BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF APPLICATION)
FOR PERMIT NO. 63-32573 IN)
THE NAME OF M3 EAGLE LLC)
_____) VOLUME XV

(Pages 3403 through 3635)

BEFORE

HEARING OFFICER: GARY SPACKMAN

Date: July 22, 2009 - 9:00 a.m.

Location: Idaho Department of Water Resources
322 East Front Street
Boise, Idaho

REPORTED BY:

JEFF LaMAR, C.S.R. No. 640

Notary Public

APPEARANCES:

For M3 Eagle LLC:
GIVENS PURSLEY LLP
BY MR. JEFFREY C. FEREDAY
MR. MICHAEL P. LAWRENCE
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Boise, Idaho 83701-2720

For North Ada County Groundwater Users Association:
BY MR. JOHN THORNTON
5264 North Sky High Lane
Eagle, Idaho 83616

For Eagle Pines Water Users Association and Individually:
BY MR. ALAN SMITH
3135 Osprey Road
Eagle, Idaho 83616

Appearing Individually:
BY MR. NORMAN L. EDWARDS
884 West Beacon Light Road
Eagle, Idaho 83616

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APPEARANCES (Continued):

Also Present:
Jason Smith
Bill Lawton
Sean Vincent
Dennis Owsley
Mike McVay
Debbie Gibson

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WITNESSES

EXHIBITS

THE HEARING OFFICER: We're recording again. And this is a continuation of the -- or resumption of the M3 Eagle hearing. The date is July 22nd, and it's approximately 9:05 a.m.

And, Mr. Squires, we're in the middle of cross-examination.

Mr. Alan Smith, I think you were examining Mr. Squires.

MR. ALAN SMITH: Yes.

THE HEARING OFFICER: Okay.

ED SQUIRES,
having been previously called as a rebuttal witness by M3 Eagle LLC and previously sworn, testified as follows:

CONTINUED CROSS-EXAMINATION
BY MR. ALAN SMITH:

Q. Mr. Squires, I believe you said you didn't inspect the Taylor well.

A. That's correct, sir. I've never been to the Taylor well.

Q. So you don't really know if the abandoned well log was correct in stating there was still water in the bottom of the well?

A. I don't know that, no, sir.

Q. Were you present when Mr. Owsley measured the Taylor well?

A. Since I have not been to the Taylor well, I'd say no.

Q. If these well drillers don't know clay from sand, is it possible that the Taylor well log is wrong in stating that it was 116 feet deep when Mr. Owsley measured down 125 and found no water?

A. Are you saying that the well might be 125 feet deep?

Q. That's what I'm asking you, if that's possible?

A. I suppose anything's possible. We've certainly, in our own experience, seen through our research and our camera surveys that wells are often not constructed as they are shown on driller's reports.

Q. Okay. And we were through the Eagle Pines well log yesterday. And both the abandoned well and the new well showed a static level of 112 feet. It appears that maybe that well driller used one of those figures for both wells, whether he measured it or not.

Is that possible?

A. That could certainly be possible. It's quite a coincidence if they're both 112.

Q. Let's go to tab 3. Exhibit 76, tab 3 --

A. Yes.

Q. -- on the Alan Smith questionnaire -- do you have that?

A. Yes, I do, sir.

Q. Item No. 10 asks to "Describe any change in water level or productivity in the last few years," and I answered "None."

Item 11 says, "Do you have records of water levels?" And I answered "No."

You were present at my deposition, were you not, on November 14th when I stated that no monitoring had been done because there had not been any well problems so I didn't know about any change in productivity or the water levels? Do you recall that?

A. I honestly can't recall that deposition that well. But I take you at your word, and that's what it says here, so...

Q. And I believe in your rebuttal testimony you pointed out that I did not agree to allow HLI to inspect my well.

Do you recall when Mr. Fereday asked me why, I said that I --

MR. FEREDAY: Objection. This --

THE WITNESS: I don't recall.

MR. FEREDAY: Objection. Mr. Smith appears to be testifying in a way that is essentially arguing with the witness. I'm wondering whether there's a question here.

THE HEARING OFFICER: Okay. Mr. Smith, I've got an objection. But the objection, I guess, is in the nature of what the question is. I have some concern about the way the questions are being presented.

MR. ALAN SMITH: I'll rephrase the question.

THE HEARING OFFICER: Okay.

Q. (BY MR. ALAN SMITH): Do you recall that I stated that I didn't have my well inspected by HLI because I felt they just wanted to find fault with the well? Do you recall that?

A. As I previously said, Mr. Smith, I honestly don't recall your testimony in the deposition without reading it, the transcript.

Q. And I believe you stated you didn't inspect the Taylor well.

Did you inspect the Banducci well or I believe the other one Mr. Fereday mentioned was the Cummins well?

A. I stated yesterday that I haven't been to any of the wells -- domestic wells in question in this case.

Q. Are you aware that the Banducci questionnaire states that his prior well went dry?

A. I am aware of that, yes.

Q. Speaking of the M3 project area, would you look at page 240. This is Exhibit 12, the 16 aquifer tests.

A. The page number again?

Q. 240.

A. Yes.

Q. Would you read that last sentence to us, please.

A. The last sentence on 240?

Q. Correct.

A. "These high-capacity wells will cause drawdowns that will affect other wells."

Q. All right. Would you go to the next page, 241.

A. Yes.

Q. Would you read the last sentence in

that first paragraph, "Development of additional municipal groundwater."

A. Sure. "Development of additional municipal groundwater supplies and associated water table drawdowns may require some existing wells to be deepened and/or replaced."

Q. And would you read the next item, I believe it's No. 20.

MR. FEREDAY: Mr. Hearing Officer, again, we must object. Just having this witness read from a document that's already in evidence is not asking a question, and we have the same objections as we had before.

THE HEARING OFFICER: Okay. Mr. Smith, I assume there is a question coming out of this recitation.

Q. (BY MR. ALAN SMITH): Well, let me ask it this way, Mr. Squires.

Does that statement in that paragraph 20 not say that the artesian wells will stop flowing and pumps may have to be installed?

A. I don't think it says that the artesian wells will stop flowing. What our -- what we're making -- the points that we're making in these conclusions and statements are that

water -- groundwater production from the aquifer results in water-level drawdowns in the aquifer. That's just the laws of physics.

And when there are some wells that perhaps would be flowing at the surface, for example, they might have an artesian head of few feet flowing above ground surface. If the water level and water pressures in the aquifer would cause that to lower by a few feet, well, that well would no longer flow at the surface.

Q. Okay.

A. And I guess I would elaborate on that -- excuse me for cutting in. But similarly in the ground, it's really the same thing. If you had a well that had only a few feet of water in the bottom of it -- let's say you had a well that was 114 feet deep and you had a water level of 105 feet, and you have the water level in that well lowered by 5 feet, well, you would lose in production and you may have to lower your pump. Or it may -- or the water level could be drawn down to where it would not be possible to pump without deepening the well. That's what we're saying here.

Q. I believe you stated that the

protestants could deepen their wells yesterday in your rebuttal testimony.

Of course, that places an economic burden on those homeowners, does it not?

A. It certainly costs money to deepen or replace wells.

Q. And you realize most of those homeowners don't have a large investment fund backing them like M3 does?

MR. FEREDAY: Objection. Foundation and asks for speculation.

MR. ALAN SMITH: I'll withdraw the question.

We'd like this marked as I believe our next exhibit, 430.

(Exhibit 430 marked.)

MR. ALAN SMITH: 430 is the correct number?

THE HEARING OFFICER: Okay. We have the document. It's marked, Mr. Smith.

Q. (BY MR. ALAN SMITH): Do you have that?

A. I do.

Q. Would you notice there that that's a memo from Lane Pump dated July 21st, 2009, yesterday.

A. I do.
Q. And would you look at the static levels that were measured June 17th of 2005 and July 25th of 2006.
A. Yes.
Q. Doesn't that show a 4-foot drop?
A. Between June and July, between the June 17th measurement --
Q. June of '05 and July of '06.
A. Yes.
Q. And of course, that measurement is taken during the irrigation season. We realize that.
But it does show a drop of 4 feet in that one year?
A. It shows that the water levels at the time of measurement were 4 feet different between June 17th and July 25th.
MR. ALAN SMITH: We would offer Exhibit 430.
THE HEARING OFFICER: Mr. Fereday?
MR. FEREDAY: Well, we would object to the admission of this. We don't have any foundation for it other than -- it's not addressed to anyone, nor is there anyone here to testify about it. We

also note that these dates are far different -- they're in the middle of the irrigation season when water levels are typically low. So we question whether it is probative of the point that it evidently is intended to prove.
MR. ALAN SMITH: It goes to the weight rather than the admissibility. We recognize that it was taken in the summer during the irrigation season. It still shows a drop of 4 feet in the static level in one year.
THE HEARING OFFICER: Okay. Well, I'll receive it into evidence, Mr. Smith, but I will tell you that the document, at least in its present form, has little value to me without some additional information about what these measurements are and what importance they have. I'm not sure 4 feet of fluctuation during the irrigation season one way or another makes any difference or is really an indicator of what direction water levels are headed.
(Exhibit 430 admitted.)
MR. ALAN SMITH: Very well. The Hearing Examiner can give it whatever weight he thinks it's entitled to. That's fine.
I have no further questions.

THE HEARING OFFICER: Okay. Mr. Edwards?
MR. EDWARDS: Yes, I have a question for Mr. Squires.

CROSS-EXAMINATION
BY MR. EDWARDS:
Q. Yesterday in your testimony you covered -- let's see -- No. 76. And it was tab No. 4?
A. Yes.
Q. And which happens to be my questionnaire that I sent in to you for my well information. And a couple items on there that I wanted to express to you and see what your feelings were on it.
On No. 5, I show that my well was drilled in 1972, April?
A. Yes.
Q. And then we go down to No. 6, the well was 145 feet deep, and the depth to the water was 68.25. And I put a date behind that of September 11th, '08. And the reason I did that was I knew that you had --
MR. FEREDAY: Mr. Hearing Officer, we're going to have to object, at least by -- we don't

mean to cut off this lay party from inquiring. However, we do request that the questions be put to Mr. Squires, and that the party not simply testify as to -- and add facts that are assumed facts or asserted facts into the record without foundation.
THE HEARING OFFICER: Okay. And really, Mr. Edwards, this goes back to the original discussion we had about cross-examination, that your responsibility as a party, if you're examining someone, is to ask questions and not give testimony or statements of your own knowledge. And so -- and I said I would be assertive in limiting that kind of presentation of information.
So rather than talking or telling Mr. Squires the reason that you did something, if you'll just ask him questions about what's here, and then see what his responses are.
Then if you want to talk about this questionnaire itself, you'll have a chance to do that on surrebuttal, because this was brought in through the rebuttal testimony of the applicant.
MR. EDWARDS: Okay. Can I present a couple of items here, then?

THE HEARING OFFICER: Sure. Yeah.
MR. EDWARDS: And this would be No. 432.
THE HEARING OFFICER: Do you want this marked, Mr. Edwards?
MR. ALAN SMITH: Marked as an exhibit, yes. There's two, 431 and 432.
Or are you doing them together?
MR. EDWARDS: Okay. See if I can ask you a question, then.
Q. What was the depth to the water on the well on sentence No. 6?
A. 68.25 feet below some data.
Q. Okay. And when was that shown it was taken?
A. It's noted as September 11th, 2008.
Q. Okay. Would you look on Exhibit 431 that I handed you.
THE HEARING OFFICER: We have not yet marked this, Mr. Edwards.
Do you want this marked as Exhibit 431?
MR. EDWARDS: Yes.
MR. ALAN SMITH: Yes, the letter of September 17th.
(Exhibit 431 marked.)

Q. (BY MR. EDWARDS): That is the letter from Dennis Owsley?
A. Yes.
Q. Does that verify that the 68.25 was the depth to my water?
A. Yes.
MR. ALAN SMITH: Mr. Hearing officer, we'd mark this as Eagle Pines Exhibit 431, rather than a Norman Edwards exhibit, if that's okay. If not, we can remark it.
THE HEARING OFFICER: Yeah, that's fine. So this document will be marked as 432.
(Exhibit 432 marked.)
Q. (BY MR. EDWARDS): Okay. Mr. Squires, look at Exhibit 432, which is dated December 31st, 2008.
A. Yes.
Q. And it also is a measurement and letter from Dennis Owsley that measured the same well.
And what was -- it shows the depth on that one?
A. 68.02.
Q. Okay. Would we say, then, that 68.25 that was taken in September, as yesterday you

stated that it's probably lower because it's during the irrigation time?
A. I said it could be.
Q. Right. Okay. This shows that it was not in the irrigation time in December, the same that it was in September, within 5/100ths of an inch?
A. From those two measurements you could infer that. But I don't see -- I wasn't there when I measured the well. I don't know if the water level in your well might have been recovering during the early measurement, perhaps it had been used that day. There's no time of day. I would agree that the water levels are fairly close together.
Q. And I was there when it was measured both times, and there was no pumping --
MR. FEREDAY: Objection.
THE HEARING OFFICER: Okay. Again, Mr. Edwards, you're now testifying and giving your opinion of the facts. You need to ask Mr. Squires questions of what he knows, and you'll have a chance to testify about your own knowledge of it.
Q. (BY MR. EDWARDS): Are you aware that I was there when those measurements were taken?

A. I wasn't aware of that.
Q. All right. And as a statement, I was there.
THE HEARING OFFICER: Okay. Again, see, if you want to put facts into the record, Mr. Edwards, you can do that on direct testimony. But you don't need to tell Mr. Squires that. You just ask him questions about his knowledge of the facts.
MR. ALAN SMITH: Norm.
MR. EDWARDS: Okay.
THE HEARING OFFICER: Thanks.
MR. EDWARDS: Well, I have no further questions.
THE HEARING OFFICER: Okay. The two documents that you asked to be marked, do you wish to offer those as evidence, Mr. Edwards?
MR. EDWARDS: Yes.
THE HEARING OFFICER: Okay. Mr. Fereday?
MR. FEREDAY: No objection.
THE HEARING OFFICER: Okay. They're received into evidence.
(Exhibits 431 and 432 admitted.)
THE HEARING OFFICER: Mr. Fereday, redirect?

MR. FEREDAY: No questions.
THE HEARING OFFICER: Okay. Thank you, Mr. Squires.
THE WITNESS: You're welcome.
THE HEARING OFFICER: Finished early.
MR. FEREDAY: We call Dr. James Osiensky.
THE HEARING OFFICER: Yes, Mr. Thornton.
MR. ALAN SMITH: Were we going to have a chance for the public witness in between?
THE HEARING OFFICER: I'm sorry. I did mention that, and I'm sorry I overlooked it.
So if you'll come forward, sir. And I don't know your name.
MS. GIBSON: Gary, can we break the record?
THE HEARING OFFICER: Just a minute. Let's go off the record.
(Discussion.)
THE HEARING OFFICER: Okay. We're recording again.
Come forward, if you would. Raise your right hand.

JACK VANWYK,
appearing as a public witness,
was duly sworn and testified as follows:

THE HEARING OFFICER: Thanks.
Please be seated. And if you would, state your name for the record, spell it, and then also give us your address.
THE WITNESS: My name is Jack VanWyk, capital V-, as in victory, a-n-, capital W-y-k. My address is 2184 West Valli Hi Road, Eagle, Idaho. Valli Hi is spelled V-a-l-l-i, capital H-i. 83616 is the ZIP.
THE HEARING OFFICER: Okay. And you may narrate your testimony. Tell us why you're here.

DIRECT NARRATIVE TESTIMONY

THE WITNESS: I am a member of the West Ballantyne Water Users Association, and we have an irrigation well that is located on the west side of Ballantyne Road approximately, give or take, a quarter mile south of Homer. So that would be township 5 -- well, I have maps here that might be of a little bit of assistance they made copies of if -- I assume they'd want to put them into evidence. I don't know who to give what, so...
The papers consist of a predrilling well log that's just being completed as we speak. There is a map showing the property owners in the

West Ballantyne Water Users Association. And behind that is a map showing the location of the well, township 5 north, range 1 east, section 31 that was prepared by the Department of Water Resources when we put our -- validated our claim for our water right for this well.
So whom else do I need to give these to?
THE HEARING OFFICER: You need to give a copy to the applicant, so Mr. Fereday should receive a copy. And then the three protestants: Mr. Thornton, Mr. Smith, and Mr. Edwards.
MR. THORNTON: Thank you.
THE WITNESS: Briefly, this well -- we established a 1963 water right on this well based on a serial number of the turbine that had been put in. We had been unable to locate an original well log. We had used the well consistently over the years.
And at the time we put our application in to establish our water right, Dan Nelson from the Department came out and estimated the flow out of the well at approximately 450 to 500 gallons per minute. That established our water right flow rate of .94 feet per second, which is in the water

right.
Earlier this year when it was turned on, the well was turned on for the first time for use, apparently -- I was not there so I cannot say specifically, but apparently it vibrated substantially enough to drop the oil drain plug out of the aboveground motor, which, of course, once the bearings went dry, froze and destroyed everything.
We had the pump and motor pulled. And when they pulled it, they had to literally pull it out of sand out of the bottom of the well. The pump was set, I believe, at approximately 120 to 130 feet.
After removing the well -- the pump and motor, the company test-pumped the well, first checked the depth. At that point it was 143 feet. Test-pumped the well, and could only get 118 gallons at 102 feet of drop.
Obviously, because of that we needed to redrill the well. And this is the well driller's report, which this is being completed literally as we speak. They were test-pumping yesterday and will have the hard numbers on some of the stuff probably sometime today.

The new well driller -- basically, what we did, we had a 10-inch and just drilled down an extra 110 feet to approximately 255 feet with 8-inch casing, so we just went through the existing well.

He estimates the static water level to be 110 feet, which, I believe, is probably substantially lower than what it was in the past, but I have nothing to substantiate or document that.

The cost to do this to us is in the -- we do not have a final bill, but the estimate is approximately $11,500, and that's strictly for deepening the well. We still have now an additional expense of replacing both the pump and motor. We have various costs on that. It kind of depends on what we'll be doing with that.

One of the other members of the Ballantyne Water Users Association is Lonnie Morris. He happens to be my next-door neighbor. His address is on Ballantyne, but he's directly north of me off Valli Hi. And I have a letter that he asked me to present.

MR. FEREDAY: Objection. If this -- I think this witness can testify what he knows. But

if Mr. Morris wishes to place evidence in the record, I think he needs to be here. I think that's only fair until under your ruling with regard to public witnesses.

THE HEARING OFFICER: Well, we have been accepting letters, Mr. Fereday, from people that come in.

THE WITNESS: My understanding is he would like to be here and present this himself, but due to his concerns -- one of his main employees is in New York for an extended period of time -- he is unable to leave his business at this point in time. He asked me to present it.

THE HEARING OFFICER: Do you have copies?

THE WITNESS: I do have copies, yes.

THE HEARING OFFICER: Why don't you distribute those as well.

THE WITNESS: Okay.

MR. FEREDAY: Thank you.

THE HEARING OFFICER: Mr. Fereday, I'll just bring this in as a letter of comment, as we've received other letters.

MR. FEREDAY: Okay.

THE WITNESS: May I read the letter into the record?

THE HEARING OFFICER: No, I think we won't do that. I think we'll just accept it as a comment letter, and I'll look at it along with others that we've received.

THE WITNESS: Okay. I drilled my own well on my property in 2006. And the static water level -- I wish I had gotten a report, but I did not do so. But the static water level in that well I believe was 80 feet, to the best of my memory.

I have not recently checked it again, but I suspect that that probably has gone down.

I don't know if there is anything else that I can testify to at this point in time. So I appreciate you taking the time to listen to me.

THE HEARING OFFICER: Okay. Now, because you have come to testify, the parties have an opportunity to examine you --

THE WITNESS: Okay.

THE HEARING OFFICER: -- and to elicit a response based on what you've said.

THE WITNESS: Okay.

THE HEARING OFFICER: And the convention, Mr. -- is it VanWyk?

THE WITNESS: VanWyk.

THE HEARING OFFICER: Mr. VanWyk, the convention that we've followed in that questioning is those parties who -- at least I perceive to be aligned with your point of view will ask you questions first, and then -- and that would be the protestants, and then the applicant will have an opportunity to examine you regarding all of your responses.

So, Mr. Thornton, do you have questions for Mr. VanWyk?

MR. THORNTON: Yeah, I do.

CROSS-EXAMINATION

BY MR. THORNTON:

Q. Mr. VanWyk, thanks for your time and your schedule to come and provide some testimony. How long have you been associated with the Western Ballantyne Water Users?

A. West Ballantyne Water Users Association. We formed that -- I have owned the parcel of land that I'm on since approximately 2003 is when I purchased it. The association was formed in late 2003, early 2004, a little bit on my behest, because they had not ever applied for the water right on this well, yet they had been

using it for years and years and years.
And being somewhat familiar with water rights and their implications and what have you, I said this is something that we need to get accomplished now.
Q. And how did you get that accomplished?
A. Well, first of all, we attempted to locate any potential well logs for when the well was actually drilled. We were unable to find anything.
Secondarily, I contacted Idaho Power to see if they might have a record of when the original meter box and panel might have been set. But they had purged all their records prior to I believe it's 1992.
We then talked to several neighbors that had been in the area for an extended period of time. One gentleman across the street from me has lived in the area for well over 40 or 50 years, most of his life. And he recalled irrigating the ground with this well water at some point in time in the early -- late '50s or early '60s. That's not a real good validation, but it was a starting point.
Then, due to my familiarity with pumps

and turbines and what have you, I took an opportunity to pull the serial numbers off both of motor and the turbine. The turbine was manufactured by Lane. And I contacted the company to see if they might have any old records indicating when that turbine was manufactured, potentially giving us a date when it might have been installed in the well.
And they came up with an invoice in August of 1963 of shipping the turbine to be placed in that well.
Q. So did you have to pull the pump to get that?
A. Pardon?
Q. Did you have to pull the pump to get that?
A. No. There's numbers on a plate, plate right at the surface.
Q. Okay. And then could you describe what and how that pump was -- and the water flow was functioning for the years that you have been there.
A. For the years that I've been there up until this year, it's functioned fine. It's -- as I noted, when we were establishing this water

right, Dan Nelson from the Department came out and inspected the well. We turned it on and estimated the flow, based on criteria that's pretty accurate, actually.
And he estimated the flow, as I said, somewhere around 450 to 500 gallons per minute, which then that was utilized to establish our -- the amount -- the quantity of water we would be allowed under the right.
Q. And what date was that?
A. That was approximately May of 2004.
Q. And how was it functioning, in your judgment, through the irrigation season last year?
A. Last year? I'm not aware of any problems with the well at all.
Q. Okay. And as a user of the well, you kind of have daily, weekly observation of how the irrigation is going?
A. Yeah. There's a number of landowners in the group, and we don't have any set schedules as to who's using it when. We do keep a log of that for billing purposes, which has been rather loosely done lately.
But as I say, to my knowledge, no one's brought any issues forth or indicated any

problems with flow or quantities of water.
Q. Okay. And if I understood you correctly, when your group turned the pump on at the beginning of this year is when you noticed the problem; is that correct?
A. My understanding is one of the water users -- one of the users turned it on and I guess went to set his pipes.
Q. Okay.
A. And when he came back, the -- things were pretty well fried, I guess might be the best term.
Q. Okay.
A. And they got the pump company out, who pulled the motor and turbines. And as I said, I was told that the turbines were buried in sand. And they had to yank them up out of the sand to get them out of the well. And of course, the motor with dry bearings don't run very well.
Q. And which pump company was that?
A. That was Burgess Pump Company, to my knowledge.
Q. Okay. And did Burgess Pump Company identify what they thought the problem with the well might be?

A. They indicated that given that there was a lot of sand in the well and they buried the turbine, that because of the lowering water tables in the area that that was causing the well to pull sand in from the outside strata, you know, is -- my understanding is if you pump something at a given rate and water does not readily flow, it's going to kind of pull things from outside the well casing into the well.

Q. And did you know what depth your well was?

A. The current driller when they -- Burgess pulled the pump, they measured it to be 143 feet. The well driller, in my conversation with him yesterday, indicated that when he started drilling at the 143-foot level, he thought possibly that the well had filled in substantially.

MR. FEREDAY: Objection. We're going to have to object to this hearsay. We've allowed some of this hearsay evidence to come in, but I don't think there's any reason to allow him to testify what the well driller told him.

MR. ALAN SMITH: Hearsay's been allowed.

MR. THORNTON: If I could say something,

Mr. Hearing Officer?

THE HEARING OFFICER: Yes, Mr. Thornton.

MR. THORNTON: Again, I'm not a legal expert, obviously. But it appears for a public witness he has firsthand discussions with the pump as well as with the well driller. To me it seems some more information to be taken into account. But it seems part of the story to be told. I have no reason to believe he'd be saying differently than what he heard.

THE HEARING OFFICER: Okay. I'll allow some limited hearsay to come in. Again, the rules of evidence regarding hearsay are relaxed. But the threshold, I guess, that I don't want to cross in this hearsay is when Mr. VanWyk or hearsay related to the cause of why this well failed, I think I don't -- I don't want to go into that or allow that kind of testimony.

But some testimony about what the well driller encountered when he was drilling, I think that's okay with me, Mr. Fereday.

So I'll overrule the objection right now. But I want to caution you, Mr. Thornton, Mr. VanWyk, that hearsay where I have a pump installer speculating about the cause of the well

failure I think is beyond probably the expertise of the person who's giving that information, and as a result, I think that's very suspicious, and its credibility is suspect. So I'll limit testimony on that subject.

So go ahead and let's see where it goes.

THE WITNESS: The well driller indicated that he felt that potentially the original well may have been drilled down to 175 feet, because he hit a clay layer at that point and that's when he -- when he got through that clay layer is when he started picking up some water stratas.

Obviously, I have no -- we were unable to find any well logs. I have no documentation as to how deep that well might originally have been. At any rate, we did deepen the well, as I noted, to 256 feet.

Q. (BY MR. THORNTON): Okay. And do you have firsthand knowledge of any neighbors or folks around you in that area that have replaced their wells over the last few years?

A. About 200 feet to the north and on the east side of Ballantyne, I believe the property owner's name is Wilson, just recently had to do

primarily the same thing: deepen his well and replace it. I have no knowledge of exactly what the circumstances were, other than I know who drilled the well. And I was -- I was -- it was indicated to me they went to a similar depth that we went to.

Q. Okay. And then your neighbor, what is the situation that you know from talking to him?

A. In talking to Lonnie, my understanding is his well went dry, and he had to deepen the well. Beyond that, I really couldn't --

MR. FEREDAY: We're going to have to object. I don't think -- there's been plenty of testimony here about the unreliability of the "went dry" phrase. And I think that him testifying as to what his neighbor believed on that score is out of bounds under your ruling just now.

THE HEARING OFFICER: Sustained.

MR. THORNTON: No further questions. I appreciate your time here and your efforts.

THE HEARING OFFICER: Okay. Mr. Smith?

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CROSS-EXAMINATION
BY MR. ALAN SMITH:
Q. Mr. VanWyk, how many acres are irrigated with that well?
A. We have a water right for 47 acres.
Q. And that motor is a surface motor, it's not a submersible?
A. The original one, it was. I think we will be replacing it with a submersible.
MR. ALAN SMITH: That's all I have.
THE HEARING OFFICER: Okay. Mr. Edwards?
MR. EDWARDS: Thank you for your testimony.
THE WITNESS: Thank you.
THE HEARING OFFICER: Okay.
MR. ALAN SMITH: Yes, thank you.
THE HEARING OFFICER: Okay. Mr. Fereday, questions?

CROSS-EXAMINATION
BY MR. FEREDAY:
Q. Mr. VanWyk, does the Water Users Association meter the amount of water received by each of its members from this well?
A. No.
MR. FEREDAY: No further questions.

THE HEARING OFFICER: Okay. Thank you, Mr. VanWyk.
THE WITNESS: Thank you very much.
MR. THORNTON: And do we have the -- was this information entered in that Mr. VanWyk presented as an exhibit?
THE HEARING OFFICER: That's a good question. It isn't presently. It was presented to us, but it has not been marked.
MR. THORNTON: I would like to offer that up as an exhibit. Thank you.
MR. FEREDAY: Mr. Hearing Officer, if we could, we note that you have received the Morris letter into evidence as part of the public testimony. We would suggest that this could come in the same way.
THE HEARING OFFICER: Well, I agree, Mr. Fereday. The only concern that I have about this particular document is that it's not in the form that I would expect to review. And so it would be -- these letters that come in, I look at them and they're addressed to the Department or to the Hearing Officer.
This has no cover letter associated with it. It could be mixed in the files.

MR. THORNTON: Could I offer -- and I think Mr. VanWyk is still here.
MR. JASON SMITH: Yes.
MR. THORNTON: If he was able to prepare a short cover letter to describe that and then submit it through you to the mail. I believe NACGUA's fine if that was entered in as a public witness. That's fine.
THE HEARING OFFICER: Well, that's a whole lot of extra effort for people. Let's just mark it as an exhibit.
Let's figure out a number, and I don't know what that numbering scheme would be for it. I don't want to waste a lot of time.
MR. FEREDAY: Could we go off the record for just a moment --
THE HEARING OFFICER: Sure.
MR. FEREDAY: -- and take just a two-minute break and come back. And we could get started with Dr. Osiensky, and maybe deal with this in the interim.
THE HEARING OFFICER: Sure.
(Recess.)
THE HEARING OFFICER: We're recording again.

Mr. Fereday, next witness?
MR. FEREDAY: Dr. James Osiensky.
MR. ALAN SMITH: At the break, sir, we had not had this exhibit number marked at the time the break was taken. We'd like to have that marked now, Mr. VanWyk's --
THE HEARING OFFICER: I think what I decided in my discussion with Deborah Gibson is we have not used alpha characters yet. It seems to me it would be easier rather than reassign a whole bank of numbers, that if we have a few of these public witness documents that we need to mark, we'll just assign alpha characters to them.
So we'll mark this as Exhibit A, then at least it's identifiable in the record. Okay?
(Exhibit A marked.)
THE HEARING OFFICER: All right. Dr. Osiensky, if you'll raise your right hand, please.

JAMES OSIENSKY,
having been called as a rebuttal witness by M3 Eagle LLC, was duly sworn and testified as follows:
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THE HEARING OFFICER: Thank you. You may be seated.

DIRECT EXAMINATION

BY MR. FEREDAY:

Q. Dr. Osiensky, could you state and spell your name, please, and give us your address.

A. My name is James Osiensky. Last name is spelled O-s-i-e-n-s-k-y. And I live at 1795 Victoria Drive in Moscow, Idaho.

Q. And where are you employed?

A. At the University of Idaho.

Q. And what is your profession?

A. Professor of hydrogeology.

Q. Could you give us an outline of your education and background in hydrogeology.

A. I have a B.A. degree in geology chemistry, 1975; an M.S. in -- that was at Bridgewater State College in Massachusetts. I have an M.S. in hydrology from University of Idaho in 1979; and a Ph.D. in geology from University of Idaho in 1979 -- 1983.

Q. Have you been involved in working in or teaching the -- in the fields of hydrogeology and geology since that time?

A. Yes. My first professional job as a hydrogeologist was with the State of Montana. I started in April of 1978. And since that time I've worked as a hydrogeologist. I taught at the University of Idaho and at Washington State University prior to my current position with the University of Idaho.

Q. Exhibit 32D has been admitted into evidence in this case. That is your resumé. Is that still an accurate resumé, to your knowledge?

A. It's still fairly current, other than maybe one or two recent publications that I have not added to it.

Q. Okay. What is your experience, Dr. Osiensky, with aquifer testing, that is, constant-discharge aquifer tests such as those that have been discussed in this case?

A. Oh, I have considerable experience. I believe I've run upwards -- if I include tests that I've run with my students, I've probably run upwards of a hundred aquifer tests, constant-discharge aquifer tests.

Q. What's the longest aquifer test that you've run?

A. The longest constant-discharge aquifer test that I've run is 14 days.

Q. What is the average test length in your experience for an aquifer test?

A. I would say that the average is probably around 24 hours.

Q. Are you able to make viable scientific conclusions based on a 24-hour constant-discharge aquifer test?

A. Oh, I would say definitely. I would say most tests in the country probably are 24-hour aquifer tests.

Q. Have you worked with Ed Squires on any aquifer tests?

A. I have. I've worked with several aquifer tests with Ed Squires.

Q. Have you measured observation wells?

A. Yes. Actually, during Ed's master's thesis work, I was one of the investigators, and I was at observation wells physically measuring water levels during the aquifer tests.

Q. So you say you worked with Mr. Squires during his master's thesis. Could you describe that experience, just in brief. What did you do?

A. Well, we -- we investigated the hydrogeology of the Boise area, the Boise city area. And during that time several aquifer tests were run as part of that investigation. And I was involved with much of that.

Q. So I take it you've reviewed aquifer test reports from Mr. Squires?

A. Yes, I've been reviewing aquifer test reports with Mr. Squires since his master's thesis.

Q. How many of his aquifer test reports do you estimate you've reviewed?

MR. ALAN SMITH: Judge, we would object. This is way beyond the scope of our evidence. It's improper rebuttal. We're going way out in left field again.

MR. FEREDAY: Mr. Hearing Officer, if I could respond?

THE HEARING OFFICER: Sure.

MR. FEREDAY: I am attempting to qualify Dr. Osiensky as an expert to testify on issues of rebuttal. And for him to do that, we need to qualify him in terms of his knowledge of the subject matter of this hearing, including Mr. Squires' work.

MR. ALAN SMITH: We'll stipulate that he's an expert.
MR. THORNTON: Same.
THE HEARING OFFICER: Are protestants willing to stipulate?
MR. THORNTON: Yeah.
MR. ALAN SMITH: Yes.
THE HEARING OFFICER: Mr. Fereday, does that shorten your examination?
MR. FEREDAY: It does shorten it to some degree, yes.
THE HEARING OFFICER: Okay. If I were to rule that he's an expert witness, which I'm willing to do, and then we can move on to the technical questions that you may have of him.
MR. FEREDAY: Okay. That would be fine.
THE HEARING OFFICER: So we will so recognize him.
Q. (BY MR. FEREDAY): Did you provide peer review of the SVR-7 aquifer test as an expert?
A. Yes, I did. I reviewed a draft of that report.
Q. And did you suggest changes or edits to that SVR-7 aquifer test report?

A. I did. I suggested changes, some to the way that the data were being analyzed, some with respect to figures and illustrations within the report and so forth. And all of those comments and suggestions were incorporated into the final report.
Q. What was the accuracy of the interpretation of the data in the SVR-7 report, in your opinion?
A. I think it was very accurate.
Q. Did you provide peer review of the 16 aquifer test report that's been admitted into evidence in this case as Exhibit 12?
A. Yes, I did. I think I reviewed two drafts of that prior to the final.
Q. Were your suggestions on peer review taken by HLI and incorporated into the SVR-7 and 16 aquifer test reports?
A. Yes, they were.
Q. What is your opinion, Dr. Osiensky, of the quality and usefulness and accuracy of the 16 aquifer test report?
A. In my opinion, that's an amazing report. You hardly ever see that type of compilation of reports in a report of information

that were collected by other investigators. And so the main usefulness of that report is that it compiles everything into one useful document that is very easy for investigators to review and see everything all at one location. It's a very, very comprehensive report.
Q. What is your experience with aquifer modeling?
A. I have considerable experience with aquifer modeling, primarily with Modflow, but also with aquifer testing software and other models also.
Q. And have you produced peer-reviewed refereed journal publications concerning aquifer modeling?
A. Yes, I have. I have somewhere between six and ten referee journal publications in journals, such as -- such as Journal of Groundwater, Journal of Hydrology, Hydrogeology Journal, Journal of Contaminant Hydrology, and so forth.
Q. Did you work with Stacy Douglas with regard to her model, which is Exhibit -- an exhibit in this case?
A. Yes. I was Stacy Douglas' advisor for

her master's thesis, and we completed a three-dimensional model of the M3 area, as far as that investigation.
MR. FEREDAY: All right. Mr. Hearing officer, we would ask that Dr. Osiensky be recognized as an expert in aquifer modeling.
THE HEARING OFFICER: Okay. Protestants? Mr. Thornton?
MR. THORNTON: No objection.
THE HEARING OFFICER: Mr. Smith?
MR. ALAN SMITH: None.
THE HEARING OFFICER: Mr. Edwards?
MR. EDWARDS: No.
THE HEARING OFFICER: So recognized.
Q. (BY MR. FEREDAY): What is your experience in working in hydrogeology and aquifer modeling in the Treasure Valley specifically, Dr. Osiensky?
A. I have --
MR. ALAN SMITH: We would object to this, your Honor. It's beyond the scope of our evidence. I don't recall Dr. Ralston testifying about any of this.
And Mr. Brownlee was the other witness called by North Ada County. He certainly didn't.

And Jason Smith certainly didn't. We're going way beyond the scope of our evidence. It's not rebuttal evidence. It should have been presented in their case-in-chief.

THE HEARING OFFICER: Okay. Overruled. There's -- I think these questions are yet preliminary. And we'll see where they go.

Q. (BY MR. FEREDAY): Your experience, Dr. Osiensky, in working in hydrogeology and aquifer modeling in the Treasure Valley specifically?

A. In the Treasure Valley specifically, I dealt -- I was a -- a committee member on Ed Squires' master's thesis, and that dealt with hydrogeology of the Boise city area.

Originally, I was the principal investigator in the Treasure Valley Hydrologic Project. And if you want me to explain why --

Q. Yes.

A. I'll explain a little bit more about that. I was the original principal investigator in that project. I had to step out of that project for a number of reasons. One being the Idaho Department of Water Resources really wanted somebody on site at the IDWR building.

And as an untenured professor of hydrogeology, that would have been a death wish on my part to take on a teaching position with the university located at IDWR, just because I had to deal with students and so forth.

So it was unmanageable for me to be located at the IDWR facilities and try to teach my courses and deal with my graduate students and so forth.

And so we -- at that point in time we enlisted Dr. Christian Petrich to take over as investigator. And originally he was investigator under me, until basically there were retirements within the Department, geological sciences and stuff with the University of Idaho, and my position was recalled from Boise to Moscow because I was with -- the most senior person in hydrogeology at the University of Idaho.

Q. Do you remember when you were recalled to Moscow, what year?

A. In 1997.

Q. And did you have involvement -- I take it you had no direct involvement with the Treasure Valley Hydrologic Project after that?

A. Not after that, no.

Q. Are you familiar with north Ada County geology, particularly in the Eagle area?

A. Yes, I'm very familiar.

Q. What's that based on?

A. Based primarily on Stacy Douglas' work. We conducted an independent investigation that was funded by M3 to complete that three-dimensional groundwater flow model.

And so it was an independent model. And so Stacy Douglas and I conducted an independent investigation of the geologic and hydrogeologic conditions out there at the M3 site at the beginning. And then we started working more closely with Hydro Logic as more and more data were being collected. We were incorporating those data into our model.

Q. Did you measure water levels in north Ada?

A. Yes. Stacy and I measured water levels, primarily in the vicinity of the M3 area, approximately 25 wells that Stacy and I visited personally. We went out there and met with the well owners and had conversations with the well owners and measured the water levels.

Q. Were other water levels measured by

any students with whom you worked, or was it just you and Stacy?

A. Stacy and I originally went out there and measured the 25, which was the start of our model. And we contacted Hydro Logic at that point in time, basically indicated that we need many, many more water levels in order to complete the model.

And so Hydro Logic hired one of my graduating graduate students, Katie Rhode, and another student that was in hydrogeology at the University of Idaho -- wasn't one of my students directly, but hired her also. She was an employee of Hydro Logic. And the two of them went out and measured approximately 200 additional water levels.

Q. Did you use those water levels to evaluate groundwater flow patterns in the north Ada area?

A. Yes, we did. We incorporated that information into our model. We contoured the water levels in order to understand the direction of groundwater flow, and then we tried to simulate those conditions with our model.

And one other thing is that those

water levels incorporated water levels primarily in the local domestic wells. So many of those water levels that we were looking at originally were shallow domestic wells. Some were in the deeper system, but most were shallow domestic wells that we were simulating.

Q. I want to ask you some further questions about what you found with regard to that groundwater measurement in a moment.

But at this point let me ask you further, have you any familiarity with the M3 Eagle property?

A. Oh, yes. I've been -- like I said, both Stacy and I visited the site during our part of the investigation. I also was involved with a field trip to the site with Ed Squires and Dr. Wood and yourself and several other investigators on the project.

Q. Are you familiar with Dr. Wood's work on north Ada geology?

MR. ALAN SMITH: Again, we would make the same objection. It's beyond the scope of our evidence, not proper rebuttal.

MR. FEREDAY: Again, Mr. Hearing Officer, we are qualifying this witness with regard to his

expertise in these matters, and we are entitled to do that.

THE HEARING OFFICER: Overruled.

MR. ALAN SMITH: I think you're way beyond qualifying the witness as an expert.

THE HEARING OFFICER: Okay. Overruled.

THE WITNESS: I've known Dr. Spencer Wood since 1988 when I started working down in Boise Valley with the University of Idaho. And Spencer at that point in time was studying that area back in those days. He was studying the geology of the Boise Valley, the foothills, the area out in the M3 area and so forth. And so yes, I'm very aware of what Spencer Wood has done over his career.

Q. (BY MR. FEREDAY): And what's your opinion of the quality of his work there?

A. Oh, he's done excellent work. I consider Spencer Wood to be the ultimate expert in the geology of that area.

Q. With regard to Mr. Squires' master's thesis, what resulted from that -- from that work? What was your role in it?

A. Actually, I had a fairly large role in the investigation part. During -- early during my career -- and I was located at Boise State

University, but I was a University of Idaho professor. And early during my career -- this is one of the first investigations. And so this was a very eye-opening investigation for me because it gave me a direct exposure to the hydrogeology of the Boise Valley, which I assumed was going to be where I was going to be located for the rest of my career. It didn't work out that way, but I spent a lot of time with Ed Squires learning about the hydrogeology of the Boise area.

Q. The protestants in this case have referred to that thesis, which I believe is Exhibit 67 in this case, the 1992 report.

Are you familiar with that report?

A. Yes, I am.

Q. You're a coauthor, aren't you?

A. I am.

Q. Did Mr. Squires' 1992 report evaluate the Pierce Gulch Sand Aquifer?

A. No, it did not.

Q. What did it evaluate?

A. It dealt primarily with the Terteling Springs Sand Aquifer and it existed -- covered the area primarily within the Boise city area east of Cloverdale.

Q. Dr. Osiensky, I would like to ask you a few questions with regard to the staff's statements here. And to begin with, I'd like to ask your response to Mr. Vincent's statement that HLI performed, quote, "a rather complicated regional water-level trend analysis rather than having a single regional water-level trend." It looks like it was necessary to have a regional water-level trend for each and every well according to Mr. Vincent, quote, "that's not normal, that's extraordinary based on my experience and based on reference to standard aquifer test analysis textbooks," close quote.

Could you respond, please, to this. And just so I'm summarizing it correctly, my understanding is that this question has to do with applying a single -- a well-by-well trend analysis rather than a single regional trend analysis. Could you comment on this, please?

A. If I understand exactly what he was getting at there, I have to disagree. In my experience, each well has to be treated on a well-by-well basis. In my experience, each well does experience a different trend.

And that's why we have to collect

pretest data in every well. In my experience, you always use the pretest data collected in a specific well in order to determine the trend that's occurring in that well.

Q. So do you then think it's extraordinary to apply a well-by-well analysis?

A. No. I think that's exactly what you should do. I think it would be extraordinary if you didn't do that, because I've never heard of a single trend being applied to multiple wells in a heterogeneous environment.

Q. So what are some of the reasons for that? Is heterogeneity one of them?

A. Well, heterogeneity is one of them. But the way I visualize the hydrogeologic conditions in this area is that these trends are caused by a recovery from previous year's pumping. So it's irrigation pumping in the summertime that causes the drawdown.

And when that's shut off, it causes water levels to rise everywhere within the entire basin. And that's what's causing these trends.

And so these trends are a reflection of the location of the various pumping centers such as Meridian and such as Nampa, such as in

Boise, and so forth.

And so the distance between those pumping centers and individual wells, and whatever exists between those pumping centers and the wells, in terms of the geology and hydrogeology, is going to control the trend. And so each well should have a very specific trend. There's no way that you would have a single trend that you could apply to all wells. That just can't happen, in my opinion.

Q. What do you think about Mr. Vincent's comment at this next passage, that this separate trend analysis, quote, "is an indication of complexity and causes uncertainty," close quote?

A. Well, again, I don't agree with that either, because unless you complete an independent well trend analysis, that wouldn't create uncertainty. I mean by completing an independent individual well trend analysis, that definitely decreases uncertainty. It does not increase uncertainty.

Q. What is your response to Mr. Vincent's statement in relation to the SVR-7 aquifer test that, quote, "the stress was insufficient to be definitive about what's happening in the aquifer,"

close quote?

A. This is pertaining to the SVR-7 aquifer test; is that correct?

Q. Yes.

A. Okay. My response to that is I wouldn't agree with that statement either. If I consider the SVR-7 aquifer test to be a nine-day aquifer test, and so -- if I could, I'd like to kind of illustrate a couple things with the easel, if possible.

Q. Please.

A. And what I'd like to do is first off present a very basic equation. Okay? And so this very basic equation is just going to be capital V is equal to capital S times A delta H. I'll explain what these terms are.

"V" is the amount of water being pumped. So over nine days, the pump was pumping 917 gallons per minute, and it's 1440 minutes for the day.

Q. So you're multiplying 917 times 1440?

A. 917 gallons per minute times 1440 minutes per day -- okay? -- times nine days. And so "V" would be equal to the volume of water that's pumped out of the aquifer over that nine

days, in a rough calculation, if I remember. And I went through the calculation. It's approximately about 1.6 times 10 to the 9 billion. So talking about 1.6 times 10 to the 9 gallons were pumped out of the aquifer. So 1.6 billion gallons of water were pumped.

If we divide that 1.6 times 10 to the 9 gallons by 7.48, it converts it to cubic feet. And I didn't do that calculation, but there's a very, very significant volume of water was pumped -- okay? -- over that nine-day period.

The average storitivity from all of the aquifer tests from the 16 aquifer tests before it, from the SVR test, from the Kling test, and so forth, the average storitivity that we keep estimating for the conditions out there is about 1 times 10 to the minus 3. A relatively small number for a confined aquifer.

Q. Dr. Osiensky, so the "S" in your equation is storitivity?

A. Storitivity. So we're talking basically the amount of water that's stored in the aquifer. That's not quite exactly right. But I mean let me explain a little more.

So if we take "V" and divide it by

"S," that gives us "A" delta "H." Okay? A delta H is the volume of the cone of depression that was created by that aquifer test.

If you go through that calculation, the volume of that cone of depression is huge. It's a very, very large cone of depression. This cone of depression extended over tens of square miles. It incorporated everything -- every boundary condition that exists out there within tens of square miles away from the pumping well.

So in answer to that question, I think this is a very, very substantial aquifer test, and I don't agree with the statement that you asked about.

Q. You mentioned boundary effects. The so-called green line is presumably a boundary based on previous testimony.

What did you see with regard to boundary effects from the SVR-7 test, Dr. Osiensky?

A. This is one of very interesting things about this test. Again, it was a very large-scale test, over nine days pumping a large volume of water. And we didn't detect any boundaries, any physical boundaries in the system, other than the

green line and the East Boise/Eagle fault -- West Boise/Eagle fault. Okay? Those were incorporated into the analysis conducted by Hydro Logic.

Q. What was the result of the test in terms of transmissivity values shown?

A. Very -- in my opinion, very definitive transmissivity and storitivity values were derived. And what I mean by that is that there was no question with respect to how well the data points fit on our theoretical lines. Very, very good fits.

And so I would say that the transmissivity and storitivity values that were derived from the aquifer tests are very accurate.

Q. So just to sum up, in response to Mr. Vincent's statement that he questioned whether the aquifer was stressed enough to provide definitive information, what is your -- what is your opinion as to whether the SVR-7 aquifer test did provide definitive information?

A. Again, I'd like to sketch something, if I could, to help answer that question.

Q. Yes.

A. But if you consider -- is there something I can erase this with?

If you consider -- and I'm going to sketch the green line and the fault zone, and I'll use green since I kind of -- so we have a green line boundary, which is the outcrop of the Pierce Gulch Sand Aquifer. So it crops out at the land surface, so that definitely is an impermeable boundary, at least the way that we're defining it. And so any pumping on this side of the boundary cannot physically grow there because there's no aquifer there for it to grow into.

And then we have the fault zone, which meets at an angle of something like this. And I'll dash it. I'll put the fault zone in red, and this extends down here this like (indicating).

So the outcrop of the aquifer intersects the fault zone. And so if we pump an aquifer -- the aquifer on this side, and we have a pumping well here --

Q. That's the south side of the green line?

A. South side of the green line.

Q. Okay.

A. And if this is the SVR-7 well, as an example, the cone of depression is going to grow around this well pretty much radially until the

boundary is hit. And then it can't grow in this direction, so it has to grow -- it has to grow much faster in this direction (indicating).

The same is true with the fault. If we assume the fault is another impermeable boundary, the cone of depression can't grow into that boundary.

Q. So that it would grow in "this direction," you mean further to the south and to the west?

A. So it grows to the south, to the southwest, and to northwest. So it would have to grow in this direction (indicating).

And getting back to the calculation that I just presented, we stressed a huge volume of aquifer during that aquifer test. And that volume aquifer is all on the south side of that green line.

So the effects of that pumping probably extend all the way to Meridian. So any boundaries that may exist on this side were -- are incorporated into the aquifer test data, and don't see any in the data. There's no indication in the aquifer test data, the drawdown data, to indicate that there are any boundaries out here.

Like I say, the green line and the fault boundary, those were incorporated into the analysis. So it's not -- that's why I'm not mentioning those. If we were looking -- if we were conducting an analysis as if this was an infinite aquifer, then we would see these in the data. Okay?

But the reason we don't see these in the data, in my opinion, is the fact that the well is so close to the boundary, by the time we measure any drawdown in the observation wells, all the boundary effects are already incorporated in the data. So they become invisible.

And so what was the original question?

Q. I think the question was what was the -- your conclusion about the SVR-7 test, given the fact that there was relatively small drawdown with respect to the boundary question.

A. Oh, right. Okay. So what the small drawdown means to me -- so in other words, physically, the laws of physics indicate we had to stress a very large volume of the aquifer. That has to be. We measured very small drawdowns. Okay?

What that's a reflection of is the

fact that it is a very, very transmissive aquifer. We measure very small drawdowns, but yet the cone of depression has to be huge.

What that means is the cone of depression is not deep, it is very shallow, but very extensive in an areal extent. That's why it extends probably all way to Meridian and so forth.

So when you consider Meridian to be way out here (indicating), any boundaries that may exist out there are already incorporated into the data, and they do not show up. If they were there, they would show up in the data. And they're just not there.

Q. What is your opinion of the overall quality of the SVR-7 test and its report?

A. I'm very impressed with the SVR-7 report and with the test. In my opinion, it's an outstanding test, especially when you consider the difficulty of trying to run an aquifer test like this with generators.

I've run an eight-day aquifer test with generators. And believe me, it's very, very difficult. I had -- I physically had to camp out there and keep the generator running and live out there for a week. This was at the Eagle Island

State Park where I ran the eight-day aquifer test.

But the SVR-7 aquifer test is an excellent test. No question that that was a very well run test. All the data that were collected were wonderful. The data were collected on one-minute intervals, and there were no problems with the data. There were no problems with any of the data loggers. The analysis was very thorough, and the report is excellent.

If you read through the report, the report is very, very comprehensive. It has all of the data. It has all of the uncorrected data and corrected data in the report. Very thorough.

Q. And in your opinion, what does -- what, in your opinion, does this tell you about aquifer productivity in the Pierce Gulch Sand Aquifer?

A. Very, very productive aquifer. Very productive. The aquifer -- and this is one of the things that surprised me when I first reviewed the aquifer test report, because the aquifer appears to respond as a semi-infinite aquifer. When I say semi-infinite it's because that green line, the cone of depression is only growing to the southwest, to the northwest, and to the southeast.

Okay? It can't grow to the north-northeast because of that boundary.

But based on the data -- okay? Based on the data, the aquifer appears to -- as a semi-infinite aquifer.

Q. What does the SVR-7 aquifer test tell you about potential compartmentalization of the aquifer?

A. There's -- in my opinion, there's absolutely no evidence of any compartmentalization, based on the aquifer test data.

Q. In your opinion, would a longer or larger aquifer test have resulted in any different conclusions?

A. I'd like to sketch something again to help answer that one.

Q. Do you have an answer to that or an opinion to begin with, and then --

A. Yeah. My answer is no, I don't think a longer test would help, and I'd like to explain why I think that.

Q. Okay. Please do. You're going back to the whiteboard.

A. Going back to the easel, and I'm going

just to sketch the way that we have to interpret the data. And the reason for my answer is the way that we need to interpret aquifer test data. So I'm going to sketch just a log-log scale. We generally analyze data either in a log-log or a semi-log. But the main thing is the fact that we analyze data based on a function of log of time.

And so we have log cycles. And so if we plot -- and I'll just have time on this axis, and we have drawdown on this axis (indicating).

Q. That's time on the horizontal and drawdown on the vertical?

A. Right.

And so if we're looking at log-log, we're going to have boxes that -- each box represents log scale of drawdown, log scale of time if this is a log-log analysis.

And so if we're measuring our time in minutes -- okay? And so 1 minute would be here, 10 minutes would be here, 100 minutes would be here, 1,000 minutes would be here (indicating), and I'm going to have to add a couple log cycles here because of the length of the nine-day aquifer test. Okay? We have 10,000 minutes, and then we have 100,000 minutes. Okay?

So what happens during an aquifer test? We turn on the aquifer test at time "T" equals zero. Okay? Take our first measurement at 1 minute.

Now, keep in mind during the nine-day aquifer test 13,000 measurements were taken. Every minute. Okay? So we have 13,000 measurements that we are going to fit in here.

The theoretical curve that we'd match, you know, goes something like this. And so we're matching that theoretical curve to our data points. Our data points are out here and we have data points -- and we have 13,000 that are doing something like this (indicating). The curve tends to flatten out with time. Okay?

Now, what I'm trying to impress upon to you, the significance of a nine-day versus a longer test. Nine days is out there 13,000 minutes. Okay? The next -- the next log scale is 100,000 minutes. Okay? There are 1440 minutes per day.

So we're going to collect data points, and they're all going to be crammed into a little zone right here (indicating) -- okay? -- if you ran it for another 50 days. We're going to have

the data points all crammed into this little area for analysis.

So the early time data are going to be the most critical for determining transmissivity and storitivity. Okay? And we have all of these data points that we're analyzing during the nine-day aquifer test. If we were to extend the aquifer test, the additional amount of data that we would have would be all the points crammed in here.

And we may have another 13,000 points, but those 13,000 points are all going to be crammed into this little area on this curve, and so it's not going to really help us much in terms of anything that would happen at that point in time. Okay?

Q. And just so that the record is a little clearer on what you've drawn there, you've drawn a curve that goes up fairly sharply from the bottom left up to the upper right, and then starts to flatten out toward I guess what would be something like an asymptote over on the upper right?

A. Yeah. Now, what our methods of analysis imply is that we have an infinite

aquifer. Okay? So this goes to infinity. So what we can do -- and this is one of the things that we commonly do, is we project to any point in time that we're interested. 50 years, 100 years what's going to happen. Because we can do it because our curve technique goes to infinity, so it allows us to extrapolate to any point in time.

So really what we'd do during an analysis to determine what's going to happen, we need to look at the entire curve. And that's why when we're looking at the entire curve and extrapolating to 50 years down the road -- okay? -- that little portion in here (indicating) of a longer aquifer test becomes very insignificant.

Q. What about increasing the volume of pumping or the rate of pumping by, say, doubling it? What would that do, in your opinion?

A. If we double the drawdown -- this is one of the interesting things about the way cones of depression grow. Okay? The rate of growth of the cone of depression -- okay? -- the rate of growth -- and I'll explain. This is basic hydrogeology, but I'll explain it a little bit, and cut me off if you think it's too much.

But these cones of depression grow very, very rapidly. It's like a sonic boom going off. You don't hear sonic booms much anymore nowadays. When I was a kid you used to hear sonic booms all the time.

You hear a sonic boom go off, you feel it when that pressure wave hits you -- it's actually a compression wave, hits you in the chest. Same thing with fireworks. People enjoy the fireworks, they see the flash, and then they feel that boom. Okay? That's a compression wave.

Cone of depression growth in a confined aquifer is much like that, though it's a pressure wave. But it grows very, very rapidly. Okay? And in this aquifer -- well, let me back up.

In a confined aquifer such as we have up in Moscow where we have very, very low storitivity values, on the order of 10 to the minus 5. Here the storitivity is two orders of magnitude greater.

But the cone of depression up in those areas are growing at approximately the speed of sound. Okay? And so two orders of magnitude higher storitivity here (indicating) means it's

growing two orders of magnitude slower. But 750 miles an hour, if you go two orders of magnitude less than that, it suggests that the cone of depression at the M3 site, when pumping the wells there, are growing at about 7.5 miles per hour.

So think about nine days, how many hours is that? How far would that cone of depression extend? Now, this is the pressure, the pressure wave. And so that pressure wave is much like the sound, that sonic boom. It's like -- well, an example, and this is an analogy.

In a house when a door slams, when you have windows open, as an example, or -- and the door slams in the house, all the doors in the house rattle. Okay? That's a pressure -- a pressure transference. It's not air moving all through the house. It's that pressure wave moving through the house very, very rapidly. The air molecules from the bedroom that's slamming aren't making it out the doorway, but that pressure is being transmitted very fast.

And that's exactly how a cone of depression goes in confined aquifers. Very, very rapid transmission of the pressure and it contacts

everything in its path.

Q. Would the cone of depression have reached the protestants' wells in the SVR-7 test?

A. Very likely -- very likely, yes. In my opinion, very likely.

Q. Now, but what about increasing the volume of the test or the rate of the test, which was my question, how would that -- how would that give us more -- any more definitive information from the SVR-7 test, Dr. Osiensky?

A. If -- what -- okay. I was trying to answer that. Sorry. What my point being that the rate of growth of the cone of depression is not a function of the pumping rate. Okay? This is what I was trying to get at, but I got off on a tangent. Okay?

Whether we pump the well at 9 gallons a minute or 900 gallons a minute, the cone of depression grows at the same speed. That seems illogical, but that's the way it is. It's like a pressure wave.

So if you pumped it at 1800 gallons a minute, that doubles the rate of drawdown. It does not increase the rate of growth of the cone of depression. It's still going to be at the same

point in time at the same location.

So any of the wells that were contacted with 900 gallons a minute would be contacted by the cone of compression at 9 gallons a minute or 9,000 gallons a minute. That same time.

Q. Would the data plots from an 1800-gallon-per-minute aquifer test have plotted on any different line than they did on the 900-gallon-a-minute test, in your opinion?

A. In my opinion, we would have had twice as much drawdown, but all the data would plotted on an identical plot, but it would have been offset by a factor of two.

Q. Okay. Thank you for that explanation.

Do you agree with Mr. Vincent's statement, quote, "that it is an indication of complexity and causes uncertainty when you consider the fact that we only have one observation well with more than 1 foot of drawdown in the SVR-7 test"? And perhaps you've already answered this, but I just wanted to make sure that we covered that point.

A. Well, let me --

MR. ALAN SMITH: I would object as being

repetitious and redundant. He's already answered it once.

THE HEARING OFFICER: Overruled. I don't think this question has been asked and answered.

MR. ALAN SMITH: Yeah.

THE WITNESS: The -- I'll answer that by -- no, I don't agree with the statement the way that it's worded. The fact that we have very small amounts of drawdown is a function of the fact that we have a very, very transmissive aquifer. Okay?

And that's something we live with. We have a very transmissive aquifer. That's a good thing. That is not a bad thing. If we had lots of drawdown, that's where I would be worried.

And so what this means is that the cone of depression grows very rapidly and you have very -- and it's very, very flat and relatively small drawdowns, and we're able to capture the water from a huge area.

The difference would be if we had lots of drawdown -- okay? -- that means we're capturing water from a much smaller area, and that we're going to have drawdowns, much more significant drawdowns.

And so the fact that we have small

amounts of drawdown is actually a very good thing and, in my opinion, it doesn't add to complexity. It indicates that we have a very productive aquifer.

Q. (BY MR. FEREDAY): In another passage in the transcript, Mr. Vincent agreed with my suggestion that, quote, "small drawdowns in a distant well, such as the well you mentioned, indicates that the interference in other distant wells might likewise be small," close quote.

Would you agree with Mr. Vincent here?

A. Yes. And I'd like to explain. You know, basically the way that we look at data, we usually -- a lot of times we normalize it. So we're looking at drawdown divided by time squared -- excuse me, radius squared or distance squared. And so we expect wells similar distances from the pumping well to have similar drawdowns. That's theoretically exactly what we'd expect to happen.

Q. Can reliable conclusions about aquifer properties be made with small drawdowns, such as in the neighborhood of less than a foot or a foot and a half or 2 feet, something like that, in an observation well?

A. Yes, I believe so. I believe that basically as long as you have enough data points -- and I mean more than five or six. So when we have a very few data points, that's where the issue is. If you have enough data points, like in this case we have 13,000 data points to define that curve, and even though drawdown may not have started for five days into the test, we still have several hundred data points.

And that allows us to get a very good fit to the theoretical curves and it allows us to get a very accurate estimate of the conditions in the aquifer.

Q. Do you agree with Mr. Vincent's statement that, quote, "It is difficult to predict long-term hydrologic impacts based on the data that were collected in this aquifer test," close quote? "It is difficult to predict long-term hydrologic impacts." Do you agree with that, based on this test?

A. No. I think we can predict long-term impacts. And especially if you combine the results of the aquifer test with the M3 model. The M3 model is designed to -- specifically to extrapolate the effects of this type of aquifer

test. And it allows us to incorporate various wells out there in the valley and the fact that they would have well interference effects and so forth combined with the effects of the aquifer test data to evaluate any number of scenarios.

Q. I just want to clarify to make sure I have got this right.

You said that you have done only one aquifer test that is longer than nine days of this type?

A. That's correct.

Q. And that's one out of how many?

A. I would say upwards of a hundred or so.

Q. What is your response to Mr. Vincent's statement that he was concerned about the fact that after the SVR-7 aquifer test and the recovery plot, the Big Gulch stock well was 5/100ths of a foot below the water level before the test began? What's your response to that concern of Mr. Vincent?

A. Yeah, that concern was confusing to me because basically I hardly ever have seen full recovery in wells in any municipal -- especially in a municipal environment. Just if you were in

an isolated basin with one pumping well, yes, you might expect to see full recovery.

But whenever you have a moving water table -- and I'm using "water table" loosely -- that's moving due to numerous municipal wells in the area pumping, in my opinion, you'd never have full recovery. You'd never expect to have full recovery.

Q. How good, if you will, was that recovery? Was it useful, in your opinion, in making conclusions about the nature of this aquifer?

A. In this environment, that was a very, very good recovery. And for all practical purposes, I would consider that full recovery because of this environment with other wells pumping.

And so what it did is we have very good recovery data, which reproduced the drawdown data very closely, which was a very good indication, and significantly reduces uncertainty when that happens. When you have good recovery data, and it mimics the drawdown data, that's very definitive.

And so I think the drawdown and

recovery data in this test were excellent, and there are very, very few questions remaining.

Q. Do you recall Dr. Ralston's testimony in this case with regard to the number of longer than nine-day aquifer tests that he had conducted?

A. I believe -- I believe Dr. Ralston indicated that he's run a few longer. I think he mentioned one 90-day test that he ran, which is very, very rare to run anything like that. But I think he did indicate a couple tests longer than nine days.

Q. What is your response to Mr. Vincent's and Mr. Ralston's testimony that they don't see any boundaries resulting from the Kling aquifer test?

A. I agree. I don't see any boundaries either.

Q. Based on the data presented by HLI, was the Kling test, Kling aquifer test, adequate to show whether there is a boundary in that panhandle area, as we've discussed in this case?

A. I sure think so. I don't see any indication of boundaries in that -- in those aquifer test data. And if there's a boundary there, I sure would expect it. It's close enough

that I can't imagine how you could not see a boundary in the data.

Q. Based on the data produced in the Kling test, what could you say about the hypothesis that the PGSA could be compartmentalized?

A. The idea that it's compartmentalized, I think it doesn't -- it doesn't have any validity because I -- none of the data -- based on all of the data that I've looked at -- and I've looked at all of the data that are in the reports that Hydro Logic has produced and other data that are in their files and so forth, and I have never seen any indication of compartmentalization out in that area, hydraulic compartmentalization.

There may be indications of faults and so forth, but there's no indication that any of those faults cause any hydraulic compartmentalization or any impedance to groundwater flow.

Q. Can you comment on the quality of the drawdown and recovery plot data that was presented in the Kling test, the quality of that data that you saw?

A. In the Kling test?

Q. Yes.

A. The quality of the data is excellent. One of the things about Hydro Logic is they run very, very thorough, comprehensive tests. All the tests that I've reviewed are very, very comprehensive, much better than I can do academically.

Q. A related point on the drawdown in the SVR-7 test arises with Mr. Vincent's comment that he sees a problem with the test data is that four-tenths of a foot drawdown in test well 4, not in Big Gulch stock, but in test well 4, is, quote, "not enough drawdown in relation to the other factors that are going on to really make meaningful determinations based on the test data."

Do you agree with that statement from Mr. Vincent?

A. No, not -- no, I don't. And let me explain. I think -- you know, I'm not exactly sure what he means with "the other factors going on." However, again, the small amount of drawdown is a function of the fact that we have a very transmissive aquifer. And I deal with small amounts of drawdown all the time.

Most of the aquifers that I deal with

are very, very transmissive and we have very small amounts of drawdown. And it's not a function of the amount of drawdown so much. It's a function of how much data you collect and how well you're able to collect those data.

And so if you have a very thorough data collection program and you don't have any breaks in the data, you have a very thorough analysis. And you can make very accurate predictions based on small amounts of drawdown.

Q. Does HLI's -- or did the M3 aquifer test, the SVR-7 test and Kling test meet that standard, in your opinion?

A. Yes, it did.

Q. With regard to the SVR-7 recovery plot and Mr. Vincent's question about the, quote, "missing data" between that 29 feet and 2.3 feet -- and I think Mr. Squires addressed part of this point yesterday -- do you agree that once the plot falls on essentially the straight trend line that no other data is needed after that initial recovery bounce?

A. Well, I can answer that this way. In terms of the way that we typically analyze the data, we analyze the data that fall on the

straight line. And generally speaking, the data that do not fall on the straight line, the early data that don't fall on the straight line, we generally ignore those in the analysis, because usually those don't fall on the straight line to a number of reasons: spurious measurements or effects that occur within the well itself.

Q. What is your response to Mr. Vincent's statement that the Kling and SVR-7 tests are somehow degraded in quality because neither well is a perfectly constructed well or that the wells are partially penetrating -- the pumping wells are partially penetrating?

A. I don't agree with that. Basically, in my opinion, the pumping well itself is a point of withdrawal that we pump water from. And if you're using observation well data to analyze aquifer test data, it doesn't really matter whether the well is partially penetrating or not if the observation wells are far enough away.

So the basic rule of thumb that we use in hydrogeology is that if the observation wells are one and a half to two times the aquifer thickness away, distance away from the pumping well, then we can safely ignore all partial

penetration effects.

So what that means is that if the well is poorly constructed, that will affect the amount of water we can pump out of it, yes, it will affect how much water we can pump from that well. But it will not affect the drawdown and the quality of the analyses based on observation well data.

Q. In all of the aquifer tests that you've done, Dr. Osiensky, what percentage had pumping wells that fully penetrated the aquifer?

A. Very small percentage that I can remember. Very small. Probably less than 5 percent of all the aquifer tests that I've run.

Q. Why would that be?

A. Well, in most cases it's very difficult to identify the actual aquifer prior to drilling. So generally, when wells are drilled, the driller is looking for a target, and they're looking to produce a certain amount of water.

And so they drill the well as deep as it needs to be in order to supply a certain amount of water. So as an example, if you contact a driller and you say "I need a well that's going to produce 1500 gallons per minute," that's what

you're going to get. You're going to get a well that produces 1500 gallons a minute.

Drillers have enough experience to know, Okay, I can drill this well 300 feet deep and it's going to get me 1500 gallons a minute.

They're not going to give you a well -- go any deeper than that and give you a well that produces 2,000 gallons a minute because they're going to lose business down the road.

So you get what you ask for. And those wells typically are partially penetrating, in most cases.

One of the rare instances that I've run with a fully-penetrating well was at Eagle Island State Park. And that was a test -- an eight-day test that I ran that I fully penetrated the Boise River Gravel Aquifer, which in that case was only 30 feet thick. There was a 5 foot thick clay layer. And so I did fully penetrate that with well screen, but it's very rare.

Q. Dr. Osiensky, in your opinion, is the SVR-7 aquifer test sufficient to demonstrate water availability in the PGSA for the M3 Eagle project?

A. I believe it is.

Q. And you believe that there is

sufficient water available for that project?
A. Yes, I do.
Q. Is M3's monitoring program, including its monitoring over the last two-and-a-half years, and its 23 well monitoring network, sufficient to engage the effects of M3 effects to the aquifer, in your opinion?
A. Yes, in my opinion, with that -- with that monitoring program, if that monitoring program is continued monitoring on the same frequency that it is now, any effects of the M3 pumping should be readily apparent in those observation well data. And it should give us a very thorough record of what's going to occur, and predictions -- future predictions should be able to be made very accurately from those data.
Q. Have you seen any indication in any of the data developed by HLI to suggest that there is not sufficient water in the PGSA to supply M3 Eagle's project?
A. I have not seen any.
Q. Do you have any comment on Mr. Vincent's statement that a downward gradient in that shallowest piezometer completion in test well 1 -- I think it was mentioned briefly

yesterday -- is quote, "an anomaly that's not explained," close quote? Do you have a response to that?
A. I don't consider that to be an anomaly. In my experience with measuring along any of these canals -- and again, I lived in the Boise Valley for nine-and-a-half years and I had a little ditch going through my yard -- basically, the water levels respond very rapidly to leakage from these canals when they fill them and so forth.
So I wouldn't expect anything else in the vicinity of these canals. I would expect the fact that once you add new water to the system every spring in these canals, you're going to create areas of decreasing potential with depth. It has to happen.
And so you have many -- basically, you're going to have a shallow -- many shallow, short-flow systems that are going to be developed along in the vicinity of these canals. And I believe that's -- that measurement was taken very close to the Farmers Union ditch, and that's exactly what I would expect. I would expect to see decreasing potential with depth in the shallow

system in that case.
Q. Is the fact that HLI did not describe the shallow recharge zone in test well 1 a failing of the HLI analysis or reporting in this case, in your opinion?
A. Not in my opinion. I think the information was presented, the indication that there was decreasing potential at that location was presented. The fact that it wasn't explained or expounded upon -- you know, you can't explain every detail. But the information was presented.
So there wasn't like anything was missing. All that information was in the report. So I don't see that as any deficiency.
Q. What amount of drawdown do you expect the M3 Eagle project to cause in the aquifer in the area of the protestants' wells?
A. Would you repeat that?
Q. What amount of drawdown do you expect the M3 Eagle development at full build-out to cause in the aquifer in the area of the protestants' wells?
MR. ALAN SMITH: I would object to that. Is he talking about the peak drawdown or peak pumping or 10 cfs or 9.04? We don't know.

Q. (BY MR. FEREDAY): Okay. My question has to do with full build-out that is producing from the aquifer over 6500 acre-feet per year.
THE HEARING OFFICER: I'm assuming that you're referring to the PGSA Aquifer?
MR. FEREDAY: From the PGSA, correct.
THE WITNESS: Okay.
THE HEARING OFFICER: Sure. Overruled.
THE WITNESS: In the Pierce Gulch Sand, I would expect the drawdowns to be relatively small. Okay? But when I say that -- let me qualify -- I think based on the predictions that were made, those predictions that were made were primarily made with Theis, the Theis equation.
And I believe that -- at least what I believe, based on what I'm seeing with all of the data, I believe that it's going to be less drawdown than is predicted by Theis. That's in the Pierce Gulch.
Local domestic wells, in my opinion, would experience less drawdown than we're predicting to occur in the Pierce Gulch.
Q. (BY MR. FEREDAY): What is your opinion of the conceptual geological model testified to by Dr. Wood, Mr. Squires, and

questioned by the staff? Do you agree with the conceptual model that Hydro Logic has put forward?

A. I believe that the conceptual model is excellent. I fully believe the conceptual model. In my opinion, the conceptual model is excellent, and it really has no deficiencies.

Based on all of the data that I've looked at -- and I've looked at basically all the data. I've looked at all of the well logs as far as Stacy Douglas' master's thesis, plus looking at all the reports that Hydro Logic has produced, I've looked at the geophysical logs, I've looked at all the well logs, I've looked at all the cross-sections, and, in my opinion, the conceptual model is very accurate. It very accurately depicts and reproduces the data that were collected.

Q. With regard to Hydro Logic's technique for mapping aquifers using geophysics, do you agree with that technique?

A. In my opinion, geophysics is the definitive way. When a well is drilled -- and this is something that people don't realize, but when a well is drilled, you can collect samples. And most people collect samples every 5 feet or

so, and you collect what's coming up the borehole. And you never know exactly where the drill bit is when the cuttings are coming up the borehole.

So correlating where you are depthwise with what's coming up the borehole -- and there's maybe a sand that you're collecting out at the borehole and the drill bit's down there 220 feet. Knowing where that sand is coming from is very, very difficult. Very difficult. Nobody can do that. Okay?

What the well logs do -- geophysical well logs, it gives you a continuous record of what's been penetrated by the drill as it's drilling, and it's continuous.

So when you collect samples every 5 feet, there's a lot of error involved with that. But also, what's happening between those 5 feet? You have no idea.

But geophysics, these well logs give you a continuous record. There's no gap in the record, so you know exactly what's at the -- basically, every inch of the way. By far the best data.

Q. Dr. Osiensky, I'd like to ask you about some points about which Dr. Ralston

testified.

Do you agree with him, first of all, that there is inadequate data to support the theory of groundwater flow toward the Payette Valley?

A. Do I believe that there's inadequate data to support the conceptual model? Is that the --

Q. Correct.

A. No. No. I believe that there's plenty of information to suggest that the water is flowing in the direction that the conceptual model says it is.

First off, you have to understand -- and I think this is one of the things that I'm gathering -- hearing much of this -- the testimony and so forth, a conceptual model is basically what it says. It's a concept. Okay?

And so what we do with the conceptual model is we develop at the early stages, and we continue to build on that conceptual model as more and more and more data are collected. And so the original conceptual model, I'm sure, was much different than this final conceptual model.

And I know that for a fact, because

Stacy Douglas and I were dealing with the original conceptual model as Hydro Logic was putting that together. And it builds as more and more data are collected.

And in short, you may not have data point everywhere along long the way. But based on all the data that have been collected to date, the conceptual model makes perfect sense, in my opinion, and it does indicate that groundwater is flowing to the northwest.

Q. When you did your groundwater measurement with Stacy Douglas and the other students measuring I believe you said over 200 wells, what did you find -- what did you know, to begin with, and what did you find with regard to that effort?

A. Okay. When it started -- it started like this: Because we were charged with developing an independent conceptual model, an independent model, which is difficult because we're using some of the input from Hydro Logic. But our charge was to develop an independent model.

And so what Stacy and I did is we started from scratch, and we used Modflow as our

model. We collected our own data. Stacy went to all the IDWR records. She went to all the published records -- Spencer Wood's records, Idaho Geological Survey, USGS records -- compiled what they believed to be the geology in the vicinity of the site.

We put all that into the model and simulated the condition where we believed conceptually from our standpoint that the Boise River was in contact with the groundwater and the Payette River was in contact with the groundwater. Okay? And --

Q. Dr. Osiensky, at the time that you started the Douglas -- what I'll call the Douglas numerical model, were you fully aware of the Hydro Logic conceptual model of the geology of the area?

MR. ALAN SMITH: We would --

THE WITNESS: At that point in time --

MR. ALAN SMITH: -- object to this, Judge. It's beyond the scope of our evidence. It's beyond the scope of anything that Owsley or Vincent testified to. It's going way beyond rebuttal evidence, way beyond the scope, and I think you need to cut it off.

MR. FEREDAY: Mr. Hearing Officer, this is

not beyond the scope. Both Mr. Vincent and Mr. Owsley spoke to the numerical model. Dr. Ralston spoke at some length about it, and I'm attempting to establish his credentials and what happened with his understanding of the modeling effort in the area. And I think it is proper rebuttal.

THE HEARING OFFICER: Overruled.

THE WITNESS: Okay. What we assume is that the Boise River was in contact with the aquifer, the groundwater, and the Payette River was in contact with the groundwater. This was an assumption that we made originally in our conceptual model that we incorporated into that three-dimensional groundwater flow model.

And our original -- our -- basically, Stacy's model is a more general model than the final M3 model. And our model was built to incorporate all of the hydrogeology from land surface down. So we did incorporate all of the shallow zones and so forth into that model.

But getting back to where I was going is that when we basically started, we had a homogenous block of material. That's where we started. In modeling generally you start simple

and you add complexity along the way.

So we started simple. We had a homogenous block, which means we had no geology. It was just we had one transmissivity, one storitivity value all the way from the Boise River Valley to the Payette River Valley.

And based just on elevation, the fact that we assumed that the rivers were in contact with the groundwater, as soon as we did that, the model showed a gradient to the northwest from, say, Eagle to -- to Leatha. Okay?

And that concerned me because that was something that I didn't expect or did not believe was part of the conceptual model that Hydro Logic was dealing with.

And so I was concerned, and I contacted Ed about that. And I said, "Ed, you know, I think I got bad news for you because we think water is flowing from the Boise River to the Payette River."

And that's when Ed started giving us more information about what he believes the conceptual model is with the Pierce Gulch Sand and the outcrop and so forth. And so we started to incorporate that information at that point in time

into the groundwater model.

Q. (BY MR. FEREDAY): Do you agree with Dr. Ralston's statement that the M3 model is -- that's the numerical model -- is, quote, "a good model"?

A. I believe it's a good model.

Q. What about his raising questions with it because its eastern boundary does not extend to the presumed recharge area above Capitol Bridge?

A. If you mean that he thinks that's a deficiency of the model? Is that --

Q. Correct. Correct.

A. No, in my opinion, that M3 model was designed as a site-specific model. It was not designed to simulate the conditions in the entire Boise Valley.

And all site-specific models have -- you have to cut off the boundaries at some location, otherwise we -- M3 would have just been reproducing the Treasure Valley model, which was not the intent. The intent was to evaluate the effects of pumping in the vicinity of the M3 area.

Q. Do you think that the M3 numerical model established its southeastern boundary at an appropriate location?

A. I believe so. That's pretty close to where the Stacy Douglas model had it. And that's how I would have done it too.
Q. And what did it recharge -- how did it deal with recharge, then, with regard to water entering into the model and how appropriate was that in your opinion?
A. Well, basically the same tact that we used with the Stacy Douglas model, we used primarily information where we were outside of our modeling domain, we used data that were collected by the Treasure Valley Hydrologic Project, because that was the most readily available data at that point in time. And so it's the same thing that was done with the M3 model.
And so recharge estimates that are made in the eastern part of the valley were incorporated based on information that was collected during the Treasure Valley Hydrologic Project investigation. But they were -- they were input into the system as a boundary condition, rather than as a location. And so they were treated as underflow across a boundary.
So what that assumes is that the recharge is occurring where it's supposed to

occur, and that water is flowing in a certain direction -- in this case to the northwest -- and it just continues to flow under the boundary and enters into the boundary domain.
Q. Is it your opinion to a reasonable degree of scientific certainty that recharge does occur into the M3 area across that southeastern boundary?
A. Strictly speaking -- and this is maybe just me -- I don't consider that to be recharge. I consider it to be underflow. A lot of people would call that recharge.
Q. Uh-huh.
A. But my definition, and basically what I teach my students, is that, you know, recharge occurs from land surface down, and however that is, whether that's from leakage from rivers or leakage from precipitation and so forth. And it's already in the groundwater system, that's underflow.
But in terms of mass balance, yes, at the boundary you would consider that to be recharge to the model domain.
Q. Do you believe that that is scientifically supported for the M3 numerical

model?
A. Well, it is based on the best data available, and that's Treasure Valley Hydrologic Project data, and it is a very common way of modeling as underflow.
Q. So what is your response to Dr. Ralston's questioning the model because its eastern boundary does not extend all the way up to east Boise?
A. Well, I don't agree with it. Again, getting back to the fact that this was a site-specific model, and if the intent of the model was to reproduce the hydrologic -- Treasure Valley Hydrologic model, then yes, then you would extend the boundaries all the way up there. But then you would just be reinventing the wheel.
Q. Have you constructed or used models whose boundaries do not extend to hydrogeologic boundaries?
A. Oh, yeah, all the time.
Q. How common is this?
A. It's very common.
Q. Do you remember Dr. Ralston's comment that it's, quote, "only on those somewhat extreme circumstances when you couldn't extend your model

to a hydrogeologic boundary, you would simply place a boundary"?
A. Well, I have to agree that that's true at the regional scale. If we were completing a new Treasure Valley model, that's exactly what you'd do. And you wouldn't cut the -- wouldn't cut it off in the middle of Boise, as an example, because it's a regional model.
But when you're dealing with a site-specific model, you have to. You just can't deal with the entire state of Idaho when you're dealing with a postage stamp area in -- you know, north of Eagle. You just can't do it. It becomes unwieldily to try to deal with such a large area.
Q. What is your opinion about the likelihood that drawdown effects will be measurable from the M3 development at the southeastern boundary of the M3 model?
A. There may be -- that may be true, but the model is designed to handle that. The model is designed to handle the underflow, changes in underflow from that condition.
Q. Are the M3 model's boundaries sufficiently distant from the pumping center proposed here to make that model a useful model,

in your opinion?
A. In my opinion, yes.
Q. Do you think a regional model that you've described here a few minutes ago would be appropriate for trying to evaluate the effects of the M3 development on groundwater levels or the rights of other water right holders?
A. I believe it would be if it existed, if we already had one available. I can't imagine having to extend the M3 model to incorporate the entire Boise Valley to investigate the -- the impacts of 4500 gallons per minute.
Q. Do you recall my questions to Mr. Vincent about his earlier position in the City of Eagle case that recharge in the Eagle area is coming from the foothills? And if you do recall that, what is your comment about where the recharge comes from?
A. I do remember that. And my opinion of where the recharge is coming from is that there definitely is some recharge from the foothills. There is a small amount of recharge. In my opinion, not much. If you consider the amount of precipitation that occurs in the foothills versus the amount of evapotranspiration, there cannot be

much recharge.
And this is one of the things that the Treasure Valley Hydrologic Project shows, that there's not much recharge in the foothills. And we tried to do that with the Stacy Douglas model, and we cannot make our model reproduce water levels with the small amount of recharge in the foothills. There was just not enough to allow the -- to maintain the water levels in the area of the M3 area.
Q. And that's in the PGSA?
A. In the PGSA.
Q. Have you done any evaluations independently that bear on the recharge question that the staff and Dr. Ralston raised?
A. Could you rephrase?
Q. Or were you referring to Stacy Douglas' work in this?
A. Yes. Independently what we did is, again, we -- well, Stacy did more than just the information from the Treasure Valley Hydrologic Project, because that area wasn't covered in great detail.
Actually, one of my former students was hired by Hydro Logic to evaluate the

conditions up in that area based on the crops that existed in the area, based on better estimates of the precipitation and so forth, and estimated the recharge in that area, specifically for the Stacy Douglas model.
Q. Is there anything in the Stacy Douglas model or its findings that would contradict the assumption that there is underflow in large quantities coming through the southeast corner of the M3 area model?
A. No. The Stacy Douglas model required basically exactly the same thing. It required substantial underflow from the southeast corner of the model.
Q. You mentioned that during your -- to change gears here a little bit. You mentioned earlier during your work in measuring wells that you spoke to several of the well owners during your measurement work.
And I'm just wondering whether you picked up any concern or anxiety about groundwater levels or aquifer levels or wells going dry or anything like that during your work?
A. Of the people that we contacted -- and we probably talked to maybe two-thirds of them. I

mean we contacted everybody asking for permission to measure wells. Yeah, about two-thirds of them actually talked to us conversationwise, and nobody voiced any -- or expressed any concern about declining water levels, none that I can recollect, either any problems that they're having now or even any problems that M3 might create.
So they -- you know, people were not necessarily happy about a development. But in terms of groundwater, they -- nobody voiced any concerns to me at all.
Q. Turning now to a comment Mr. Owsley made. I'd like to get your response to his statement that there is, quote, "some uncertainty as to the values reported by Mr. Urban for river losses," and he further said that he -- that Owsley did not, quote, "think it is known at this time," close quote, whether above Capitol is a losing reach.
What is your response to that?
A. I think there is uncertainty relative to where the Boise River leaks and where it gains. If you think about trying to measure that, that's a huge undertaking, a river that size, trying to understand where it's gaining and losing.

However, that's because you're trying to measure flows in the river and you're trying to measure differences in the flows in the river. That's a very difficult thing to do.

The groundwater data, however, suggests that there is decreasing potential in certain areas and increasing potential in certain areas. And by our definition of hydrogeology, wherever there's a downward gradient, that's a recharge area.

And so that means that water is moving down. And if the river is close by, then you assume that the river is the ultimate source of the water. But really what happens is that the river may leak water, but that water is distributed through the gravels, and then water leaks down from the gravels into the deeper system.

And so wherever you have a downward hydraulic gradient, which we know we do have well data to indicate that it does occur, that's when recharge occurs. There's no question in my mind that that's where recharge is occuring.

Q. Do you feel that recharge to the Pierce Gulch Sand Aquifer is restricted to just

one reach of the river?

A. Not in my opinion. My opinion, the river -- that overall, I don't have statistics to put bounds on estimates, but I would say that the river itself is actually a relatively small contributor. I would say that most of the recharge occurs from the spreaded irrigation water in terms of all the hundreds of miles of canals that crisscross the valley.

So all that river water from the reservoir is being distributed. That's recharging the gravels. And then water is infiltrating from the gravels down into the Pierce Gulch and all the other aquifers.

Q. What can you say about travel time and time delay that might be involved in having that recharge show up in the M3 area?

A. Recharge -- because what we're talking about is -- we may actually have fairly old water in residence in the aquifer. And recharge that's occurring today could easily take a hundred years or so forth to show up in any downgradient wells. It's very, very complicated.

Basically, it's a capture zone analysis of where the water is coming from when

you pump a specific well. And it's very, very complicated.

You could have a river right next to the well and complete a capture zone analysis and find out that that well is not capturing any of the river water. It's capturing it from somewhere else. So even wells right close to the river could have relatively old water and not show the effects of recharge for easily a hundred years, because the gradients all have to change. And that old residence water that's in there was prior to development. And so it's there.

And so it takes a very significant change in the hydraulic gradients and the distribution of those hydraulic gradients to change the age data of the water, plus the fact that that continues to change every year. As a new well goes in, the whole capture zone of all these wells change.

And so it's a moving target. It's very difficult to predict that. And basically, it's a very complicated capture zone analysis in order to understand the age dates.

Q. Do you have any doubt, Dr. Osiensky, that the aquifer receives substantial recharge,

the PGSA?

A. No question in my mind.

MS. GIBSON: Excuse me, Jeff. Could I take a moment and exchange the tape, please?

MR. FEREDAY: Yes.

MR. ALAN SMITH: Can we take a break at this time?

MR. FEREDAY: I'm almost finished. If we could just take a few more minutes, we can get through.

THE HEARING OFFICER: Okay. We're recording again.

Q. (BY MR. FEREDAY): Dr. Osiensky, what is your response to the staff's concern and suggestion that there's uncertainty due to the magnitude -- the order of magnitude difference in water-level fluctuations between the upgulch wells and those wells further down to the -- southwest in the panhandle? What's your response to that concern?

A. Well, I don't agree with it. I think that's a function of a superficial analysis. If you first look at that, I think, yeah, you'd say "Wow, look at that -- you know, we have an order of magnitude difference in the fluctuations."

However, if you look at it in more detail, it makes perfect sense, because these fluctuations are a function of distance. Okay? And again, it's much like what I would mention before, it's a function of distance from the pumping centers.

And so if you have a pumping center that's 3 miles away, it takes awhile for the effect of that recovery, as an example, from that pumping center to reach a distance 3 miles away.

And another well that's 4 miles away is going to take that much longer, and one that's 5 miles away is going to take longer yet.

And the response is going to be muted. So you're going to have a larger effect in the closer wells, and less effect in the farther wells. And that's exactly what I think we're seeing, it's a function of distance and it's a function of heterogeneity in there. There's differences in transmissivity, may be some differences in storitivity. But when you combine those, that's exactly what I would expect to see.

But I think when you look at it superficially, it jumps out at you, and you say "Wow, there's a big difference there." But I

think when you look at it in more detail and you actually picture the difference in distances, it makes perfect sense that we have an order of magnitude difference in the fluctuations.

Q. Dr. Osiensky, in the course of this hearing, have you heard any testimony from the staff or Dr. Ralston that suggests to you that they conducted any actual scientific analysis to support their testimony?

A. I believe there was some. I know that the staff did a Theis analysis to predict the effects of pumping. Mike McVay did an analysis of trends, showing upward and downward trends in certain wells. And I think Dr. Ralston did -- he brought in more of an illustration than analysis. But he put a couple contour lines on a map to illustrate that there is potential for water flow in one direction or another.

Q. Dr. Osiensky, based on the data available and the studies that you have reviewed in this case, would you conclude that the McVay analysis was academically rigorous?

A. Can you explain what you mean?

MR. ALAN SMITH: Object to that question as vague and ambiguous.

MR. FEREDAY: I'll rephrase the question.

Q. What is your opinion of the McVay analysis in terms of its scientific merit?

A. Well, I think what Mike McVay did -- well, let me rephrase.

I think what Mike McVay did is not what I would do. Generally speaking, you know, I do not like the fact when you pick certain points and analyze certain points when you have a cloud of data points. There's too much subjective -- too much potential for subjective error when you pick specific points for your analysis.

And so in my opinion, when you have a mass, a cloud of data points, the best way is to not eliminate any of the points and treat all of them together. It may not show exactly what you want it to show, but I think it's much more valid because it takes subjectivity out of the equation.

Q. Dr. Osiensky, based on the data available, do you have an opinion as to the level of scientific certainty that has been provided in this case to support the proposition that there is sufficient groundwater to serve the M3 Eagle development without causing unreasonable effects on other water rights?

A. I believe, based on my evaluation of all the data that have been collected, is that the investigations completed by Hydro Logic were very thorough and they substantially -- very, very substantially reduced uncertainty.

The investigations completed by Hydro Logic did not increase uncertainty in my opinion in any way. If you look at what was done and what we knew before the investigation, most of the uncertainty and all of the significant uncertainty was eliminated by the investigations that were completed.

Q. Do you believe that those investigations support the proposition that there is sufficient groundwater to serve the M3 Eagle development without causing unreasonable effects on other water rights?

A. I don't know exactly what you mean by "unreasonable." But I think there's definitely enough information based on the -- all the information that were collected to make predictions as to what the drawdown effects would be, whether they're unreasonable, I don't have a basis for that.

Q. What inconsistencies have you seen in

any of the information presented by M3 in this case?
A. Can you say that again, please?
Q. What inconsistencies have you seen in the data presented by M3 in this case?
A. I don't remember any inconsistencies. There may be a few things in certain reports. There were some typos and so forth that were -- that even I missed when I reviewed the reports that, you know, could be viewed as an inconsistency. But there was nothing in the data or the results or conclusions that I could see that were inconsistencies.
Q. Just one last question, Dr. Osiensky.
Could you please comment on the concept of uncertainty in the data in this case. And I know you've already testified a couple times about that, but I'd just like to make sure I understand you. The staff repeatedly referred to uncertainty in the data or the analysis.
What uncertainty do you -- how do you see that criticism?
A. Well, it depends what you mean by "uncertainty." "Uncertainty" means different things to different people, of course. It's --

you know, it's a definition that unless you looked that up in Webster and you go strictly by that definition, everybody has their own preconceived idea of what "uncertainty" is.
And I think, you know, if you have a question of a report as to, you know, why the -- why it says "data are" rather than "data is," and you would consider that to be an inconsistency or an uncertainty because the incorrect word was used in the report, I don't consider that to be uncertainty. At least nothing significant.
And so, you know, I think relative to the term "uncertainty," I think it was -- it's been overused quite a bit. I personally don't see a lot of the considerations that the staff considered to be uncertainties, in my opinion. But maybe I'm much more closely involved with the data than the staff.
But, you know, I didn't see uncertainties where the staff were pointing out many uncertainties. And as an example, the conceptual model, yeah, you may say that there's an uncertainty because we don't have a well out in a certain area. But that's an uncertainty relative to something that is unknown. Okay?

Conceptual models are based on all of the data that were collected to date. And in my opinion, there were no uncertainties there. But there's always going to be uncertainties, scientific uncertainties is always going to exist. And that's why conceptual models continue to build as more and more data are collected. So they always get better as more data are collected.
So there's always going to be a certain amount of uncertainty, but in this case there's very little that -- in my opinion. I think we've -- or not we. But based on the data that were collected, there's very little uncertainty as to the amount of water that exists out in the M3 area.
MR. FEREDAY: Thank you. No further questions.
THE HEARING OFFICER: Okay. Do the parties want to break?
MR. ALAN SMITH: Yes.
THE HEARING OFFICER: Okay. Before we break -- well, let's break.
(Recess.)
THE HEARING OFFICER: Okay. We are recording again.

Mr. Thornton, your turn to cross-examine.
MR. THORNTON: Okay. Thank you.

CROSS-EXAMINATION

BY MR. THORNTON:
Q. Thanks, Dr. Osiensky, for your information. Obviously, we just had a couple minutes to get the questions organized, so I may do my normal little jumping from here to there on my questioning.
First of all, I'd like to find out, are you currently licensed to practice in the state of Idaho as a geologist?
A. I am not.
Q. Okay. And do you know Dr. Dale Ralston, of his expertise?
A. Yes, I do.
Q. Okay. And how long have you been associated or knowledgeable of Dr. Ralston?
A. I've known Dale since August of 1975.
Q. Okay. And would you consider him an expert in the area of hydrogeology?
A. Yes, I would.
Q. You had stated I think early on in

your testimony, Dr. Osiensky, when you were working on the development of the original model for the University of Idaho out in north Ada County, I believe you testified that you and Stacy Douglas and maybe some other students measured several wells, maybe even a couple hundred wells; is that correct?

A. Yes.

Q. Okay. And of those wells, how many of those wells did you have knowledge of as to which aquifer that they were penetrating into?

A. When Stacy and I originally went out -- and this was in June of 2006, we didn't. So we went to local domestic wells without knowing exactly how deep they were, but they were in the area. So we did it based on an areal basis, anything that was there and we could get access to, we asked if we could get our measurement.

Q. And subsequent to that, of those same wells, how many of those do you have knowledge as to which aquifer that they are in?

A. Very, very little. Subsequent to that -- we found that most of those wells were shallow wells, were not completed into the Pierce Gulch Sand. Okay? Of the 200 -- that's of the

original 25 that Stacy and I measured.

Of the 200, there was more filtering, because then Hydro Logic was involved in identifying specific wells. So when Stacy and I first went out there, we didn't identify any wells. We just visited every house that we could get to. It was more information for the later 200.

Q. Okay. And "more information," what type of information was that?

A. It was selection based on the well logs. So based on the valuations of the depths of the wells, based on the driller's reports, specific wells were selected for measurement and others were excluded.

Q. And this information was based on the well logs, then, is how you selected them?

A. That's right.

Q. All right. And have you heard testimony by Mr. Squires how well-log information is often not that exacting?

A. That's right.

Q. Okay. Of the wells that you excluded, what was the basis for the exclusions of those wells?

A. You mean during the selection process?

Q. Correct.

A. It was primarily -- now, this was Hydro Logic's interpretation. Okay? So it was based on their interpretation of the well log and their knowledge of the quality of the driller. So in other words, experience with the driller in how they complete wells and whether they seal wells and whether they report well logs accurately.

Q. And do you know how -- have any information on the Treasure Valley Drilling Company who was used by M3 and Hydro Logic as to their accuracy of providing information for well logs?

A. I have no information on that.

Q. Are you aware that Treasure Valley Well Driller was one of the operators putting in the M3 test well No. 1, 2, and 3?

MR. FEREDAY: Objection. I think this goes beyond the scope of direct in terms of inquiring into well drillers or their capabilities.

THE HEARING OFFICER: Mr. Thornton, purpose of the inquiry?

MR. THORNTON: The purpose of that inquiry was to determine if that particular well driller

was thought to be credible in sampling well logs, which yesterday identified where there was a very large discrepancy between what was identified in the geophysical data from sand and clay versus what the well log -- or what the well driller's well log stated.

THE HEARING OFFICER: Okay. Overruled.

THE WITNESS: I learned only yesterday that they were the drillers of the M3 wells. I didn't know prior to yesterday.

Q. (BY MR. THORNTON): Okay. I believe you stated -- and excuse me, because I'll be scattering around here. I didn't get a chance to organize a lot of my notes. I apologize up front again.

I believe you stated earlier that the cone of depression associated with the nine-day aquifer test was very extensive but not necessarily deep; is that true?

A. Right.

Q. I believe you also testified that the cone of depression was very large, covering many tens of square miles, likely extending under Meridian; is that correct?

A. That's correct.

Q. Okay. Have you ever worked on aquifer characterization involving not only the spatial area, but also the number of existing wells potentially impacted? Have you ever done anything of that same magnitude?
A. I'm not sure what your question is.
Q. In your previous experience, have you worked on any aquifer testing or characterization associated with an area with so much development in terms of other existing wells?
A. No, I have not.
Q. Have you worked on or been involved with the aquifer characterization up in Moscow?
A. I have.
Q. And the name of that aquifer is?
A. There's -- in Moscow?
Q. Yeah.
A. There's two that I've been dealing with. But we deal with them based on formation name. So there's the Wanabum Aquifer system and the Grand Rone Aquifer system. The Wanabum, W-a-n-a-b-u-m, and the Grande Rone, G-r-a-n-d-e, R-o-n-e, two words.
Q. And then could you describe -- and so you've been involved with that for how many years?

A. Since I got -- since I was recalled to Moscow in 1997.
Q. Okay. And then have you been involved with estimating the sustainability of that aquifer?
A. I have.
MR. FEREDAY: Objection. This is getting into that aquifer, not this one.
THE HEARING OFFICER: Overruled. There was some testimony about Dr. Osiensky's familiarity with the aquifer.
Go ahead. Let's see where it goes.
THE WITNESS: Yes, I have.
Q. (BY MR. THORNTON): Okay. And what has the experience been with the predictions of drawdown of those aquifers versus what's actually been happening over the last several years?
A. It's a long story. How far back would you like me to go?
It's a very poorly understood basin, and it has been for years and years. So it depends on, you know, specifically what you're looking for.
Q. Okay. Maybe I can narrow down my questions, or the field.

Have the predictions on drawdown been an overestimation or an underestimation?
A. In terms of from aquifer tests or from annual pumping or --
Q. From your aquifer tests on predicted drawdowns versus what's actually happened.
A. Okay. Basically the aquifer tests -- we've never used aquifer tests to determine or predict drawdowns, annual drawdowns. What we use is the aquifer test data to determine hydraulic connection between wells and aquifer coefficients, transmissivity, and storitivity.
Then we use those coefficients sometimes in order to make predictions based on Theis equations or some other equations, so we can extrapolate to any time in the future.
And so what we found -- I think this may be what you're getting to. We found some difficulty in doing that in that case, because what we have there is high transmissivity, but very low storitivity. And we have a huge uncertainty relative to the size of the basin.
And so we have -- we can estimate storitivity within maybe an order of magnitude of factor of ten, but we don't know the size of

basin. So without knowing the size of the basin and the storitivity, we have to guess, and we have to guess within an order of magnitude.
Q. Do you know the size of the basin for the Pierce Gulch Sand Aquifer?
A. I don't know the size of the basin.
Q. So is it potentially it could have the same uncertainty as you do up in Moscow?
A. No, totally different story. In Moscow we have very distinct boundary conditions. We have granites. So we have granite outcroppings surrounding the basin, and the basin is basically horseshoe shaped, but it is open to the west. Okay?
And we have always assumed in the past -- when I see "we," generally the hydrogeologic community -- that the Snake River is the ultimate discharge area because that's the lowest topographic feature in the area. But when we sample up there, we do not see the water. Okay? The water is there, but the chemistry the age dates -- the confusing thing with the age dates -- or at least this was deuterium and O-18 suggests that the water that's discharging in the Snake River doesn't originate in Moscow. So we

don't know the size of the basin.
THE HEARING OFFICER: Okay, Mr. Thornton, now I want to be active in limiting the amount of information that we try to elicit from Dr. Osiensky about the Moscow area. He's testified that it's significantly different in its geology and its hydrogeology. And because we can't draw those parallels, I want to limit the number of the questions and answers on that subject.
MR. THORNTON: Okay. One more question on that.
THE HEARING OFFICER: Okay.
Q. (BY MR. THORNTON): So the predictions of drawdowns completed by yourself and a group of other experts compared to what has actually been happening, how accurate are they?
A. The --
MR. FEREDAY: Objection.
THE HEARING OFFICER: In what location? I don't even know.
MR. THORNTON: Okay. I'm sorry.
Q. In the Moscow area.
MR. FEREDAY: Objection. I think it's -- the Hearing Officer has already pointed out that

there are significant differences, as he's testified. And I don't think it's relevant.
THE HEARING OFFICER: Sustained.
Q. (BY MR. THORNTON): In terms of the cone of depression for -- to identify it as being extensive in area and not necessarily in depth, how -- what are some of the depths that you saw in terms of the cone of depression as they radiated out from the wells?
A. You're talking about here --
Q. In the M3 area.
A. Okay. I believe -- and this is memory, but I believe there's about 29 feet of drawdown in SVR-7, as an example. I believe that's what I remember in terms of the drawdown. But a lot of that is well loss. Okay?
So the actual drawdown in the well or in the aquifer outside of the well is much less because of well loss. Okay? So we have a relatively shallow cone of depression in that, by crude estimate, say that there was 20 feet of real drawdown in the pumping well -- okay? -- which is a very low drawdown pumping 917 gallons a minute, and then you extrapolate to where he measured four-tenths of a foot in some of the observation

wells. It indicates that the deepest part of the cone of depression is at the pumping well, and it gets shallower and shallower as you move away from the pumping well to the, you know, four-tenths of a foot of drawdown that we're measuring in observation wells.
Q. Okay. And then you had drawn -- and unfortunately I didn't see somebody erase it. I was going to try to have it up there as an example. You had drawn on a log scale your time versus drawdown.
And what I was interested -- and maybe you could just, without the accuracy that you drew it then, if you could just draw that curve or perhaps I could come up and ask you a question, whatever, just simply, you know, in 20 seconds just draw the X and Y-axis, and then you have the curve in there.
A. We have drawdown here, and we have time on this axis (indicating).
Q. Right.
A. And then we have a log scale like this (indicating).
Q. Correct.
A. And so we're looking at the log of

time. And so it starts at 1 minute and this is 10 minutes, this is 100 minutes --
Q. Sure.
A. -- this is 1,000 minutes (indicating).
Q. Okay. And then you had a curve, an illustrative or an illustrative curve.
A. Right.
Q. If you could just --
A. That would be, as an example, the Theis-type curve that everybody talks about.
Q. Sure. And so over time drawdown increases; is that correct?
A. That's correct.
Q. What I'm curious as, when you get out in time, whether it's one year, five years, or you predict 50 years, dealing with the uncertainty -- I didn't have time to get a Webster's dictionary, or my staff didn't -- there is some confidence interval that brackets either side of that curve, is there not, in terms of your certainty or accuracy as to your prediction? Is that correct?
A. I'm not sure exactly what you mean by that.
In terms of how many data points that are scattered above the point?

Q. No. No. Just if you --
And, Mr. Hearing Officer, if I could just quickly draw something there. Unfortunately, the curve was originally lost. This is a question I need to ask in terms of how certain are they in terms of their predicted drawdowns. We've never gotten that yet in the whole hearing.
MR. FEREDAY: We would object to Mr. Thornton drawing charts.
Q. (BY MR. THORNTON): Okay. So the point -- then I won't draw, which is fine.
If you were to go out to five years.
A. Okay. So out here somewhere.
Q. Okay. So you're somewhere there at five years.
A. Okay.
Q. And let's say, as an example, the drawdown was supposed to be 20 feet, as just pure example, what is the range in terms of the probabilities that that's accurate, if you were to use one standard deviation or two or whatever? Is it 10 feet to 40 feet? Is it 5 feet to 100 feet? I want to know what that certainty is. I've never heard anybody ever tell me, other than it's a certain amount, and I ask "How certain are you?"

and I never have gotten an answer.
A. Well, okay. This is -- if we're going to extrapolate out there in time where we don't have any measurements --
Q. Correct.
A. -- so it's based on what the equation predicts. The equation is perfect. The equation is going to predict exact amount. It's an analytical equation.
Q. Sure.
A. It's going to predict exactly the amount of drawdown you should have based on everything that went into the equation in the first place, the transmissivity and storitivity.
Q. Correct. Right. So now how accurate is that prediction?
A. Okay.
Q. Can you tell me as an expert that you're 100 percent certain that at year five it will be at 20 feet and no more, no less?
A. The way I have to answer that --
MR. FEREDAY: We'd object that 100 percent certainty has not been what his testimony is, nor is it the standard of proof.
MR. THORNTON: And I would say that we

haven't heard anything about certainty, which is problematic to the protestants concerned about injury, is we have no idea how accurate they feel this is in the future.
THE HEARING OFFICER: Okay. Well, I'll sustain an objection. But it's based on the fact that there were two questions asked, and I don't know which one he's supposed to answer, Mr. Thornton. I want you to re-ask the question. I think you can explore the subject of certainty with Mr. Osiensky.
MR. THORNTON: Okay.
THE HEARING OFFICER: But you need to ask one question, and then let him answer that question.
MR. THORNTON: Yeah, and I apologize. I didn't realize I asked two, but I'll try to --
THE HEARING OFFICER: Well, you asked one question, and then you left that question and asked another.
MR. THORNTON: Okay.
THE HEARING OFFICER: So ask the question you want him to answer.
MR. THORNTON: Okay. I'll try and see if I cannot have a senior moment here.

Q. So at year five was a point of drawdown predicted to be 20 feet, by your equation. Okay?
At year five, if we were to actually go to year five, what confidence interval is there in terms of -- I may not be articulating this right. How certain are you that it's going to be 20 feet?
A. Okay. I have to answer it this way.
Q. Okay.
A. The equation can predict what's there. No question about it that the equation is accurate based on the assumptions that go into the equation and the values that you present.
Q. Right.
A. Now, if the values are in error and so forth, then you're going to have -- you're going to have error in the interpretation of the data.
Q. Correct.
A. The other thing is it's very difficult to predict into the future, because we don't know what else is going to go on.
Q. Right.
A. We can predict the effect of the M3 conditions -- okay? -- but we can't predict

whether a new well is going to go into Meridian and a new well is going to go into Eagle because all bets are off. This is assuming the effect of only the M3 condition.

But every well that goes into the Pierce Gulch Sand Aquifer is additive to this. We have to add all the effects together, and we can't predict that.

So if 15 new straws go into the aquifer after five years and they're equally spaced, in other words, those wells are equally distant from your well, as an example, and they pump the same amount, then you're going to have 15 times more drawdown in your well than is caused by M3. So everything is additive.

Q. And thank you. And I believe I understand that.

My intent wasn't to look at my question additive of others, just purely based on if M3 was the only extractive addition to the Pierce Gulch Aquifer, how certain or sure are you of that? And if I could give -- I'm not trying to testify. I'm trying to help. Maybe through the work that I do in surface hydrology, when I'm asked to predict a 100-year flood flow --

MR. FEREDAY: Objection. He is testifying.

THE HEARING OFFICER: Well, I'll let him pose this as a hypothetical question.

Mr. Thornton, overruled. Let's see how you do.

MR. THORNTON: Thank you.

Q. When I'm asked to predict a 100-year flood flow on a stream, there's an equation that tells me it's going to be a thousand cfs. But then based on the uncertain nature of the equation, the variables that go into it and the coefficients, it's bracketed by, as I'm sure you're much more aware and knowledgeable than I am, as standard deviations or confidence intervals, that it could actually be anywhere from 800 to maybe 1200 cfs, could be in that realm.

And that's what I'm trying to find out here, is what is that band around that 20-foot drawdown?

A. Okay. We generally don't do that. You're incorporating uncertainty into climatic conditions of the surface water. You have an increased rainfall event, yeah, you're going to have more runoff. Here where we know what the withdrawal rate is, 4500 gallons a minute I think

it is, that's not going to change. So our prediction is always going to be the same. There's no error bracket involved. It's a prediction based on that.

Now, how good that prediction is is based on how good -- how well the equation fits the scenario --

Q. Correct.

A. -- the geology.

Q. So --

A. So based on the data that we have collected, it suggests that the Theis equation is an excellent model. All of the data during the aquifer tests fall right on the Theis curve. There's no deviations that we're seeing in the boundaries. That gives us a very strong indication that it is an accurate model to use to make predictions.

If we had a lot of deviation where the aquifer test data don't fall on the Theis curve, I would say "Okay. That's the wrong model to use. We need to find a different predicter." But that's not the case here. All of the aquifer test data for all of the tests that were run basically indicate that Theis, or the straight-line method

equivalent, is a good model to predict future drawdowns.

Q. Okay. And thanks for that. If you want to, you can sit back down.

So I believe you also stated that if during the nine-day aquifer test, if the volume had been doubled, then potentially the drawdown would have been I think you said double, but I wasn't sure if I got that right.

A. Yeah, drawdown is directly proportional to the pumping rate.

Q. Okay. And then -- and then in the example for the nine-day aquifer test at 917 gallons a minute -- and this is what I calculated out and can't find it now -- what percentage of that 917 gallons per minute is what M3 is asking for in terms of their peak use? Do you know what percentage that 917 is?

A. In terms of their peak use?

Q. Yeah.

A. I don't know offhand.

Q. Their peak use would be somewhere around 15 million gallons a day?

MR. FEREDAY: Objection. It's way beyond the scope of his testimony.

THE HEARING OFFICER: Okay. Mr. Thornton, I think if you were to ask the question -- I'll sustain the objection. I think if you were to ask the question as a hypothetical question of this expert witness, you can pose the question correctly, rather than testifying yourself.

MR. THORNTON: Okay. Thank you.

Q. If you double the pumping rate hypothetically from the seven-day aquifer test and you did it for the -- or the nine-day aquifer test, I guess it is, what would the likely drawdown difference be if you doubled the volume?

A. The difference at an observation well? If you -- I'll put it in illustrative terms. If you had 1 foot of drawdown in a well after nine days pumping at 917 gallons a minute, and you doubled the pumping rate but pumped for nine days, then you should have 2 feet of drawdown.

Q. Okay. And does the 917 gallons per minute equate roughly to 1.3 million gallons per day? You were doing some calculations on the board that got erased.

A. Yeah, whatever 917 times 1440 is.

Q. I came up with 1.3 million.

And are you aware that M3's peak use

is looking at potentially 15 million gallons per day, approximately?

A. Peak use?

Q. Yeah.

A. During a fire, as an example?

Q. Yeah, instantaneous, yeah, use.

And then --

THE HEARING OFFICER: You asked a question?

MR. THORNTON: Yeah.

Q. Are you aware -- I've kind of lost track of where --

THE HEARING OFFICER: I think you said "Are you aware?" and I don't think the question was answered.

Q. (BY MR. THORNTON): Yeah, are you aware that the peak discharge for M3 is approximately 15 million gallons per day?

A. I'll take your word for it, yes.

Q. And then taking the test, the nine-day aquifer test, the 1.3 million gallons, as compared to the 15 million gallons, what difference in potential drawdown would there be if they were to use that amount of water?

A. If you look at -- again, let me just illustrate by a simple equation.

Q. Sure.

A. Okay? So this is the way that we predicted, so a lot of those numbers I can't do in my head any longer. But, you know, with a quick calculator, it's easy.

But if you look at drawdown -- and I write "drawdown" as a written estimate to differentiate from. "S" is storitivity. So drawdown is equal to Q, divided by 4 pi T. "T" is transmissivity to the aquifer, and then you have W and U. "W" is the well function of U. So this is an infinite series.

So drawdown is directly proportionate with Q. So whatever you do to Q is going to affect the drawdown directly. So if you double it, triple it, quadruple it, whatever, then you're going to have that equivalent amount of drawdown at any location in the aquifer. That's what's predicted by the equation.

So but if you're talking about an instantaneous withdrawal, that it occurs for one day -- okay? -- it's just a small blip on this. So it's actually -- you could use the same equation to calculate the additional amount, but then you'd have to add these equations together

for the amount of time that it was pumping at one rate plus another rate plus another rate. So it's by two per position. And so it just becomes a long equation.

Q. Okay. Is it fair to identify -- I believe what you said in general is that if the pumping rate is doubled, the drawdown is basically -- that was experienced would be doubled?

A. That's correct.

Now, could I explain a little bit?

Q. Oh, you bet.

A. I think, you know, what you're getting at is you're looking at pumping at 15 million gallons a day, and that's going to have a dramatic effect. And no, it won't because you also have to take into account function of time.

So when we use the -- when we use the nine-day aquifer test to predict how much drawdown, that's like after nine days of pumping at 917.

If you pump that well for one day at 15 million gallons a day -- okay? -- that will have a certain effect. But again, it's all additive. So if you average that 15 million

gallons, then, over nine days -- okay? -- you'd have the same total drawdown.
Q. I think I understand.
A. Does that make sense?
Q. Yes. So I believe that you testified that -- let's see -- that you've heard most of the testimony from Mr. Squires, is that correct, the last day yesterday?
A. Yes, I have heard that.
Q. And did you hear Mr. Squires identify that the PGSA is a large regional aquifer extending as far and southwest as Meridian?
A. Yes.
Q. Okay. Would you agree, then, that the model for the PGSA at M3 therefore reflect the regional nature of the PGSA?
A. It does not cover the entire extent of the PGSA, because the PGSA extends out into the Treasure Valley. And so the Treasure Valley Hydrologic Project should have incorporated the PGSA into it, in terms of the full extent, at least for the model domain on that model.
Q. So did the M3 model cover the extent of the PGSA aquifer?
A. Not the full extent, no.

Q. Therefore, the potential effects to other users in the PGSA that weren't modeled, do we have an idea of what could be happening there?
A. We can make predictions, easily make predictions using the same type of equation as this to any distance. Any distance, anytime we can make those predictions.
Q. Have we made any of those predictions, to your knowledge? Has M3 or yourself made those predictions?
A. Outside the model domain?
Q. Right.
A. Not as far as I know.
Q. Is the M3 observation well, their network, adequate to measure effects of the protestants' wells that are several miles away?
A. Not completely, because one of the things about domestic wells is the domestic wells themselves are pumping. So the best way to measure domestic wells and the effects are to measure specific domestic wells, because you need to incorporate the effects of the homeowner themselves pumping, and how much water they pump each day and so forth.
Q. So I believe you testified about the

drawdown of the PGSA and protestants' wells, but I don't believe you quantified those values, did you, in terms of the drawdown?
A. For the domestic wells?
Q. Yeah.
A. No.
Q. Do you have any knowledge as to the drawdown that may occur by pumping the PGSA to the other domestic well owners at -- based on testimony from M3, are largely located in the shallower aquifers? Have you seen that information?
A. I have not seen that information. However, this is the way I view it, that predictions made based on Pierce Gulch Sand Aquifer -- okay? -- if the domestic wells are not completed in the Pierce Gulch Sand Aquifer, any predictions of drawdown beneath those domestic wells -- okay? -- those predictions at that location but in the Pierce Gulch Sand Aquifer beneath the domestic wells are valid. Okay?
And so if we predict 3 feet of drawdown in the Pierce Gulch Sand beneath a domestic well that's completed in an upper zone, we have that prediction at that location.

Q. Are you saying that -- if I understand you correctly, are you saying that the prediction of 3 feet in the Pierce Gulch Sand Aquifer, and if you have a well above it that's in a shallower aquifer, that their drawdown would be 3 feet?
A. It's possible. But again, it's very difficult to know because there's different strata between the Pierce Gulch Sand Aquifer and that zone. So without knowing exactly what's there, it's very difficult to make a very accurate prediction, plus the fact that that domestic well is pumping.
And so getting information on how much water is pumped out of the domestic well is just about impossible, unless we have recorders in those wells, where you have flow meters on your wells.
Q. In your expert opinion, what is an appropriate way to predict or what is needed to help predict potential effects to the domestic well owners?
A. Well, again, the best way is monitoring. So the more monitoring data you have, that's by far the best. Because just like you've indicated, when you extrapolate an aquifer test

out in time -- okay? -- there's a lot of assumptions that you make.

So by far, you know, a long-term monitoring is the best in order to understand what's actually happening, because that's very definitive. You monitor it, you see it, if it's not happening, it's not happening. If you see it, you have a record that shows that certain effect is occurring.

Q. And then I believe Mr. Squires yesterday identified a five-year period would be the beginning of good information collected to characterize the test model.

A. I did hear him say that, uh-huh.

Q. And then again, you're not aware of any modeling effort yet to -- for the shallower aquifers to predict effects?

MR. FEREDAY: Objection. Asked and answered.

Q. (BY MR. THORNTON): Are you aware of --

THE HEARING OFFICER: Just a minute. I think that subject has been covered, Mr. Thornton.

MR. THORNTON: All right. I'll withdraw the question.

THE HEARING OFFICER: Sustained.

Q. (BY MR. THORNTON): When you were asked by Mr. Fereday a question regarding -- or were you asked a question by Mr. Fereday regarding pumping of the PGSA and the potential unreasonable -- quote, "unreasonable" effect on other senior water rights?

A. I don't remember being asked that question.

Q. I thought you were actually asked it twice in my notes.

But do you have any knowledge of what unreasonable effects are to senior water rights?

MR. FEREDAY: Objection. Asked and answered, and also asks for a legal conclusion.

THE HEARING OFFICER: Yeah, I think on both sides of the issue -- and if I would have gotten an objection, Mr. Thornton, from you regarding Mr. Fereday's question, I would have sustained it. I think it calls for a conclusion that, number one, I don't think Mr. Osiensky -- or Dr. Osiensky is qualified to answer. And I think it's a legal question. So I'll sustain the objection.

Mr. Osiensky didn't answer the question, and I think wisely avoided

characterizing it.

MR. THORNTON: Well, that's actually the point I was trying to make, is that he did not. He's not an expert in terms of reasonableness.

THE HEARING OFFICER: No. And I think he very wisely avoided any discussion about it.

MR. THORNTON: Right. Same information about Dr. Ralston.

So with -- let me see here. Actually, I think that's the end of my questions.

THE HEARING OFFICER: Okay.

MR. THORNTON: Thank you, Dr. Osiensky.

THE HEARING OFFICER: Okay. Do you want to launch into your questions, Mr. Smith?

MR. ALAN SMITH: Whatever you want to do.

THE HEARING OFFICER: Well, let me tell you just in conversation what I've determined based on timing. I have a meeting scheduled from 1:00 to 1:30. And so if we can break for lunch sometime during that time period, I can, I think, get done what I need to get done within that half hour period of time.

So depending on how many questions you think you have, we can start -- but I don't want to go much past about quarter to 1:00. So...

MR. ALAN SMITH: I don't have very many questions, but I never know how many objections I'm going to get. So I can't tell you.

THE HEARING OFFICER: Okay. Let's try. Let's try. Go ahead. You may examine, Mr. Smith.

MR. FEREDAY: Objection.

THE HEARING OFFICER: For the count in your favor, Mr. Smith, overruled.

MR. ALAN SMITH: All I did was clear my throat.

CROSS-EXAMINATION

BY MR. ALAN SMITH:

Q. I believe you said that all of the work you and Stacy Douglas did on the M3 property was funded by M3?

A. That is correct.

Q. And you're being paid to testify here today?

A. That is correct.

Q. And I wanted to ask you, you don't think that a longer pumping test would show any more or different stress on the aquifer than a shorter one, say nine days?

A. It would definitely be a different

stress. But in my opinion, the data would plot the same way that the nine-day aquifer test would plot, so that predictions would be the same.
Q. Would you refer to page -- the map on Exhibit 50, page 22.
A. I have it.
Q. Exhibit 50, page 22.
Do you have that?
A. Figure 3?
Q. Yeah, figure 3, the map.
A. I have it.
Q. Does that not reflect about the same drawdown effect that your drawing showed up there that's now been erased?
A. Yes. Yes, it does.
Q. And you're aware that that drawdown map is assuming a pumping rate of 10 cfs, not 23.18?
A. It does say it's 10 cfs, correct.
Q. Would the drawdowns shown on that map double if 20 cfs was pumped instead of 10?
A. Yes, they would.
If I could explain. That would be doubled over the entire 50 years.
Q. I believe you also, in talking about

the Big Gulch well, said that we rarely have full recovery and that doesn't indicate drawdown rates exceed recharge rates.
Did you say that?
A. I did say that we rarely see full recovery in a system such as this when you have municipal wells pumping, because there are well interferences that affect the data, which prevent full recovery in most instances.
Q. Could that be caused by the withdrawal exceeding the recharge?
A. No. It's a transient effect. It's just caused by the pumping. So that -- what these predictions are, assuming no recharge.
Q. All right. Would you look at Exhibit 50, page 11. The third paragraph, the second sentence states, "Although there are other possible explanations, the fact that water levels did not recover to pre-pumping levels suggests that the aquifer may be of limited extent."
Did you find that?
A. I found that.
Q. And Mr. Vincent quotes Mr. Driscoll there on --
A. Correct.

Q. -- wells and pumping?
A. That's correct.
Q. So it isn't just his statement, is it?
A. No. But that's the issue I have with the statement. See, that statement is based on Driscoll. And what Driscoll is is a purely theoretical analysis. And so in theory, if you assume homogenous isotropic conditions, no other wells pumping anywhere within infinity, other than that one well -- okay? -- then you should have full recovery. That's what Driscoll suggests.
Q. But the Big Gulch well nevertheless had trouble recovering?
A. It did not fully recover, yes, sir.
Q. Are you aware that there's some question about whether it's even in the PGSA or not?
A. Which well are we talking about?
Q. The Big Gulch well.
A. Yes, I am aware of that.
Q. I think you said long-term monitoring should continue, and that was the best way to keep track of what's going on in the aquifer.
Once M3 sells its property and leaves the area, who does the monitoring?

MR. FEREDAY: Objection. I think that calls for speculation and it's beyond the scope.
THE HEARING OFFICER: Sustained, Mr. Smith.
Q. (BY MR. ALAN SMITH): And I don't really want to go into this flow to the Payette again. I think that's been beat to death.
But are you aware that Newton, Petrich, Urban, and Ralston all disagreed with that flow to the Payette?
MR. FEREDAY: Objection. I don't think that reflects facts in evidence. Newton clearly shows that flow.
THE HEARING OFFICER: Well, I think the question can be asked, Mr. Fereday. Overruled.
THE WITNESS: So am I aware that other people say that the flow is not in that direction?
Q. (BY MR. ALAN SMITH): All these other expert witnesses, four of them, disagree with that?
A. I can't say for sure which -- what each individual investigator concluded. But I do know that some have suggested that flow is not in that direction.
Q. Are they all wrong?
A. Based on my interpretation of the

data, I would have to say yes, they're wrong.
Q. I believe you said you and Stacy Douglas talked to a lot of these well owners, and none of them voiced any concerns?
A. That's correct.
Q. Did you tell them that these wells at M3 were not going to affect them?
A. No. No. Basically, wherever people were interested in talking, I did try to get some impression about how they felt about the development and so forth.
Q. Did you tell them that these high-capacity wells would cause drawdowns to affect other wells in the area?
A. I think most of them were aware of that. Most of them had gone to some of the public hearing and so forth.
Q. Did you tell them that?
A. No, I did not.
Q. Discuss it with them?
A. I did not discuss it with them.
Q. Did you advise them that development of additional municipal groundwater and water table drawdowns may require some existing wells to have to be deepened or replaced?

A. No, I did not tell them that.
Q. Did you tell them that artesian wells may stop flowing and have to be supplanted by pumps?
A. No. It was all beyond the purpose of my investigation. I was there to measure their water level.
Q. It's not too unusual for you experts to disagree about a lot of things, is it?
A. No. I would say whenever you have two hydrogeologists in the same room, you get disagreement.
Q. And I think you were referred to the staff memo about Mr. Vincent's statements about uncertainty.
Can you tell us whether or not anybody knows for sure what happens with that groundwater 200 to a thousand feet down below is? Does anybody really know?
A. The --
MR. FEREDAY: Objection. I think it's a vague question with regard to does anybody really know what happens with that groundwater between 200 and a thousand feet.
MR. ALAN SMITH: He's an expert. He can

give his opinion. If he doesn't have one, he can say so.
THE HEARING OFFICER: Well, Mr. Smith, I think the question is vague because it asks the question what happens with the groundwater. With what specifically are you wanting him to address with respect to a happening? I don't know what that might be, and I'm not sure that Dr. Osiensky would know what that "happening" is. So I'll sustain the objection.
MR. ALAN SMITH: I'll rephrase the question.
THE HEARING OFFICER: Okay.
Q. (BY MR. ALAN SMITH): Does anyone know for sure the situation of the groundwater 200 to a thousand feet below us?
MR. FEREDAY: Same objection.
THE HEARING OFFICER: Sustained.
Mr. Smith, I think your question needs to go directly to something like age or direction of flow or something that is concrete. And the way in which the questions have been asked, I don't think that Dr. Osiensky could venture an answer.
Q. (BY MR. ALAN SMITH): If it takes 100

years for this recharge to show up in the aquifer, can we really say that the recharge is robust?
A. To answer that question, I'd have to say that that's not what we're basing that conclusion on, that it's robust. If you look at travel times of 100 years, that's movement of a water molecule from point A to point B, and it's taking an unknown path to get from point A to point B, which takes it 100 years.
We do know that there's lots of recharge getting into the system, but those are billions and billions of molecules all going in different directions towards different wells and so forth. So you can't quantify recharge based on that concept.
Q. Can you tell us what effect this pumping by M3 may have on the Boise or Payette Rivers?
A. No, I can't.
MR. ALAN SMITH: I believe that's all the questions I have.
THE HEARING OFFICER: Okay. Mr. Edwards, questions?
MR. EDWARDS: I have no questions for him.
THE HEARING OFFICER: Mr. Fereday?

MR. FEREDAY: No redirect.
THE HEARING OFFICER: Okay. Thank you, Dr. Osiensky.
And we will break for lunch. Let's come back at quarter to 2:00, if that's okay. It's a little longer lunch hour, but --
MR. THORNTON: Quarter to 2:00.
THE HEARING OFFICER: -- but only by five minutes or so. Quarter to 2:00.
(Lunch recess.)
THE HEARING OFFICER: Okay. Let's go on the record.
Based on discussions with parties, we have determined that we will need to hold an additional day of hearing or continue this hearing again on the 30th of July. And the Department will prepare and send out a notice. And the notice period will be shortened because of the short period of time we have between now and the 30th.
We've also discussed the presentation of additional testimony, rebuttal testimony by Department witnesses. And as the Hearing Officer, I am allowing those Department witnesses to respond to the testimony related to the

applicant's witnesses in rebuttal relating to their original testimony.
Based on the discussions we've had, Mr. Sean Vincent, if you'll come forward, please, and assume the witness chair. And I'll just remind you you're under oath. So please be seated.
You may narrate your testimony.

SEAN VINCENT,
having been called as a rebuttal witness by the Department and previously sworn, testified as follows:

DIRECT NARRATIVE TESTIMONY
THE WITNESS: Thank you.
I was not initially interested in protracting this already lengthy matter when we discussed the possibility of having staff respond to M3's experts' response to our testimony in yesterday's hearing.
After all, my cross-examination testimony was based primarily on my narrative testimony, and that is already available via our website in written form, which includes citations

to identify the basis for all of my observations about M3's sometimes contradictory statements relative to aquifer testing, the hydrogeologic setting, aquifer continuity, faulting, et cetera.
Having had a chance to sleep on it, however, there are a few issues that I feel warrant a brief response.
First, I understood Mr. Squires to indicate that he now thinks that the PGSA is not significantly faulted anywhere, not even by the West Boise/Eagle fault. I understand that he now believes that the aquifer boundary along the up-dip limit is instead everywhere the result of the dipping aquifer intersecting with land surface.
And along those lines I think it's -- you know, it's disconcerting to staff to have it revealed by the principal investigator of a fundamental change to the hydrogeologic conceptual model for the target aquifer on what was to be the second-to-the-last day of the hearing.
That this is a fundamental change is without question, as can be seen by inspection of figures contained in several of M3's submittals. I would refer the Hearing Officer to figures 4 and

6 in Exhibit 2 to illustrate that the existing --
THE HEARING OFFICER: Okay. Let us get to that.
MR. THORNTON: And was there a figure in there?
THE WITNESS: Figure 4 is the first.
MR. THORNTON: Figure 4.
THE WITNESS: Figure 4 is labeled "Conceptual Block Diagram of the Pierce Gulch Sand Aquifer," and it clearly shows a major fault transecting the Pierce Gulch Sand Aquifer and causing it to be terminated in its I believe that's northeast limit by the fault.
Moreover, figure 6 is a plan view map which shows the same fault -- fault system, actually, as a dashed red line, which also forms the boundary of the PGSA in the lower-right corner of that figure.
I might mention that there is also discussion of the existence and hydrologic functioning of this same fault system in many of the other M3 submittals, including Exhibit 12, the third paragraph on page 59.
THE HEARING OFFICER: Okay. Let us find it.

MR. THORNTON: That is Exhibit 12?
THE WITNESS: Correct.
MR. ALAN SMITH: Page 59?
THE WITNESS: Page 59.
Perhaps I'll just read that paragraph. It says, quote, "As noted in the hydrogeologic overview section of this report, the West Boise/Eagle fault lies approximately one-half mile to the northeast of the Lexington Hills well No. 1. Review of well driller's reports and the hydraulic data included in the CH2M Hill report indicates this fault acts as a no-flow barrier and edge to the Pierce Gulch Sand Aquifer. It has incorporated the effects of this no-flow boundary into all of the log-log type curve analyses discussed below. Aqtesolv generated type curves that reflected the effects of this boundary by simulating this boundary using image well theory," end quote.
I guess it's my opinion that this significant last-minute change to the hydrogeologic conceptual model serves to undermine claims made by M3's experts that there is certainty regarding the hydrogeology of the target aquifer. I mean is the aquifer faulted or is the

aquifer not faulted? We have a fundamental question here.
And I get indications in reading through the documents that it is faulted, and there's indications elsewhere that it is not faulted. And that there is a barrier to flow, and there's not a barrier to flow. It's confusing to staff, and this is -- this is a problem with the conceptual model. And again, it points to uncertainty, in my mind.
Second issue, Mr. Squires now appears to feel that it's not important to use fully-penetrating pumping wells when performing aquifer tests. And that's fine. There are reasons, as I understand Dr. Osiensky mentioned some of those today, that fully-penetrating pumping wells are not always required, and provided certain conditions are met, that's -- you can still get good results.
However, the point is that M3's own experts felt that it was important that fully-penetrating test wells be used for aquifer tests. And I guess when I originally did my narrative testimony, I provided several quotes which appear -- my narrative testimony is

Exhibit 902.
And on pages 16 --
THE HEARING OFFICER: Okay. Let us find it. Okay. What page?
THE WITNESS: Page 16.
THE HEARING OFFICER: Okay.
THE WITNESS: At the bottom of page 16 is a quote from Exhibit 12.
THE HEARING OFFICER: Just a minute, Mr. Vincent.
Mr. Thornton have you found the reference?
MR. THORNTON: I think I got there right now. It says "Higher standard"?
THE WITNESS: Yeah.
MR. THORNTON: Okay. Thank you.
THE HEARING OFFICER: Go ahead, Mr. Vincent.
THE WITNESS: And at the bottom of that slide is a quote that I took from Exhibit 12. And it discusses HLI's opinion of the need for -- or the recommendation that the wells be fully penetrating for aquifer tests.
And similarly, on page 18 of my narrative testimony, there's mention that the plan

is to use a fully-penetrating test well for the at the time proposed aquifer tests.
So it's kind of irritating to have to defend something which was not our original concept. The staff is not of the opinion that it's impossible to make good use of test data from non-fully-penetrating test wells.
It's HLI that seems to go out of the way to argue that we need fully-penetrating test wells. And that's fine. But I think it's my job to point out contradictions where they occur. And I believe that is one.
Lastly, with regard to Mr. Squires' testimony, I believe Mr. Fereday represented that it was my testimony that the fact that the source of the water to the Emmett wells was not found by the hydrogeochemical analysis to be that of the PGSA somehow represented a contradiction in HLI's conceptual model.
And I don't believe that I ever said that. We weren't provided a quote. And I -- if I did, I don't believe that to be the case. The Emmett wells, according to the HLI conceptual model, are cross-gradient so that isn't necessarily a contradiction, in my mind.

With regard to the testimony of Dr. Osiensky, which unfortunately I could only hear a few minutes of this morning, I think it's noteworthy to point out that his conclusion that the boundary effects associated with the so-called green line and the West Boise fault were seen in the SVR-7 aquifer test data.

And that appears to be in conflict with Mr. Squires' recent theory that he expressed in yesterday's testimony that the PGSA is not anywhere faulted to a significant degree, and that there were no boundary effects seen in the SVR-7 aquifer test data.

I also just want to briefly mention that I guess I found it somewhat interesting to be criticized so heavily for my comments regarding the rather complicated regional water-level trend analysis that was performed by HLI.

I never implied that it was a bad analysis or that it wasn't appropriate. I said that it doesn't make any sense to perform a well-specific regional trend analysis. By definition, a regional trend analysis cannot be well specific. It should apply to a large area. That is what it means to be regional.

So I guess I don't understand what is being taken exception to here. I think the analysis was appropriate, but I think that it was an indication of complexity. There was not a regional trend going on if each and every well had its own thing in response to water-level fluctuations.

So that's all I have to say. I'll gladly stand for questions.

THE HEARING OFFICER: Okay. Mr. Thornton, do you wish to examine?

MR. THORNTON: A question for clarification, Mr. Spackman, if I could.

We have the chance, sounds like, or the opportunity for, if we wish, to call Mr. Vincent back; is that --

THE HEARING OFFICER: Well, your question, at least to me, raises an issue of whether we in this examination, Mr. Vincent, allow questions beyond just what he has testified about.

MR. THORNTON: Right.

THE HEARING OFFICER: Or whether we limit the testimony to just those subjects that he testified about.

MR. THORNTON: Yeah, that's actually what

I'm trying to get at.

THE HEARING OFFICER: I think that is the nature of your question. So I'll throw it out to the parties.

What kind of formality do we want to require in these questions?

Protestants and Mr. Fereday, what do you think is the best thing?

And what we have here, I guess, is a conflict between the formal order of presentation and perhaps a possibility of efficiency in what we're doing.

So what do you think, Jeff?

MR. FEREDAY: Well, if we could conclude with Sean's testimony today, both any surrebuttal that the protestants would elicit and what he -- he has concluded his testimony. I think that would be ideal to move this forward. So if that could be done, we would have no objection to having the protestants go outside the scope at this time.

On the other hand, if they still intend to reserve an argument that they can recall the staff, then we would suggest that the scope be kept narrow and precise, just as Mr. Vincent's

testimony just now has been.

THE HEARING OFFICER: Protestants?

MR. THORNTON: I guess my thought is I'd probably like to be able to reserve the opportunity to ask him more detailed questions at a later time.

THE HEARING OFFICER: Okay. Then let's very narrowly limit the scope of the examination to what Mr. Vincent has testified about.

MR. THORNTON: Okay.

THE HEARING OFFICER: I don't want to go through it twice.

MR. THORNTON: And I agree.

THE HEARING OFFICER: Okay.

MR. THORNTON: I'm off track occasionally, which I'm sure I will be.

THE HEARING OFFICER: No, I think that's okay. So I want everybody to adhere to those strict rules of examination or standards. We won't call them rules.

MR. THORNTON: Okay.

THE HEARING OFFICER: Okay. Mr. Thornton?

MR. THORNTON: In light of the ability to recall for questions and versus what I believe I heard the testimony just given by Mr. Vincent, no

questions.
THE HEARING OFFICER: Okay. Mr. Smith?
MR. ALAN SMITH: No questions.
THE HEARING OFFICER: Mr. Edwards?
MR. EDWARDS: No questions.
THE HEARING OFFICER: Mr. Fereday?

CROSS-EXAMINATION

BY MR. FEREDAY:

Q. Thank you, Mr. Vincent for coming back today.

With regard to the West Boise/Eagle fault, which I refer to in shorthand as the WBE fault, you aren't saying, are you, that the WBE fault shows up as a boundary in any aquifer tests, are you?

A. That's what I heard Dr. Osiensky say this morning.

Q. Are you saying that it shows up as a boundary in an aquifer test that you could identify?

A. I'm saying that Dr. Osiensky said that this morning, if I heard him correctly.

Q. Then I'm asking you, though, whether you are -- whether it's your belief or your

conclusion that it does?

A. I believe it was seen in the Lexington Hills 30-day aquifer test, at least that was the indication provided in the reanalysis of 16 aquifer tests. That was the interpretation.

Q. How about the two aquifer tests that were done for M3 Eagle?

A. I didn't necessarily see that, no.

Q. Okay. Now, would you agree that with regard to your comment about the green line, whether the green line is a truncating fault or the edge of an aquifer, you'd have the same kind of boundary show up, would you not, in an aquifer test?

A. Yes, you would. The aquifer disappears. There's an interesting phenomenon that occurs when an aquifer outcrops and goes from being confined to unconfined. There's a transition which can have an impact, at least in theory, on the propagation of the production because the change in effective storage coefficient. But it does represent a negative hydraulic boundary.

Q. Thank you.

I appreciate your comment about a

partial penetration. And I guess this is the first time I -- and correct me if I'm wrong, but I understand you to recognize that you can get -- you can have a valid aquifer test even though the pumping well partially penetrates; correct?

A. Yes. And I was not here for Dr. Osiensky's testimony. But in my discussion with staff prior to this afternoon's hearing, I understood that he indicated that a certain distance beyond a certain distance the partial penetration effects diminish, and I concur.

Q. And with regard to your quote on page 16 of your Exhibit 902, your quote of HLI, you, of course, recognize that that quote starts out with the word "Ideally," that "Ideally aquifer tests would be conducted with a fully-penetrating well"? And I hope you recognize, and do you not, that an ideal condition cannot always be achieved?

A. Yes.

Q. With regard to the WBE fault point, would you agree that moving to the northeast on the M3 property, across the entire property, the aquifer ends there in any event, whether it is the up-dip expression of the aquifer or even the WBE fault? You would agree that the aquifer is

bounded there?

A. It is bounded, yes.

Q. Okay. At that location?

A. Yes.

Q. I also wanted to ask you about your statements regarding the regional water-level trend analysis. I take it from your comment that what the disagreement was, if there was a disagreement, was really a semantic one.

Could that be a good way of describing it?

A. Yeah, I have an issue with the description of it as being a regional water-level trend analysis. And the fact that it was not and cannot be is an indication of complexity, and that was my point, my original point.

Q. But you do agree that the analysis done was an appropriate analysis, as I believe you stated; isn't that correct?

A. I think so, yes.

MR. FEREDAY: Okay. No further questions.

THE HEARING OFFICER: Okay. Thank you, Mr. Vincent.

Mr. Owsley, do you have testimony to present?

MR. OWSLEY: Yes, just briefly.
THE HEARING OFFICER: Okay. Have a chair. You're under oath.
MR. OWSLEY: Okay.
THE HEARING OFFICER: You may narrate your response.

DENNIS OWSLEY,
having been called as a rebuttal witness by the Department and previously sworn, testified as follows:

DIRECT NARRATIVE TESTIMONY

THE WITNESS: Okay. I have not prepared a formal narrative response. I'm just going to go by my notes. And I'd just like to clarify a couple concerns, I guess, that's been brought up in this last couple days.

One with respect to some of the wells that I identified as having declining water levels and could not be verified. I brought in some records, and I'd like to explain those just to clear up the confusion on that.

So the first one I'll start with would be the Banducci old well. I was able to track

down a well log for this well. I have copies if people would like them.

THE HEARING OFFICER: We'll mark this as Exhibit 9- -- in the 900 series.

Where are we at, Debbie? There was 902, but there were additional.

MS. GIBSON: I have 907.

THE HEARING OFFICER: Shall we mark it as 907?

MR. LAWRENCE: 907 and 908 were marked.

THE HEARING OFFICER: Oh, okay.

MR. LAWRENCE: So I believe the next one would be 909.

THE HEARING OFFICER: Okay. Thank you, Mr. Lawrence.

909.

(Exhibit 909 marked.)

THE WITNESS: So as we heard this morning, the Banduccis indicated on their questionnaire that their old well had gone dry. And this is the well log for the old well.

And if we could go through it really quick, it's only 64 feet deep. The static water level when it was drilled was 54 feet. So there's only 10 feet of water in the well when it was

originally completed.

When I originally contacted the Banduccis about monitoring their well, they indicated to me that this old one had gone dry. And it was dry when I attempted to measure it. It is still in existence. It's located approximately 25 feet from their new well, and which is substantially deeper.

And the static water level in their new well is approximately 64 feet, which is right about the bottom of their old well. I have tagged the bottom of this well, and it is 64 feet deep. So there's no water in that well. I hope that clarifies the Banducci old well.

The next one I'd like to talk about is the Dater well. Again, I have a copy of this well log that I'll hand out to everyone.

THE HEARING OFFICER: Let's mark this as Exhibit 910.

(Exhibit 910 marked.)

THE WITNESS: I would suspect the reason that this well was not located is because it's not directly within the study area of this M3 project. This well is located north of Dry Creek Valley in one of the tributary valleys.

And as you can see in the well log, Mr. Dater's well is completed down into broken lava. And he has hired consultants in the past to help investigate his declining water levels. And they've concluded that he's gone about as deep as he can go without serious expenditures.

So I have monitored his well five times, roughly, in a one-year period. And the water levels, for the most part, are stable, from what I can tell in my brief one-year measurements. But he has had his pump lowered several times, and he has pumped air on occasion. And he's very concerned with his water levels. But again, this is a well that's located over north of Dry Creek Valley.

So again, I hope this clarifies any confusion on that well.

And the third and final well I'd like to discuss with respect to declining water levels was the Sharron Cummins well. And again, I'll hand out well logs for it.

THE HEARING OFFICER: We'll mark this as Exhibit 911.

(Exhibit 911 marked.)

THE WITNESS: And again, this well is

similar to the Dater well. It's located even further away from the M3 property. It's, again, north of the Dry Creek Valley and the Spring Valley area.

As you can tell on the well log, this well is completed into granite. Again, Ms. Cummins has had significant water-level declines over the past few years. She's had to have her pump lowered three times in the last year that I've been measuring her well. And that's what I know about that well.

So I'd just like to submit those records to all the parties to hopefully clarify any confusion.

With respect to clarifying some issues --

THE HEARING OFFICER: Let's talk about these documents just a minute.

THE WITNESS: Sure.

THE HEARING OFFICER: They've been marked. There are three documents that at least have been assigned exhibit numbers. And I assume Mr. Owsley would like to have those in the record.

Any objection by the parties as to receiving these into the record? Is there a need

to review these for that, Mr. Fereday, or other parties?

MR. FEREDAY: We have no objection.

THE HEARING OFFICER: Okay. Protestants?

MR. ALAN SMITH: No objection.

THE HEARING OFFICER: Okay. Documents marked as Exhibits 909, 910, and 911 are received into evidence.

(Exhibits 909, 910, and 911 admitted.)

THE WITNESS: There's one more well I'd like to provide -- two more wells I'd like to provide some clarification on that I have some direct knowledge about.

One of them was a well identified by Jason Smith. And it's identified as the Steele well in Exhibit 74 on the map of all the questioned wells.

This well is located up along Highway 16 due west of the M3 property. I am currently monitoring Mr. Steele's new well, and have had an interview with him regarding what happened to his old well. His old well was completed into a coarse sand unit directly above a thick clay unit, most likely the Pierce Gulch Sand Aquifer. And his well collapsed and it had to be

redrilled.

Now, his new well is completed deeper down into the mudstone. And that was the reason for his well replacement.

So I just wanted to clarify. There wasn't a water-level decline in that particular well. It was a construction issue. And I can note that for the record.

One more well that we've heard a lot about, the Greg Taylor well and the mysterious 125-foot water-level measurement.

I measured Mr. Taylor's well I believe five times in the past year. It's a really easy well to measure. The particular day that the well was dry, I -- I wasn't the one that physically made the measurement, but I was standing 2 feet away watching, coaching, supervising the whole time.

And there's no question in my mind that that well was dry and that we did go to the bottom of the well. The problem we had that day was the water level probe we were using had a very light censor on the end of it, probably a few ounces. And it's not designed to tag the bottom of a well.

In fact, it's so light that you have a really hard time, unless it's a very shallow well, to feel when you're hitting the bottom of the well.

And so we didn't feel comfortable reporting a depth to bottom of a well that we can't completely verify. So we came up and down the well several times and experienced the same problem. We'd hit slack at approximately 115 feet.

So what we did to completely verify we were at the bottom of the well, the spool was allowed to -- the reel was allowed to free-spool out, and it would take down 125 feet of cable or of E tape down into the well.

So the fact that 125 feet of tape went down into that well doesn't mean the well is 125 feet deep. The well is 116 feet deep, and it was dry on the day that we measured it.

As we heard in testimony, when they came to abandon the well, there was water in it. And I verified that prior to the abandonment. I revisited that well approximately two weeks after I measured it dry, and there was water in it. And it was shocking as to how quick the response was.

And I talked to Mr. Taylor about this, and the only conclusion I could come up with is that that well was somehow connected to the shallow gravel aquifer system that had just currently been recharged through the canal systems, because it was just at the beginning of the irrigation season.

And as we heard testimony from Mr. Squires, it appears that's the case. That well was actually -- even though it was 114 feet deep, it was grabbing water from the shallow aquifer system. And my conclusions were validated by Mr. Squires' analysis of that well.

So I hope that clarifies any confusion on the Greg Taylor measurements.

There are a few additional points I'd like to make, and I'm just going to go through my notes that I've collected in the past few days and address those.

We've heard testimony about adequate monitoring, properly constructed monitoring levels, collecting water levels on adequate frequencies. And I agree with all that. That's the way we should be doing this.

But what's concerning to me is that M3

has done this with their monitoring wells, and we have fairly good records over the last three years for a significant number of wells on their property. And figure 46 in Exhibit 44 highlights those water levels.

But we've heard testimony that the water levels in the Pierce Gulch Sand Aquifer are increasing, but that's contradicted with the water levels that we see in figure 46.

So I'd just like to point out that there's still some confusion as to how the -- the general idea that the Pierce Gulch Sand Aquifer water levels are rising, but the good quality data that we've seen from the M3 site shows the water levels are declining.

THE HEARING OFFICER: Okay. Take us to that exhibit.

THE WITNESS: It's Exhibit 44, I believe. And I think it's figure 46. Yes.

MR. THORNTON: Figure 46?

THE WITNESS: Correct.

THE HEARING OFFICER: I'm lost.

THE WITNESS: That's the one.

THE HEARING OFFICER: Okay. This is one of the exhibits that has multiple figure numberings.

MR. THORNTON: So page 128, I have. Is that --

THE WITNESS: That's correct.

MR. THORNTON: Okay.

THE HEARING OFFICER: Okay.

THE WITNESS: So again, I pointed this out in my narrative testimony. I don't think it matters whether you take a trend over the entire data or you pick the highs, the lows. Either way you do it, for the most part you're going to get declining trends on a majority of those water-level records that we see from the M3 site.

So again, it just raises confusion as to how the PGSA is considered to be increasing when the best data I think I've seen shows decreasing water levels.

There was testimony yesterday about the southeast Boise groundwater management area being a sustainable aquifer and that the current aquifer system is in equilibrium, meaning the recharge is equal to the discharge.

I just wanted to point out that two very important aspects of that equilibrium is that the United Water Columbia surface water treatment plant is right over there, as well as the Micron

injection well. And it appears that that system would not be in equilibrium if the two management practices were to cease.

So I am confused as to how that's a sustainable resource when we had to implement some significant management practices to maintain water levels.

There was also testimony yesterday about the order of magnitude change that's indicated in that same figure 46 in Exhibit 44 and about being within a proximity of the pumping center to the south.

Now, I'm assuming the pumping center to the south is indicating Meridian, which is probably a large assumption on my part. But again, I'd like to point out that the United Water State and Linder well is closer to the pumping center to the south than the test well No. 1. And the test well No. 1 has significantly more drawdown associated with the State and Linder well.

So that -- again, I'm not clear as to what's inferred as the pumping center and how we could understand the significant water-level change that we experienced.

And then there was a few points I'd like to comment on regarding Dr. Osiensky's testimony.

He indicated that he felt it was more appropriate to call the water entering the groundwater model of the southeast boundary underflow rather than recharge, which I have no problems with. I agree with that. It really is more of an underflow component.

However, the amount of water that is being entered into the model as underflow is what troubles me. If you look at table 3 in the USGS Berenbrock report, he measured --

THE HEARING OFFICER: Where is this?

THE WITNESS: This is a -- I do not know the exhibit number. It was one that was submitted early in on the hearing.

MR. THORNTON: Is that the one titled "Boise River gains and losses" by --

THE WITNESS: Charles --

MR. THORNTON: It would be 800.

THE WITNESS: -- Berenbrock.

THE HEARING OFFICER: Let's go off the record for a minute.

(Discussion.)

THE HEARING OFFICER: We're recording and have found the referenced exhibit.

Mr. Owsley.

THE WITNESS: If I could point you to table 3 of that exhibit. Again, there were two measurements conducted on the New York Canal. And measurements 1 through --

THE HEARING OFFICER: Just a minute. I'm not there.

Do you have a page number?

MR. JASON SMITH: 19, I believe.

THE HEARING OFFICER: Table 3.

THE WITNESS: Okay. So there were seven measurements made upgradient from the M3 model boundary. And if you look at the March 20th date, the canal actually gained 7 cfs through this location. And on the March 27th date, it only lost 24 cfs.

So the inflow into the southeast corner of the model boundary at 115 cfs is complexing to me as to where that water can be coming from.

And one final point I'd like to make regarding Dr. Osiensky's testimony this morning is that he believes the recharge to the PGSA comes

from the distribution throughout the irrigated land in the Treasure Valley. And we've heard Dr. Glanzman as well as Mr. Squires over time and time again say that that cannot be the source of recharge to the PGSA. So again, it's complexing to me as to how the two are different.

And that's all I have.

THE HEARING OFFICER: Okay. Protestants, questions of Mr. Owsley?

CROSS-EXAMINATION

BY MR. THORNTON:

Q. Yeah, Mr. Owsley, for Mr. Taylor's well --

A. Yes.

Q. -- that you just described, the question is, are you certain that was dry the day you were there?

A. Yes.

MR. THORNTON: I have no further questions, knowing that we're going to get to recall him.

THE HEARING OFFICER: Okay. Mr. Smith?

MR. ALAN SMITH: I just have one.

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CROSS-EXAMINATION

BY MR. ALAN SMITH:

Q. I believe you said the East Boise Aquifer was sustainable if the Micron injection well -- and what was the other?

A. The United Water Columbia surface water plant.

Q. United Water Columbia?

A. Correct.

Q. In looking at figure 46 on Exhibit 44 that's on page 128, looking at the State and Linder well.

A. Yes.

Q. Do you have that?

A. I have that.

Q. Does it show some decline in water levels from the summer of 2007 to 2008?

A. Yeah, it appears to. There's a lot of noise in that data, but it appears that it's about a half a foot lower.

MR. ALAN SMITH: I believe that's all I have.

THE HEARING OFFICER: Okay. Mr. Edwards?

MR. EDWARDS: Mr. Spackman, I'd like to ask for leeway to talk to Mr. Owsley about the well

that he has been testing and measuring at my place.

THE HEARING OFFICER: Okay. You can ask him those questions when surrebuttal testimony is presented, if you'd like to call him.

MR. EDWARDS: I can't hear you.

THE HEARING OFFICER: If you would like to call Mr. Owsley as part of the presentation of surrebuttal testimony --

MR. EDWARDS: Okay.

THE HEARING OFFICER: -- then you can do that at a later time. And I've set some standards that limit the examination to the subjects that Mr. Owsley has testified about. So I don't want to expand beyond those, and I don't believe that he testified regarding your well in his most recent testimony.

So I'll limit that, but give you the opportunity to recall Mr. Owsley when the presentation is being made.

MR. EDWARDS: Okay. Then I understand that I will ask then -- ask to be recalling him.

THE HEARING OFFICER: Yes.

MR. EDWARDS: Okay.

THE HEARING OFFICER: No further questions,

then, Mr. Edwards?

MR. EDWARDS: No.

THE HEARING OFFICER: Mr. Fereday?

CROSS-EXAMINATION

BY MR. FEREDAY:

Q. Mr. Owsley, with regard to your reference to Exhibit 44, figure 46, these four wells that show a slight downward trend over that two-year period are located, are they not, in the upgulch area of the M3 property?

A. Yes.

Q. You've heard testimony from Mr. Squires and Mr. Utting that wells in the upgulch area in the upgulch portion of the -- or the up-dip portion of the Pierce Gulch Sand Aquifer tend to be more affected by precipitation, haven't you? Do you remember that testimony?

A. I don't recall that specific testimony.

THE HEARING OFFICER: Okay. You need to speak up, Mr. Owsley.

THE WITNESS: I don't recall that testimony.

Q. (BY MR. FEREDAY): Do you recall

Mr. Glanzman saying that in his geochemistry report that the upgulch wells do show influence of precip coming into that part of the Pierce Gulch Sand Aquifer?

A. Again, I don't recall that. What I recall from Mr. Glanzman in precipitation was Willow Creek Aquifer was influenced by precipitation. But I don't recall that through the Pierce Gulch Sand Aquifer.

Q. Would you agree with me, though, that if a well were affected or a part of an aquifer were more susceptible to precipitation then that portion of the -- then the well into that portion of the aquifer would tend to reflect changes in precip?

A. If that was the primary source of recharge for that aquifer, yes.

Q. What if it were just a part of the recharge source?

A. I would assume it would have to be a significant part of the recharge source.

Q. So are you saying that it would have to be significant, whatever that might mean, before any change in precip would show up in that hydrograph?

MR. ALAN SMITH: Objection. Argumentative.

THE HEARING OFFICER: Overruled.

THE WITNESS: No. But we've heard that the Pierce Gulch Sand Aquifer is robustly recharged from various sources and precipitation isn't a significant source. So I don't know how it would overwhelm the water-level trend.

Q. (BY MR. FEREDAY): And your testimony, then, is that it would have no effect whatsoever, evidently?

A. No. It may have a slight effect, but I would say not to be a significant portion of the recharge to control the hydrograph.

Q. With regard to slight effects, is it your testimony that the variations that we see on this graph, which appear to me to be from between something like 3 inches and 6 inches over -- from one year to the next, that is two one-year measurements, is it your testimony that those are significant changes?

A. They're not significant. They're definitely declines, and they match coincidentally very well with the rate of decline that Mr. McVay provided.

Q. Would that be an average of about

.21 feet per year?
A. Yeah, between .25 and .5 feet per year is roughly what I see in that figure.
Q. And yet you did no evaluation whatsoever, did you, of why those might have changed in that area, nor did you do any evaluation of the precip trend in that area; correct?
A. We looked at precip.
Q. How does this compare with the precipitation trend? Do you know?
A. For 2006 and 2007, precipitation was low. So it could be correlated.
Q. Did you do any evaluation also of pumping from other wells outside of M3, such as wells to the west?
A. No.
Q. Did you do any evaluation of the pumping from wells to the south of M3 that could have affected those?
A. No.
Q. Including the new wells that have gone on in the municipal -- gone online through municipal purposes to the south of M3, did you evaluate what those would have done?

A. No.
THE HEARING OFFICER: Again, you need to speak up, Mr. Owsley.
THE WITNESS: No.
THE HEARING OFFICER: Okay. Mr. Fereday, do you have several more questions for Mr. Owsley?
MR. FEREDAY: Just a few.
THE HEARING OFFICER: I really need to take a break.
MR. FEREDAY: Okay.
THE HEARING OFFICER: So maybe I better do that at this point. We'll be back on at three o'clock.
MR. FEREDAY: Okay.
(Recess.)
THE HEARING OFFICER: We're recording again after the afternoon recess.
Mr. Fereday, you were examining Mr. Owsley.
MR. FEREDAY: Yes.
Q. Mr. Owsley, we're on Exhibit 44, figure 46. I wanted to make sure I understood your testimony.
Is it your testimony, sir, that the 15 feet of drawdown annually recognized in test

well No. 1, which is the red-colored graph at the bottom of that page, is caused by pumping in Meridian?
A. I don't know where it's caused from.
Q. You've done no analysis at all, have you, to figure out what might cause that?
A. No.
Q. With regard to the top orange graph, we have about a 10-foot drawdown in the State and Linder well.
Do you recall any testimony as to where -- what would have caused that spike drawdown over there around roughly July -- excuse me, June of 2008, very quick down and up? Do you recall any testimony?
A. On what well? State and Linder?
Q. State and Linder, which is the orange near the top.
A. I recall it being discussed, but I don't recall what caused it.
Q. And you didn't do any study, did you, to try to figure out what would have caused that?
A. No.
Q. So when you testified earlier that the pumping centers that would affect, for example,

test well 1, were to the south, you really didn't know, did you, where the pumping centers would be that would affect test well 1?
A. That is what was indicated in the response to our staff memorandum.
Q. So it's your testimony that HLI asserted that the pumping centers affecting test well 1 are to the south, not to the west?
A. That's what it said.
Q. Do you know what pumping centers lie across Highway 16 to the west of test well 1? Remember, test well 1 is down in the panhandle.
A. Yeah, I would think Willow Brook subdivision would have a large well.
Q. Would you expect that it would be felt in test well 1?
A. I could imagine the Kling irrigation well impacted test well 1 as well.
Q. How about the Phillips well?
A. I don't know that well.
Q. Or the turf farm that's in that area?
A. Potentially.
Q. So is it your view, Mr. Owsley, that two years of data on that exhibit are conclusive as to a trend in the aquifer?

A. Well, we have three years of data on some of those wells. And I was just pointing out the fact that we heard testimony that the last few years PGSA wells are rising. And it doesn't appear so based on this figure.
Q. What about the ten years of data from the State and Linder well, Mr. Owsley? Did you -- which is nearby. Did you look at that data at all in making that conclusion?
A. Not more than what was presented on this graph.
Q. So you've really done no analysis of your own, have you, with regard to water levels shown on Exhibit 44, figure 46, have you?
MR. ALAN SMITH: Objection. Asked and answered.
THE HEARING OFFICER: Overruled.
THE WITNESS: I did visual trend analysis.
Q. (BY MR. FEREDAY): You just looked at the graphs?
A. Uh-huh.
Q. And your assumption or your statement about the possibility that test well 1 is affected by pumping in the Meridian area is just speculation, isn't it?

A. It's based on the statement in the response to our staff memorandum.
Q. Can you --
A. Find that?
Q. -- find a statement in the staff memorandum which said that Meridian area wells are affecting test -- or causing 15 feet of drawdown in test well 1, or something to that effect?
A. In our staff memorandum, no.
Q. In the response to the staff memorandum. Isn't that what you said?
A. If you give me a minute, I probably could find it.
THE HEARING OFFICER: Let's go off the record.
(Discussion.)
THE HEARING OFFICER: Okay. We are recording.
THE WITNESS: The pumping center identified in the response to the staff memorandum on page 20 of 42.
THE HEARING OFFICER: What exhibit is this?
THE WITNESS: This is Exhibit 45. And it refers to it, it says --
THE HEARING OFFICER: What page again?

THE WITNESS: 20.
"The wells the staff cites as having a large fluctuation, Kling domestic, Kling irrigation, and M3 1 are on the western portion of the M3 Eagle property, and relatively close to other pumping wells of the Boise Valley." That's all I see. So that's where I was implying to.
Q. (BY MR. FEREDAY): So you don't know whether those are to the west or the south in the valley, do you?
A. No.
Q. With regard to your measurement of the Banducci well when you determined that it was dry --
A. Uh-huh.
Q. -- did you measure that after the replacement well was constructed?
A. Yes.
Q. How far away was the replacement well from the original well, Mr. Owsley?
A. Approximately 25 feet.
Q. And that replacement well is not sealed throughout its entire depth, is it? Or do you know?
A. I don't know off the top of my head.

We could look at the record. It's one of them that's included. I would suspect no, just based on the testimony I've heard throughout this. If you want, we could look at the record.
Q. No, that's -- that's fine.
Assuming that that well, that replacement well is not sealed, that replacement well could drain water away from that original Banducci well, couldn't it?
A. Yes.
Q. Did you evaluate whether that might have happened?
A. No. But from my talking with the Banduccis, that well went dry prior to them drilling the replacement well.
Q. But you don't know the reason why they reported it went dry, do you?
A. No.
Q. With regard to the water levels that you are taking, such as the level you -- the measurement you did at Banducci, are those water levels available these days on the IDWR website?
A. They should be available through the well log program, yes.
Q. Are you personally overseeing putting

them there?
A. Yes.
Q. With regard to recharge, Mr. Owsley, do you have any reason to dispute the Treasure Valley Hydrologic Project assumptions about recharge from the Boise River and canals to the aquifer system?
A. Do I have any reason to doubt that?
Q. Yeah. Do you have any reason to dispute it?
A. I have confusion with their Boise River seepage values, yes. I believe I referred to that in my previous testimony.
Q. And the canal values as well, you're confused there?
A. They're more straightforward because there's more measurements on the canal.
Q. But you've done no evaluation yourself, have you, about river losses, canal losses, or recharge into the PGSA, have you?
A. No.
MR. FEREDAY: That's all we have.
THE HEARING OFFICER: Okay. Thank you, Mr. Owsley.
Mr. McVay?

MR. McVAY: I don't have a narrative testimony, but I won't be available on the 30th if they need to call me.
THE HEARING OFFICER: Okay. What do the parties want to do? Protestants?
MR. THORNTON: I'd like to ask, if I could, a few more specific questions if he's not going to be available on the 30th.
THE HEARING OFFICER: Of Mr. McVay?
MR. THORNTON: Yeah, if possible.
THE HEARING OFFICER: Well, what are we doing under the circumstances? Mr. Fereday?
MR. FEREDAY: Well, we had hoped to get on with our -- the remainder of our case today. We only have, looks like, 35 minutes. So this is -- that would effectively put us out of time.
THE HEARING OFFICER: Well, because of his unavailability and our desire to finish, I mean the other alternative, I guess, is for us to find a later date. I don't think we want to do that.
So it's extraordinary, but, Mr. McVay, I'll take you out of order, I guess, and allow the protestants to examine you on surrebuttal, and we'll see what happens.
MR. McVAY: Still under oath.

THE HEARING OFFICER: Yes.
Mr. Thornton?
MR. THORNTON: And --
THE HEARING OFFICER: I'm sorry. It's probably a surprise to you.
MR. THORNTON: Well, a little bit, yeah. Not as much as my kids are when I see them sneaking in the home at night. But I was understanding, he would give his narrative at some --
THE HEARING OFFICER: No, he said he did not have a narrative.
MR. THORNTON: Oh, you don't have a narrative. Oh, okay. I'm sorry. Okay.
THE HEARING OFFICER: So if you have questions of him --
MR. THORNTON: I do.
THE HEARING OFFICER: Okay.

MIKE McVAY,
having been previously called as a surrebuttal witness by North Ada County Groundwater Users Association and previously sworn, testified as follows:
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DIRECT EXAMINATION
BY MR. THORNTON:
Q. Mr. McVay, were you able to be here when I think it was Dr. Osiensky was talking about some of the water-level declines just today? I don't know if you heard his testimony.
A. Yes, I heard his testimony today.
Q. One point that I heard in his testimony was that in reference to how he would do a different analysis of that data.
Did you hear him identify that he would have just used all the data points available?
A. I think I just heard him say he wouldn't have done it the way I did it.
Q. Okay. So you didn't necessarily hear him say that he would have just used all of the data points?
A. I didn't hear that.
Q. Okay. Well, if you go to Exhibit 50 and to your I think it was Attachment A or Appendix A in the back.
A. Okay.
Q. For the -- an example, if you turn to the last graph, well log for -- well log

pneumonics 32DBD1.
Do you see that? And did you identify a decline, declining water table there?
A. I did.
Q. And I don't know how familiar you are with, say, all of the data points, but if you used all of the data points and drew a regression line through that, would that result in a decline over time as well in your estimation, or do you know?
A. I don't remember. I think this might be all the data points for this well. I know they used mostly fall measurements. I think this is that same well.
Q. Do you have an indication that -- if you were to have used all the data points, do you have any indication of what the results would have showed for the wells in terms of a decline or an increase in the water table over that time period?
MR. FEREDAY: Objection. Calls for complete speculation.
THE HEARING OFFICER: Ask the question again, Mr. Thornton.
Q. (BY MR. THORNTON): For the wells that you analyzed, did you look at the variety of data points that existed for them, the data?

A. (No audible response.)
Q. And how many of those wells, based on the analysis you did in this Appendix A, based on your methodology, showed a decline?
A. How many of the wells that I analyzed in my procedure showed a decline?
Q. Yes.
MR. FEREDAY: I'm going to object. This has been asked and answered. All but two, I believe he said.
MR. THORNTON: Thank you, Mr. Fereday, for that answer.
Q. If you were to have all of the data points be analyzed, if you analyzed all of the data points and drew a regression line through them, in your professional judgment, do you know if that would have shown a decline, steady state, or an increase?
A. I don't recall.
MR. FEREDAY: Objection. That calls for speculation.
THE HEARING OFFICER: Overruled.
THE WITNESS: I don't recall. I did draw regressions through all the data points when I first looked at them. Again, when I did this

analysis, I was trying to compare the wells to each other. And so these data points span different periods of time and different collection intervals. And so it was hard to compare them directly. And so I didn't even note what those trends were.
Q. (BY MR. THORNTON): Okay. And all the testimony that you've listened to from the experts from M3, has that changed your view on what you have identified in your staff memo in Appendix A? Do you have a different thought in terms of water-level decline based on testimony you've heard from other experts?
A. No, I do not.
MR. THORNTON: That's all the questions I have.
THE HEARING OFFICER: Okay. Mr. Smith?
MR. ALAN SMITH: No questions.
THE HEARING OFFICER: Mr. Edwards?
MR. EDWARDS: No questions.
THE HEARING OFFICER: Mr. Fereday?
MR. FEREDAY: Yes.
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CROSS-EXAMINATION
BY MR. FEREDAY:
Q. With regard to well DAD1 that Mr. Thornton was just asking -- excuse me, DBD1 that Mr. Thornton was just asking you about --
A. Right.
Q. -- that well is not completed in the Pierce Gulch Sand Aquifer, is it?
A. I'm not sure. I think that I noted it as PG, but I would defer any aquifer characterization to -- or designation to HLI.
Q. But you don't know, do you?
A. I do not know for sure.
Q. And just to clarify, the purpose of this analysis was not to determine trends in the PGSA, in any event, was it?
A. It was not.
MR. FEREDAY: No further questions.
THE HEARING OFFICER: Okay. Mr. Thornton, redirect, based on Mr. Fereday's questions?
MR. THORNTON: I do not have any, Mr. Hearing Officer.
THE HEARING OFFICER: Mr. Smith?
MR. ALAN SMITH: I just have one.
///

CROSS-EXAMINATION

BY MR. ALAN SMITH:

Q. Mr. McVay, if all of these aquifers are in hydraulic communication with each other, does it make much difference whether it's in the PGSA or a shallower aquifer?

MR. FEREDAY: Object. This witness has not been qualified to answer that question.

THE HEARING OFFICER: Overruled.

Q. (BY MR. ALAN SMITH): You may answer.

A. If they were in hydraulic connection with each other, I wouldn't think the designation would matter that much.

MR. ALAN SMITH: Thank you. That's all.

THE HEARING OFFICER: I'm not sure the answer was responsive to the question, as I heard the question and the answer. And --

MR. ALAN SMITH: I thought he said the designation would not matter that much.

THE HEARING OFFICER: I think there was a qualifier with -- included in it.

Q. (BY MR. ALAN SMITH): Can you clarify your answer, Mr. McVay?

A. If these wells are -- or the aquifers were in hydraulic connection, I don't think the

designation would matter.

THE HEARING OFFICER: Okay. Mr. Edwards, questions?

MR. EDWARDS: No questions.

THE HEARING OFFICER: Recross, Mr. Fereday?

MR. FEREDAY: None.

THE HEARING OFFICER: Okay. Thank you, Mr. McVay.

MR. THORNTON: That was a nice way of getting your Thursday free.

THE WITNESS: Long weekend.

THE HEARING OFFICER: Okay. Mr. Fereday, do you wish to start with another rebuttal witness?

MR. FEREDAY: Yes. We would call Mr. Bill Brownlee.

And we also have a request. We -- Mr. Brownlee will be testifying about the community infrastructure district, the CID, which he mentioned last time further in response to your questions about financing.

THE HEARING OFFICER: Okay.

MR. FEREDAY: And as part of that testimony, he intends to offer a letter that was written to him from a -- an expert who we have in

the room, a Mr. Carter Froelich. And it so happens that Mr. Froelich is here today. He was the author of that letter.

And rather than have the letter be offered as something that Mr. Brownlee received from his consultant, we would prefer just to call Mr. Froelich. I recognize that he has not been designated or previously identified, but he is an expert on the financing through community investment infrastructure district mechanisms, and we would like to call him just to get that -- his letter in and have him explain what these things are.

THE HEARING OFFICER: Okay. Mr. Froelich?

THE WITNESS: Yes, sir.

THE HEARING OFFICER: If you'll come forward, please.

Please raise your right hand.

CARTER FROELICH,

having been called as a rebuttal witness by M3 Eagle LLC, was duly sworn and testified as follows:

THE HEARING OFFICER: Thank you. Please be

seated.

DIRECT EXAMINATION

BY MR. FEREDAY:

Q. Please state and spell your name and give your address.

A. My name is Carter Froelich. The last name is spelled F-r-o-e-l-i-c-h. 950 West Bannock, Suite 1100.

Q. In?

A. In Boise, Idaho. Excuse me.

Q. And what is your education?

A. I have a B.A. in business economics from UC Santa Barbara. I have a master's of real estate development from the University of Southern California. I am also a certified public accountant in the states of Arizona and California. And I am a former state certified real estate appraiser in the state of Arizona.

Q. Do you have any experience with bond financing for real estate development projects?

A. Yes, I do. Our firm, The Development, Planning, and Financing Group has been involved in tax-exempt bond financings for over -- well, the professionals in our firm for over 25 years.

We've been involved in financings related to 2,000 projects all over the United States, and the issuance of in excess of about $15 billion worth of bonds.

Q. That's 15 billion with a "b"?

A. Billion with a "b," correct, sir.

Q. What does your company do exactly?

A. Our firm is a full service real estate consulting firm. We work primarily with the private sector in the step in the planning, implementation and administration of special taxing districts throughout the country.

Q. Do these special taxing districts issue tax-exempt bonds?

A. Yes, they do.

Q. And what -- are they tax exempt on a state level, a federal level?

A. Both state and federal.

Q. And how are these bonds authorized? By state law? federal law? how?

A. Well, that's somewhat of a loaded question. But this type of a bond financing is allowed through federal tax codes, but each of the states in which we perform work has enacted enabling legislation to allow this type of

financing to take place within the state.

Q. And is tax-exempt bonding for these kinds of projects a specialty of yours?

A. It is.

MR. FEREDAY: Mr. Hearing Officer, we would ask that Mr. Froelich be recognized as an expert in this area, bond financing for land development projects.

THE HEARING OFFICER: Okay. Mr. Thornton?

MR. THORNTON: I just need to ask him if your 401s like mine have turned into 201s. If they have, you're not an expert.

No, I have no objection.

THE HEARING OFFICER: Mr. Smith?

MR. ALAN SMITH: None.

THE HEARING OFFICER: Mr. Edwards?

MR. EDWARDS: None.

THE HEARING OFFICER: So recognized.

Q. (BY MR. FEREDAY): Mr. Froelich, the community infrastructure district is what Mr. Brownlee mentioned during his testimony recently.

Could you explain what that is and how financing works for I'll call it a CID --

A. Okay.

Q. -- mechanism.

A. A CID is a separate political subdivision separate and distinct from the jurisdiction of which it's established. It's a separate political subdivision that is enabled to issue tax-exempt bonds to finance the construction or acquisition of eligible public infrastructure.

In the state of Idaho, that would be water improvements, sewer improvements, roadways, drainage, police facilities, fire facilities, public recreational facilities, impact fees, real property interests, et cetera, related to public infrastructure.

Q. Does the State of Idaho have a statute authorizing this?

A. Yes. The State of Idaho passed its Community Infrastructure District Act in 2008, and it became law July the 1st, 2009.

Q. What are CIDs typically used for?

A. In our experience, CIDs or other types of special taxing district financing are utilized for the construction of primarily the backbone infrastructure related to large, master-planned communities, although they can be used for smaller communities as well.

Q. And is it a fact, then, that the interest payments on these bonds to the bondholders are exempt from federal and state taxation?

A. Correct.

Q. Is it your experience that these bonds are fairly attractive to a variety of investors?

A. Yes, they are.

Q. What's your involvement with M3 Eagle's project, sir?

A. We were initially brought on board to assist in the drafting of the CID legislation with other representatives from the legal community that are part of M3's team.

We were also involved in the lobbying of that statute, being the CID statute. Subsequent to the passage of the legislation, we have been involved in the planning, if you will, of the CID.

We've assisted in putting together a CID draft application for the City of Eagle. We've also drafted numerous documents related to the formation of the district, once the M3 Eagle project had been annexed into the city boundaries, meaning the city of Eagle.

Q. So I take it from your answer that M3 Eagle has taken significant steps towards the creation of a CID to fund infrastructure at the M3 Eagle project; is that correct?
A. That is correct.
Q. And you've helped them do this?
A. That is correct.
Q. How, in your opinion, would the CID's existence affect the M3 Eagle's project -- M3 Eagle project's ability to attract additional debt or equity financing?
A. In our experience, the existence of special taxing districts is a plus for a project. A lot of times the third-party lenders or equity partners, whether debt or equity, look at this as an additional repayment source for any funds that they would be advancing to the project. So it's a positive.
Q. So it is a positive?
A. Absolutely.
Q. Does it make it more likely that the project will be financed and built overall, in your opinion?
A. In my opinion, it does.
Q. Has that been your experience working

around the country for the -- with these kinds of projects?
A. Yes, it is.
Q. And where -- could you just give us an idea of where you've worked on these projects, using CIDs?
A. Yeah. Our firm has offices in California and Nevada, Arizona, obviously here in Idaho, Texas, and Florida. And the majority of the 2,000 districts that we've established over the course of doing business have been in those states.
Q. How does M3 Eagle compare to the other projects that you have worked with in terms of its size, the program planning that it has undertaken, the expertise of its management team, and so forth?
A. In relation to the project, this is very typical of the size of projects that we get involved in. We've been involved with projects anywhere from a thousand to 56,000 acres. So this fits well within those parameters.
The planning that we've seen and the management of M3, I would have to rate them on, you know, the top 5 or 10 percent. Obviously,

they're very professional, everything has been very planned, very methodical, and so it's been very nice working with them as we've been able to move this process forward.
Q. What is your firm's view of M3 Companies, the -- one of the partners here, M3 Companies' track record and reputation in the development business?
A. Well, obviously, they've done some projects in the state of Arizona that we're familiar with. We didn't actually work on them. But they've been very well received by the market. I understand there's also an additional project that they have in Colorado that we have not been involved in.
But from everything that we have seen, we have not heard anything derogatory or -- I mean we've just heard nothing but good things.
Q. With regard to the M3 CID's likelihood of success, how important is it that M3 Eagle owns the land free and clear at this stage?
A. Well, especially in economic times that we're going through, it's a huge thing to have no debt on the property. Not all of my clients are as lucky as M3.

But it is -- here again, it's another one of the factors that the financial institutions are going to be taking a look at, as well as the bond goes because there's less stress on the project. And so when it comes for us to go forward and issue debt, it's definitely a positive.
Q. Have you worked with other developments that have not had that benefit, that is, have had leveraged land or land on which they had debt?
A. Yes, I have.
Q. Have they been successful?
A. Some of them have; some of them have not.
Q. What is your view of M3's financial structure?
A. Well, I've been able to take a look at some of the financial statements of their financial partner. They have a very, very strong financial partner behind them. So that, here again, is a very strong positive as relates to the project going forward.
Q. The land that they own, the 6,000 acres for this project, that has value, too,

obviously; correct?
A. Correct, absolutely.
Q. You've calculated that?
A. I have not calculated to look at the value of that property, no.
Q. What is your experience dealing with the City of Eagle in this project?
A. My experience in dealing with the City of Eagle has primarily been with the city attorney, and there have been some other public works folks in a couple of the meetings that I have been involved.

Every indication that we have is that the City is willing to go forward with the establishment of the district. We've had cursory reviews of some of the documents and questions put back to us, which we have responded to. And based on every indication that I have been given, there's no reason to anticipate that a CID would not be established.

Q. Mr. Froelich, I'm having handed to you a letter on your company's letterhead from you to Mr. Brownlee dated July 21st, 2009.
A. Okay.
Q. Do you recognize this? And can you

tell us what it is, please.
A. Yes, I do. This is a letter that was written by me really to provide information related to community infrastructure districts, eligible infrastructure, why this type of district is -- why we're starting to see more and more of it around the country, why it's important, and the status of the work that we have done in relation to the M3 CID.

There's also on the back of it an estimate of costs prepared by Stanley Consultants related to the construction costs that are anticipated for the M3 project, as well as those costs we feel are eligible for CID infrastructure financing.

Q. Mr. Froelich, does this July 21st letter fairly summarize the salient features of the M3 CID proposal?
A. Yes, it does.
MR. FEREDAY: We offer this as Exhibit --
MR. LAWRENCE: I believe 83. Yes, 83.
MR. FEREDAY: -- Exhibit 83, please.
(Exhibit 83 marked.)
THE HEARING OFFICER: Mr. Thornton, any objection to the admission of this document?

MR. THORNTON: No. Sorry.
THE HEARING OFFICER: Mr. Smith?
MR. ALAN SMITH: No objection.
THE HEARING OFFICER: Mr. Edwards?
MR. EDWARDS: No.
THE HEARING OFFICER: The document marked as Exhibit 83 will be received into evidence.
(Exhibit 83 admitted.)
Q. (BY MR. FEREDAY): Mr. Froelich, you mentioned, I note, water facilities and -- in this letter and water supply.

What is the importance of the water supply question in your business, in the CID financing business?
A. Well, obviously water is important. Without water you're not able to build houses. And going after water for the entire project is important because now we're able to demonstrate that not only can we build infrastructure and pay for that through the bonds, because a lot of this infrastructure that we're going to be constructing up front will be repaid through later phases. For instance, a wastewater treatment plant is a good example of that that will serve not only the first phase, but later phases as well.

We need to be able to demonstrate that we will be able to build out those final phases, that there will be water provided, that the water will be coming back for the wastewater treatment, that we can sell lots, et cetera.

And this is one of the first questions that bondholders want to know: Does the project have water? because that is one of the precursors for the going forward with development.

Q. Mr. Froelich, in your opinion, what is the probability of success of the M3 Eagle CID bond issuance?
A. It is my opinion that we will form the district, and we will be going forward and issuing debt. And I don't see anything that would lead me to believe otherwise.
Q. With regard to your dealings with the City, you note that you have submitted some applications there.

So this -- is it fair to say that this process is on track, that M3 Eagle has taken steps to put into motion the implementation of the CID project?
A. Absolutely.
Q. We have, well, maybe one further

question.
In comparison to the other projects that you've worked on involving establishing CIDs, how does this stack up as it's getting started here? Is it running into problems? Are you seeing push-back from the City? Is there anything from the bond market that you see as a problem? How does this stack up?
A. Well, in my experience, the process to date has been going fairly smoothly, in terms of the working relationship with the City. And so from that perspective, I think it's very positive. Obviously, the bond markets, just like all financial markets, have been stressed of late.
However, what we're seeing is that the bond markets are recovering and interest rates are dropping, and they're heading in the right direction. And so we look very favorable going forward.
MR. FEREDAY: Thank you. No further questions.
THE HEARING OFFICER: Okay. Mr. Thornton -- oh, I also want to do something extraordinary at this point. I have one question for Mr. Froelich before we start.

EXAMINATION
BY THE HEARING OFFICER:
Q. Mr. Froelich, you referred in your testimony to reviewing the position -- financial position of a financial partner in M3 Eagle LLC, and that this financial partner has a strong financial position.
Can you identify that financial partner?
A. The Dallas Pension Fund of the Dallas Police and Fire.
Q. Okay.
A. Correct.
THE HEARING OFFICER: The reason that I ask that question is because in previous examination there were -- there was an attempt to explore the financial position of that partner in the M3 LLC, and there were attempts successfully to keep out that information in the hearing.
And I think Mr. Froelich's testimony has opened up that avenue for inquiry, Mr. Fereday.
Mr. Thornton?
MR. THORNTON: Appreciate the opportunity to ask questions. But I feel we're at a

disadvantage, one, as being handed this document, and I'd sure like to have time to read that over.
THE HEARING OFFICER: I'll give you some time to read it if you'd like.
MR. THORNTON: Yeah, if I could do that to try to come up with some thoughts or ideas.
THE HEARING OFFICER: Recess for five minutes.
(Proceedings adjourned at 3:53 p.m.)
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REPORTER'S CERTIFICATE

I, JEFF LaMAR, CSR No. 640, Certified Shorthand Reporter, certify:

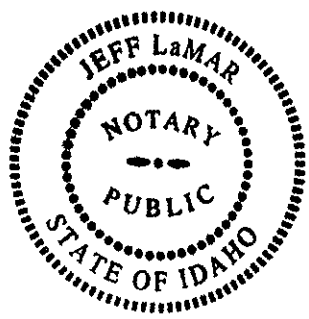
That the foregoing proceedings were taken before me at the time and place therein set forth, at which time the witness was put under oath by me.

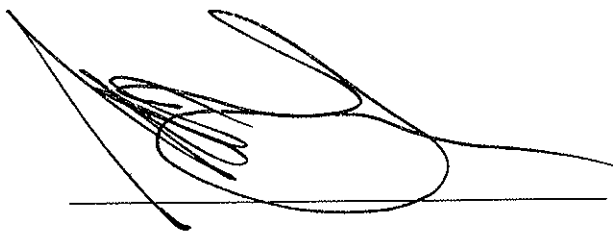
That the testimony and all objections made were recorded stenographically by me and transcribed by me or under my direction.

That the foregoing is a true and correct record of all testimony given, to the best of my ability.

I further certify that I am not a relative or employee of any attorney or party, nor am I financially interested in the action.

IN WITNESS WHEREOF, I set my hand and seal this 31ST day of July, 2009.





JEFF LaMAR, CSR NO. 640
Notary Public
Eagle, Idaho 83616

My commission expires December 30, 2011

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