. White." And then you come along and you ask Mr. Smith about it, and he said, "I have nothing to do with that thank God."

So we have a production test that establishes that the zones are wet and everybody runs from it. And when you look at the cross-sections and the data provided by Mr. Mazzullo, you can see they didn't test most of the zones where it had shows on mudlogs.

And the test were woefully short. The Dagger Draw would never have been discovered if we cut our, quote, unquote, production tests off after two or three

days. The Blue Fin 24 would not be a great well if we cut our production tests off, if we cut them off after two days. They simply have not shown that the zones they put at risk are wet. And they needed to do that.

And then we get to the Abo. And this is curious to me. We talk about injectivity testing. We submit to you that that has been done, and it's inadequate. Again, we can't find a witness who will step up and actually support these injectivity tests.

But as we saw from the evidence in this case, the injectivity testing showed that the Abo would take water, and when the Penn was added, it would take more. But we don't know how much water will go into either zone.

But as we heard their testimony, it sounded to us like the Abo alone would take the 5,000 barrels that they were asking you to give them the authority to inject.

And Mr. Domenici took real issue with that and he corrected Mr. Mazzullo and said the Abo wasn't tested alone, it was tested with the Upper Penn.

And we don't really know what to believe here, Mr. Jones, because if you look at Mr. Duffey's testimony, in his Exhibit No. 7, the last two sentences in the paragraph that starts, "Abo Reef," "The Albacore 25 Com No. 1 recently tested one hundred percent water from the Abo perfs 8,918 to 8,952."

And then when I look at their Exhibit No. 2, the production tests, those are the Abo perfs. That's where the injectivity test was run.

And the next sentence says, "A subsequent injection test that isolated the Abo zone from Wolf Camp perforations below indicate good injectivity."

We don't know whether to believe the statements of their counsel or the evidence presented by their expert witness. But the evidence says the Abo was tested separately and indicated good injectivity.

And you may recall the testimony this morning, there was discussion about, "We had to put pressure on the Abo and we could only get four barrels a minute into the zone."

And right before lunch, the question was posed by Mr. Lakins that if you had four barrels a minute, what would that be a day? And it came in at around 5,500 barrels, more than what they're asking for authority to inject.

Now, I'm not going to argue here what I heard against what Mr. Domenici may believe, but it will be easy to find in the record, because the evidence is immediately before lunch and it is in Exhibit 7.

And if what they say and what they offered to you is correct, they don't need the Upper Penn. The

problem we have with Gandy's presentation is they don't know how much water they're going to put where. And I mean perforation.

And then if we listen to Mr. Duffey in his testimony about the formation, once it's there, we don't know where it will go. And on this record, they haven't shown that what they're proposing can be done without putting reserves at risk, or that what they ask you to permit them to do will not cause waste and impair correlative rights, our correlative rights. Because Gandy owns none. They own nothing but the wellbore itself.

But look at the evidence we presented. We presented mudlog shows and offset wells in the injection interval. We provided you with a drill stem test on the Blue Fin 24 that tells the whole story.

It shows production coming from correlative intervals from the intervals from which they propose to inject. You know, they may not be concerned about what the shows of the reservoir are, but I would submit it's because they're concerned not about waste, but just about how much water they can get in the ground.

The history of the area and the wells in this pool show that with similar and more shows, great producing wells can be obtained.

And I believe on the record of this case when

you look at it as a whole, you'll see what they're proposing impairs our ability to produce the reserves under our tract. It denies us the opportunity to do that, and thereby impairs our correlative rights.

And simply, the need of the industry to have a place to put water doesn't justify damaging a formation or pushing operators to where they may have to drill and develop properties in improving waste.

I think it simply boils down to this. On this record, you can't approve this application. Because there is no record. Every single thing they've presented, they haven't followed up. They don't have witnesses to respond or the data upon which it can rest.

And I would go beyond that to say that on the facts of this case, you could never approve this application.

HEARING EXAMINER: Okay.

MR. DOMENICI: What I heard and what the evidence will show -- and I think you guys usually get the transcript before you write your decision, we never heard of a tract that they own. We heard -- tried to find out what they are claiming.

And all we heard was two wells, actually, that they're concerned about that they have correlative rights in. I don't know which tract Mr. Carr is referring to,

because it's not in the evidence anywhere, no one testified to it.

They did give us two well logs for the two wells that they control. One of them we showed you the production charts on that well which indicate it's highly unlikely it's going to be changed. It's very productive and very steady and stable.

Also, at the level we're injecting, if you correlate the mudlogs, it's the same type of formation we had that we think we sufficiently tested and found is behind water and not productive, enough that we're not going to go any further, or that the owner who came and testified said he's not going any further.

He was prepared to plug that well, go to the expense of plugging it after making his investment. So that's one well.

The other well is over a mile away. Again, we don't know what else they own in that tract. They're saying, "We only own --" Well, we don't know what they own other than that well, which we'll take at face value, even though it was just their geologist testifying.

And there's absolutely no proof the water is going to get that far. In fact, the proof by their own geologist is really different. It's that we know where this water goes, but there's lots of water in this zone.

This is downdip. It probably will go to other directions, to other wells that have been pumping.

So there is nothing indicating that well is at risk or that correlative rights associated with that well are at risk.

So they're really asking for a huge leap to be made drawn off of some interesting data to say "Our correlative rights would be affected" when what they've actually shown is a well that's producing.

It's going to continue to produce, and it's a well that's a mile plus away and there's no indication it's ever going to see any water from this injection well.

So I don't know if that's an overstatement or an oversimplification, but that's what I gathered from their testimony they can show -- I don't think they really did show mudlogs correlating, but they showed a drill stem test at a much lower level of something that looks like it might be workable.

That's totally irrelevant since there's no indication that our water would get to that level or affect that production in any way.

So I think we have proven our elements. No one is objecting, obviously, to fresh water. No one is objecting to injecting into the Abo. We are certainly prepared to put a seal immediately below our injection

areas which knocks out much of these maps, whatever they intend to show; much of it becomes clearly irrelevant.

And what is left as possibly relevant is totally speculative, that from an engineering perspective, that water would go in that direction in such a rate as to -- uphill to affect their rights in that well. It would be pretty hard to speculate as to what their rights are other than they have a well.

So I don't think -- And I think our burden is, we're the only party that joined the case, that presented any kind of correlative rights. I think we've shown it doesn't have to be affected.

And I think we've shown there won't be waste to reserves because no one else has stepped forward and said this kind of -- more or less -- I won't call it speculative, more or less unique methodology is going to occur around this well or that people have rights and people have the economic incentive or economic justification to pursue this in a way that I think meets the burden of proof that if you -- that you would likely believe it.

I'm not saying they don't have that plan. Sounds like they do. But they didn't prove we're going to harm their plan. And they didn't prove anybody else is following that plan.

We brought another operator in and he's not prepared to do it. We bought our geologist in, and he's not prepared -- who is also an operator, and he's not prepared to take those kinds of risks.

So there's no one else indicating they're prepared to take these kinds of risks. And these are the rules that you've set. Very unpredictable, full of water, and the two wells they have, are not going to be impacted.

So we would like to see the permit granted.

HEARING EXAMINER: Okay. Thank you both. We have one thing that I should have brought up initially. On Friday, I checked the Rule 5.9 status of both Primero and Gandy, and Primero is okay, Gandy needs a bond posted on an inactive well. We have Rule 5.9. We can't grant -- David, you better --

MR. BROOKS: We can't issue an injection permit to someone who is out of compliance. And my understanding is, according to the OCD's computer record, Gandy owes us an inactive well bond on the State T No. 2.

HEARING EXAMINER: So the issue of whether we keep the record open until that happens or --

MR. BROOKS: Well, since we've already had the hearing, I think we can take it under advisement, but we can't issue the order. And if they don't do it within a reasonable period of time, then they have to dismiss the

case without entering an order. Because we can't grant it.

I guess unless we decide to deny it. We can deny it, but we can't grant it when they're not in compliance.

MR. DOMENICI: We have plugged this well and have not been able to get it off your computer data base. So I don't know exactly how we're going to deal with that situation.

MR. BROOKS: Well, normally, if the well has been plugged and abandoned -- has it been plugged and not released?

MR. SMITH: It's been plugged and released, and checked with the State, and we've sent papers in three times and it has not -- the bond has been released.

MR. BROOKS: Well, you need to come talk to the district supervisor, then, because they're the ones that do the approvals.

MR. SMITH: We have contacted him and we'll contact him again.

MR. BROOKS: Which district is that in?

MR. SMITH: Lea County.

MR. BROOKS: Okay. So that would be Buddy. Yeah. Buddy's kind of a country boy, but he's a reasonable man, and I think if he has a reason, he'll tell

you, and if he's made a mistake, he'll correct it. And if you can't get an adequate response, you can always ask for a hearing.

HEARING EXAMINER: Okay, let's take Case 14330 under advisement. And that being the last case on the docket, this docket is closed.

(Whereupon, the proceedings concluded.)

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

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

REPORTER'S CERTIFICATE

I, PEGGY A. SEDILLO, Certified Court Reporter of the firm Paul Baca Professional Court Reporters do hereby certify that the foregoing transcript is a complete and accurate record of said proceedings as the same were recorded by me or under my supervision.

Dated at Albuquerque, New Mexico this 7th day of October, 2009.

PEGGY A. SEDILLO, CCR NO. 88
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