

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 XIV
(Pages 3149 through 3402)

BEFORE
HEARING OFFICER: GARY SPACKMAN

Date: July 21, 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

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1 APPEARANCES:
 2
 3 For M3 Eagle LLC:
 4 GIVENS PURSLEY LLP
 5 BY MR. JEFFREY C. FEREDAY
 6 MR. MICHAEL P. LAWRENCE
 7 601 West Bannock Street
 8 P.O. Box 2720
 9 Boise, Idaho 83701-2720
 10 For North Ada County Groundwater Users
 11 Association:
 12 BY MR. JOHN THORNTON
 13 5264 North Sky High Lane
 14 Eagle, Idaho 83616
 15 For Eagle Pines Water Users Association and
 16 Individually:
 17 BY MR. ALAN SMITH
 18 3135 Osprey Road
 19 Eagle, Idaho 83616
 20 Appearing Individually:
 21 BY MR. NORMAN L. EDWARDS
 22 884 West Beacon Light Road
 23 Eagle, Idaho 83616
 24 ///
 25 ///

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1 APPEARANCES (Continued):
 2
 3 Also Present:
 4 Jason Smith
 5 Steven Purvis
 6 Deborah Gibson
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1 THE HEARING OFFICER: We are recording.
 2 I understand, Mr. Smith, that you have
 3 a motion before we start presentation.
 4 MR. ALAN SMITH: I do have a motion. I
 5 believe we've gone way beyond the scope of our
 6 evidence in this rebuttal testimony so far. I
 7 would therefore move to strike all of the
 8 testimony of Rob Whitney on well construction.
 9 Nothing was gone into that by us on -- we called
 10 three witnesses.
 11 Mr. Thornton called Dr. Ralston,
 12 Mr. Brownlee, and our only witness was Jason
 13 Smith. We only went into the 20 wells that were
 14 on that map that were replacement wells. I think
 15 we're going way beyond the scope of proper
 16 rebuttal.
 17 And I would move to strike also
 18 Mr. Squires' testimony about the Edwards well.
 19 Nothing's been mentioned about that by us. It's
 20 going way beyond the scope of rebuttal evidence.
 21 We could go on with this until October, and I
 22 think it's time that we narrow the scope here.
 23 The scope of our evidence was very
 24 limited, and we're going way beyond it with this
 25 rebuttal testimony. I think the calling of Rob

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1 Whitney as a rebuttal witness was only a ruse by
2 M3 to get in evidence from an undisclosed expert
3 witness and it was not in rebuttal to any of our
4 evidence, and we would move to strike it.
5 The only evidence that I've seen so
6 far that could be considered proper rebuttal was
7 that of Dr. Wood. And the rest of it is going way
8 beyond the scope of our evidence, and it's not
9 proper rebuttal.
10 THE HEARING OFFICER: Okay. Mr. Fereday?
11 MR. FEREDAY: We ask that the motion be
12 denied for several reasons.
13 First of all, this testimony by
14 Mr. Whitney, and certainly by Mr. Squires, has
15 been perfectly proper in rebuttal. Among other
16 things, it responds to Jason Smith's testimony
17 with regard to the reasons for the replacement of
18 wells. It responds to Mr. Smith's testimony with
19 regard to whether water levels are declining in
20 the area of the protestants. It responds to the
21 testimony of the public witnesses, several of whom
22 are protestants themselves who have asserted that
23 their wells have variously suffered water-level
24 declines or, for example, gone dry. It responds
25 to Mr. Owsley's statement and his statement in a

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1 letter to one of those same public witnesses that
2 his well went dry or was dry.
3 All of that testimony from
4 Mr. Whitney, and certainly from Mr. Squires, bears
5 on that. That's point one.
6 Point two is that the protestants had
7 every opportunity to object to that testimony and
8 did not. They cross-examined extensively, both
9 Mr. -- or at least they cross-examined
10 Mr. Whitney. And we feel that their motion is not
11 well taken.
12 It seems that the protestants wish to
13 make a case that well -- or aquifer levels have
14 declined and that protestants have suffered
15 declining water levels, dry wells, and the like,
16 and yet they are now unwilling to have any
17 rebuttal on that very important subject.
18 And furthermore, Mr. Whitney was not
19 an undisclosed expert witness. He was fully
20 disclosed and named and subpoenaed properly and so
21 forth. So I think Mr. Smith's motion is without
22 merit.
23 THE HEARING OFFICER: Okay. I want to rule
24 right now on this, Mr. Smith. And for two reasons
25 I'll allow all of that testimony in.

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1 One of them is Mr. Whitney's a
2 Department employee. Much of the information that
3 he discussed and presented is information that I'm
4 familiar with and acquainted with anyway. And I
5 think it's valuable to have it in the record.
6 I think there's opportunity for the
7 Hearing Officer to allow that evidence in. And I
8 think it was also properly within the scope, as
9 Mr. Fereday has explained, of what had been
10 discussed in the presentation of the protestants'
11 case. So the motion is denied, and I want to move
12 forward with the presentation of evidence at this
13 time.
14 All right. Let's move forward. We're
15 in the middle of examination of Mr. Squires.
16 Mr. Squires, I'll remind you you're
17 under oath.
18 Mr. Fereday, you may examine.
19
20 ED SQUIRES,
21 having been previously called as a rebuttal
22 witness by M3 Eagle LLC and previously sworn,
23 testified as follows:
24 ///
25 ///

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1 CONTINUED DIRECT EXAMINATION
2 BY MR. FEREDAY:
3 Q. Mr. Squires, I'd like to ask you a few
4 additional questions about the replacement wells
5 and the circumstances about those replacement
6 wells that Jason Smith described, which is where
7 we left off at the recess.
8 So to begin with, I recognize that you
9 touched on this before the recess, but please
10 provide your opinion about the reasons for the
11 replacement of several wells in this area in the
12 last couple of years, in particular those that
13 Jason Smith described.
14 A. Well, as I stated, my first inkling
15 would be that the wells were quite old, between 30
16 and 50 years old. And I think that's a very long
17 time for a well to last, and even if they're
18 constructed to last.
19 Q. What are some of the problems that can
20 occur with aging of a well?
21 A. Well, typically, in domestic wells, a
22 thin wall, one-quarter-inch-thick casing is used.
23 And even though the steel back in the old days, in
24 the '60s and '70s, is better than it is now, it
25 still is in a very corrosive environment. It

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1 corrodes from both sides, depending on the
2 geochemistry of the water and the air interface on
3 the inside of the well, but it also is in contact
4 with soils on the outside of the well. So
5 corrosion of the casing is one example.
6 Incrustation of the perforated
7 interval if it has one, which is quite common.
8 Q. "The perforated interval" meaning the
9 area where the water comes into the well --
10 A. Correct.
11 Q. -- the perforated casing?
12 A. Yes.
13 And many of the wells are open-bottom
14 wells, and they typically fill in, just as the
15 Taylor well that we talked about, drilled to 116,
16 the casing went to 114. And when it was measured
17 by the driller at abandonment, the well was found
18 to be filled in to 114.
19 So one of the things that happens with
20 respect to infill in a well is you have more
21 drawdown because you've created more friction as
22 you're trying to draw water across the sand-filled
23 pipe rather than an open hole in direct contact
24 with the formation.
25 Q. Is sand production a factor here as

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1 well?
2 A. Sand production is often a distinctive
3 factor in well failure, because when sand comes
4 out, and even when it's only noticed in small
5 quantities, over a long period those small
6 quantities add up to large volumes.
7 So when you have a well that produces
8 sand, you're making voids and cavities outside the
9 casing. And in many cases I believe that the sand
10 voids form and the clay layers that overlie the
11 sands spawl and cave down into the well at times,
12 because there's no longer any support for them.
13 And that can be episodic.
14 And so you can have cavings come in
15 that then go in and cover over the perforations,
16 and can cut off flow to the well in that regard.
17 Q. Have you seen this happen in the Ada
18 County area in domestic wells?
19 A. I've seen it happen -- I've seen it
20 happen. I don't work a lot with domestic wells.
21 So I've seen it happen on wells in general,
22 because unfortunately there's a lot of
23 sand-producing wells around.
24 Q. Did you hear Mr. Whitney's description
25 of unsealed wells or wells that seal only the top

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1 20 or 30 feet of the casing against the -- against
2 the formation?
3 A. I did.
4 Q. Would these wells allow water outside
5 the casing to move between aquifers or leak down
6 out of an aquifer?
7 A. I believe that if there are multiple
8 subaquifers, I'll call them, or multiple
9 water-bearing units that are under different head
10 that water will migrate under natural gradients
11 outside of the well casing, especially a
12 drill-and-drive, which most domestic wells are.
13 Q. In your experience, are most of the
14 domestic and small irrigation wells in the Eagle
15 area unsealed, based on what you've seen from
16 driller's logs and other data?
17 A. I would say generally that's true, in
18 my opinion.
19 Q. Have you run camera surveys in any
20 wells in north Ada?
21 A. I have.
22 Q. And what have those surveys shown
23 about sealed or unsealed wells?
24 A. Well, we often see voids outside of
25 the casing. When a casing is compromised with

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1 holes and corrosive break-through, or if we go
2 poke holes in the casing to properly abandon them,
3 or if we go down and look out through the existing
4 perforations, we often see significant void space
5 outside of the casing.
6 And we also confirm that when we pump
7 the grouts in, because oftentimes these 6-inch
8 holes would fill up as though it's a 16 or 18 inch
9 hole. It takes that much grout to seal the voids
10 outside of the casing.
11 Q. What about the wells of the
12 protestants, have you evaluated information about
13 those wells, including those that might have been
14 replaced?
15 A. I have. We've looked at all of the
16 protestants' wells. In fact, in one way or
17 another, we've looked at all the wells that are on
18 the IDWR website in the well driller database.
19 Q. For the north Ada area?
20 A. For the whole north Ada area.
21 Q. What can you tell us, if anything,
22 about the wells of protestants, how they're
23 constructed?
24 A. Well, I think they're constructed as
25 most typical domestic wells are completed in not

1 only Ada County but in Idaho.
 2 Q. And how is that?
 3 A. Mostly they're drill-and-drive wells,
 4 air rotary, a lot of them, almost all of the newer
 5 ones. There was a little bit more cable tool in
 6 the early years.
 7 Q. Are they sealed throughout their
 8 entire depth?
 9 A. Almost never.
 10 Q. Well --
 11 A. A few are starting to, I think,
 12 because of the Department's efforts to improve
 13 well drilling methods, and the new rules I'm
 14 starting to see in the last -- in my testimony
 15 before the recess that we're starting to see
 16 domestic well drillers now use mud rotary
 17 techniques and place full-depth seal.
 18 Q. Well additional wells need replacement
 19 in the north Ada area, in your opinion?
 20 A. Oh, yes. I think it will be a
 21 continuous ongoing procedure.
 22 Q. And is that for the reasons that you
 23 earlier stated with regard to the quality of wells
 24 and their aging process?
 25 A. I think there's that reason. I think

1 there's also -- you know, sometimes the wells
 2 don't need to be abandoned but people believe they
 3 need to be abandoned. For example -- you know, I
 4 could use the Taylor well, for example.
 5 That well, when the driller abandoned
 6 it, it still had water in it. And it could have
 7 been a situation where because the well was filled
 8 in that could have been evacuated out to the full
 9 drill depth or a screen put in so that you weren't
 10 drawing the water across a sand-filled pipe. Then
 11 you'd have less drawdown than you'd have if you do
 12 have a sand-filled pipe.
 13 So -- but somewhere along the line the
 14 well owner makes the decision to, based on
 15 whatever he hears from the well driller or the
 16 pump contractor or whoever he might believe, and
 17 has the well deepened down to a different level.
 18 Q. The Taylor well, was that the same
 19 Mr. Taylor who testified as a public witness
 20 recently?
 21 A. Yes.
 22 Q. And the same Mr. Taylor to whom
 23 Mr. Owsley wrote a letter about his well?
 24 A. Yes.
 25 Q. Mr. Smith's testimony and his exhibits

1 indicate that the replacement wells are deeper
 2 than the original wells in this north Eagle area.
 3 Do you recall that?
 4 A. Yes.
 5 Q. Are these deeper replacement wells
 6 completed into different saturated zones or
 7 aquifers than the original wells are completed
 8 into?
 9 A. Yes.
 10 Q. And how do you know that?
 11 A. Well, by inspecting the well driller's
 12 reports and comparing most of the wells in that
 13 area together, and as we pointed out in the
 14 exhibit -- I'm not sure if we actually got that
 15 exhibit into the record, but the cross-sectional
 16 diagrams that we drew of the protestants' wells
 17 and the wells submitted by Mr. Smith, by Jason
 18 Smith in his testimony, so-called couplet wells
 19 that show the original well with the replacement
 20 well.
 21 Q. And what did that show you with regard
 22 to aquifer levels or pressure heads comparing the
 23 shallow and the deeper zones?
 24 A. I agreed with Jason Smith, that the
 25 deeper wells have deeper water levels.

1 Q. And why is that?
 2 A. Because I believe it -- the shallow
 3 section there is an area of decreasing potential
 4 with depth.
 5 Q. Is that the case with the Pierce Gulch
 6 Sand Aquifer?
 7 A. Not the Pierce Gulch Sand Aquifer
 8 itself, no.
 9 Q. The Pierce Gulch Sand Aquifer has
 10 increasing potential with depth, does it not?
 11 A. That is correct.
 12 Q. How many well logs did you look at in
 13 this area as part of your work?
 14 A. In the north Ada County area?
 15 Q. Yes.
 16 A. Thousands.
 17 Q. Was that all as part of your work for
 18 the M3 application?
 19 A. Yes.
 20 Q. Can you compare water levels between a
 21 shallow original well and a deeper replacement
 22 well? How do they compare?
 23 A. In some cases -- I mean you can always
 24 compare. In some cases, if you mean are they the
 25 same, there are situations where they could be the

1 same, if you just had an unconfined water table
2 aquifer and the differences between them were not
3 too great, because even -- even wells completed to
4 different depths, just as in the Pierce Gulch Sand
5 Aquifer, have different heads with depth.

6 Q. So was it a surprise to you that the
7 replacement wells sometimes had lower water levels
8 than the original wells?

9 A. The original shallow wells?

10 Q. Correct.

11 A. No, not at all. I would expect that.

12 Q. Before the recess you briefly
13 discussed Exhibit 75, and I think the Hearing
14 Officer has that in front of him, which are the
15 driller's logs of the 1970s wells showing aquifer
16 levels then, that is, wells drilled in the 1970s.

17 Can you explain what you determined
18 from Exhibit 75?

19 THE HEARING OFFICER: Is this in the
20 binder, Mr. Fereday?

21 MR. FEREDAY: It should be in your binder.

22 MR. LAWRENCE: It's probably not in the
23 binder, actually, because it was distributed as a
24 looseleaf exhibit last time.

25 MR. FEREDAY: Okay. I stand corrected on

1 that. It was distributed last time.

2 Q. Mr. Squires, do you have a copy in
3 front of you?

4 A. I don't.

5 THE HEARING OFFICER: I have the exhibit,
6 Mr. Fereday. I can give it to him.

7 Q. (BY MR. FEREDAY): Would you explain
8 what you did in putting together Exhibit 75,
9 Mr. Squires, as to why you did so.

10 A. Well, when presented with the
11 replacement well couplets by Jason Smith and
12 the -- also the replacement wells that weren't
13 paired with original wells, we looked at those
14 wells and paid specific attention to the shallow
15 replacement wells and the deeper wells that
16 replaced them.

17 And we found, as we pointed out in
18 our -- in that Excel spreadsheet, the tabulation
19 of that data, that in all cases the deeper wells
20 had deeper water levels.

21 So the next step for us was to look
22 and see if deeper wells were, in fact, drilled
23 back in the same vintage, the '60s and '70s, as
24 the original shallow wells in the same area.

25 And that is what Exhibit 75 is, is we

1 went looking in those same neighborhoods. And in
2 fact, we have a map that we submitted that shows
3 the locations of the Exhibit 75 wells with respect
4 to the protestants, with respect to the Jason
5 Smith couplet wells, and the other wells in this
6 area.

7 Q. The map is Exhibit 74, I believe.
8 Could you refer to that, please.

9 And while you're looking for that,
10 Mr. Squires, the spreadsheet that you referred to
11 is Exhibit 72, is it not?

12 A. The map is Exhibit 74 and the
13 spreadsheet is Exhibit 72, that's correct.

14 MR. FEREDAY: Mr. Hearing Officer, perhaps
15 we ought to go off the record for a moment just so
16 we can make sure that you have these exhibits and
17 that he has them in front of him.

18 THE HEARING OFFICER: Okay.
19 (Discussion.)

20 THE HEARING OFFICER: So we're recording
21 again?

22 MS. GIBSON: Yes.

23 THE HEARING OFFICER: Thanks. Okay.

24 Q. (BY MR. FEREDAY): So, Mr. Squires,
25 you were explaining that Exhibit -- Exhibit 75

1 consists of driller's logs of wells that you
2 identified in the same neighborhood as the Jason
3 Smith replacement wells and the protestants'
4 wells, which show aquifer levels when those wells
5 were drilled in 1970, that is, the Exhibit 75
6 wells were drilled; correct?

7 A. Well, that's correct. What we looked
8 at was whether there were old wells that were
9 drilled to that depth and what the water levels in
10 those old wells might have been back in the '70s.

11 And we found similarly that they had
12 deeper water levels than the shallowly drilled
13 wells even back then.

14 Q. Can you give any examples -- perhaps
15 you'd like to refer to the map, Exhibit 74, as you
16 look through Exhibit 75 and explain some examples
17 of these comparisons of water levels.

18 A. Well, there's -- the top one here is
19 Otto Bertel, and you'll see on the map that the
20 Bertel well, which is one of the green wells,
21 which is the old 1960 to '79 deep wells, is very
22 close to the Roberts well, which is one of the
23 Smith group wells.

24 And this is a well that was drilled to
25 332 feet in 1974, very -- same vintage as many of

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1 the wells that were replaced. And the water level
2 at that time was 150 feet belowground. So it has
3 a water level very comparable to the deeper wells
4 that are replaced in the Smith couplets.
5 Q. Do you have any other examples you'd
6 like to go through, or is that sufficient to make
7 your point?
8 A. I would be glad to go through more, if
9 you would like to. I think as you skim through
10 these, you'll see that the water levels are all in
11 the, you know, 180, 160, 210, and these are all
12 old wells drilled basically to that same deeper
13 level.
14 Q. Okay. How do those original 1970s
15 water levels compare to the water levels in these
16 deeper replacement wells?
17 A. A preliminary look tells me that they
18 were actually deeper, the water levels were deeper
19 back in the '70s in that zone, than they are
20 nowadays. But I haven't done an exhaustive study
21 of that.
22 Q. What does Exhibit 75 indicate to
23 you -- and your review of that data indicate to
24 you with regard to Mr. Smith's assertion of
25 declining water levels?

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1 A. Well, I don't think that it's
2 appropriate to compare the shallow aquifer with
3 the deeper aquifer and the levels in it. I don't
4 think that you can say "I had a well on this site
5 that was 70 feet deep and had a 60-foot water
6 level, and I redrilled the well to 200 and now
7 I've got a 90-foot water level." I don't think
8 that is a correct comparison.
9 Q. Do you find support for any theory
10 that water levels have declined in the Smith group
11 of wells?
12 A. I haven't seen any conclusive
13 evidence, no.
14 Q. Did you evaluate the shallow wells of
15 protestants to determine whether the available
16 information about them sheds any light on
17 Mr. Smith's testimony about water-level declines?
18 And I'd like to refer you, please, to Exhibit 76.
19 It's a new exhibit, which is a bound set of
20 questionnaires and other information that we
21 discussed before the recess.
22 (Exhibit 76 marked.)
23 Q. (BY MR. FEREDAY): Do you recognize
24 that?
25 A. Yes.

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1 Q. Could you describe how that was
2 compiled?
3 A. Yes. It was a multistep process.
4 Q. Did you compile this?
5 A. Yes. Not this precise binding, but I
6 compiled this -- myself and my staff compiled this
7 document.
8 Q. And could you describe for the Hearing
9 Officer what it comprises.
10 A. Well, early on in the hearing process
11 we received permission from the Hearing Officer to
12 send out a questionnaire to all the protestants in
13 this case to try and receive information about
14 their wells so that we could better assess the
15 potential impacts to those wells, where they were,
16 how they were constructed.
17 We received a good response to those
18 questionnaires. And each questionnaire that we
19 received is in here.
20 Then we took those questionnaires and,
21 based on the information that was there, we went
22 to the IDWR database and, to the best of our
23 ability, paired the questionnaires' protestants'
24 wells to the -- to the appropriate well driller's
25 report.

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1 Q. The protestants questionnaires include
2 questionnaires filled out by some of the public
3 witnesses who testified here; isn't that correct?
4 A. I believe that's correct. Yes, that
5 is correct.
6 Q. And also some of the individuals who
7 drilled replacement wells that Mr. Smith testified
8 to?
9 A. Yes.
10 Q. Why did you develop these
11 cross-sections of their wells?
12 A. Well, I believe I stated that that
13 is -- that is the best way to visualize quickly
14 and to be able to refer back and forth to wells,
15 rather than looking for blanks or filled out
16 forms. We like to plot it in a cross-section in a
17 visual way so that we can refer to and refer back
18 to it quickly.
19 And as my recollection is, we prepared
20 the diagrams originally as though we had intended
21 to get them to the protestants as well.
22 Q. Do these questionnaires and the
23 cross-sections provide information that is
24 relevant to your rebuttal of the Jason Smith
25 testimony?

1 A. Yes.
 2 Q. And what, in general, is your opinion,
 3 based on that review, about the allegations that
 4 the wells had either gone dry or been -- suffered
 5 declining water -- significant declining water
 6 levels in the area?
 7 A. Well, some of the respondents were
 8 very forthcoming with the information from their
 9 wells, and they included water levels that were
 10 taken by the Department and water levels that they
 11 had measured. They gave us information about
 12 problems they had with their wells or lack of
 13 problems of when they replaced their wells, and
 14 those were very helpful.
 15 In this particular case, we have not
 16 been able to get any water-level data from off the
 17 IDWR website for these wells or the protestants'
 18 water levels. So fortunately, we were able to
 19 rely on water levels that were recorded in here.
 20 And those were really the only water levels that
 21 we had to go on.
 22 But what we see is -- and I think at
 23 the very end of the testimony we talked about
 24 Mr. Edwards' wells -- well, which is relatively
 25 shallow. And I could look it up here so I'm

1 fresh.
 2 Q. I believe that's tab 4.
 3 A. That's tab 4 in a -- this has not been
 4 made an exhibit yet, I guess. It's a compilation.
 5 Q. It's marked as Exhibit 76.
 6 A. Okay.
 7 Q. We will offer it in a moment.
 8 A. And Mr. Edwards reported that the
 9 depth to water in 2008 was 68 feet. And if you
 10 look at the well log that we paired with his
 11 well -- and it also matches with the name of the
 12 person that he bought the property from -- in 1972
 13 the water level was 60 feet. So that doesn't --
 14 that doesn't indicate a significant decline --
 15 Q. What time of year --
 16 A. -- to make the well unusable --
 17 Q. Excuse me.
 18 A. -- and have to be redrilled and
 19 deepened.
 20 Q. What times of year were those two
 21 measurements taken, 1972 and --
 22 A. The 1972 measurement was taken in
 23 April, and the water level reported in 2008 was
 24 taken in September.
 25 Q. And what does that tell you about the

1 likely relative water levels comparing 1972 to
 2 2002?
 3 A. Well, I haven't -- I haven't done any
 4 water-level monitoring in shallow wells in this
 5 area. But it tells me that it is -- the latter
 6 measurement, the lower measurement, was near the
 7 end of the irrigation season.
 8 Q. So you would expect it to be lower?
 9 A. Without seeing any other, you know,
 10 good, continuous water-level data, yes.
 11 MR. FEREDAY: Mr. Hearing Officer, we offer
 12 Exhibit 76.
 13 THE HEARING OFFICER: Mr. Thornton?
 14 MR. THORNTON: No objections.
 15 THE HEARING OFFICER: Mr. Smith?
 16 MR. ALAN SMITH: We would object to any of
 17 this information. It goes beyond the 20
 18 replacement wells that Mr. Jason Smith testified
 19 to. It's way beyond the scope of our evidence,
 20 improper rebuttal.
 21 THE HEARING OFFICER: Mr. Edwards?
 22 MR. EDWARDS: No.
 23 THE WITNESS: I guess the concern I have,
 24 Mr. Fereday, is not the fact that -- and it isn't
 25 for the cause of the objection Mr. Smith has

1 voiced. But it's just that I have a lot of
 2 information here and one reference that we've
 3 talked about.
 4 And what -- I guess my question is:
 5 What is the value to me of the remainder of this
 6 evidence? Do I need to be digging through all of
 7 this and be responsible for it?
 8 MR. FEREDAY: No, Mr. Hearing Officer. We
 9 do intend to go through a number of other
 10 references in this document focusing, in part, on
 11 the public witness testimony and on the testimony
 12 of Mr. Smith. And we would at least highlight
 13 those points.
 14 But I think that the document is
 15 valuable to this hearing record because it does
 16 provide each of those questionnaires that were
 17 elicited at the front end of this case wherein
 18 protestants themselves stated whether they were
 19 suffering water-level declines or other problems
 20 with their pumps.
 21 And we believe that this is proper
 22 rebuttal, particularly with regard to those who
 23 have made those statements either in their protest
 24 or in their testimony as public witnesses, or
 25 whose wells have been referred to by Mr. Smith.

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1 And all three of those categories are covered in
2 this Exhibit 76.
3 MR. ALAN SMITH: How many have we got in
4 here? A lot more than any public witnesses. We
5 can go on with this all day. We can cross-examine
6 about every one of these. I think it's time we
7 narrowed the scope down here a little bit to what
8 our evidence was that they're trying to rebut.
9 If they're relating it to whether or
10 not the water levels have dropped a foot, as we
11 contended, a foot per year, then that may be
12 appropriate rebuttal. But they're going into all
13 kinds of things that are way beyond the scope of
14 our evidence.
15 THE HEARING OFFICER: To move this along,
16 I'll receive this into evidence, but I may at some
17 point in time, Mr. Fereday, limit the amount of
18 this material. But at least with that
19 reservation, I'll allow it into evidence.
20 (Exhibit 76 admitted.)
21 MR. ALAN SMITH: We would like a continuing
22 objection shown for the record to anything that
23 has not been tied in to the 20 replacement wells
24 that Mr. Jason Smith testified to. Again, it's
25 way beyond the scope of our evidence.

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1 THE HEARING OFFICER: Continuing objection
2 is granted and recognized.
3 Mr. Fereday.
4 Q. (BY MR. FEREDAY): Mr. Squires, with
5 regard to one of the public witnesses,
6 Mr. Nichols, do you recall his testimony?
7 A. Yes.
8 Q. Could you refer to tab 35 in
9 Exhibit 76, which I believe is Mr. Nichols'
10 questionnaire response. And could you tell us
11 what you have determined with regard to
12 Mr. Nichols' well situation concerning water-level
13 changes that might have occurred.
14 MR. ALAN SMITH: Again, we would object.
15 It's not one of the 20 wells that we had testimony
16 about.
17 THE HEARING OFFICER: So noted.
18 Mr. Fereday.
19 Q. (BY MR. FEREDAY): Mr. Squires.
20 A. Well, I noted that from the
21 questionnaire that the well was drilled in 1995
22 with the recorded water level, original water
23 level, of 120 feet.
24 In 1992 it appears that the water
25 level was measured at 103, and in 2000- -- in

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1 June. In September of '08, IDWR measured it at
2 112. So it tells me that there's no indication of
3 water-level decline since 1995 in the Nichols
4 well.
5 Q. What about tab 44 -- excuse me, tab 2,
6 the Eagle Pines well? And I believe Eagle Pines
7 is the well owned and operated by one of the
8 protestants in this case.
9 Do you recognize that?
10 A. I do.
11 Would you like me to speak to the
12 Eagle Pines well?
13 Q. Yes.
14 A. Well, the Eagle Pines well, as you
15 mentioned, is one of the protestants in this case,
16 a long-term irrigation well. So we looked at this
17 well in depth.
18 And what we found is that there does
19 not appear to be significant water-level decline
20 in this well either, over a very long period. I
21 think it's some 50 years. The original well was
22 drilled in 1955 and replaced in 2001. And the
23 reported pumping water level -- or the nonpumping
24 water level in 1955 in February, which we believe
25 is near the apex of water-level recovery, was

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1 105 feet, and in 2001 the water level at the end
2 of March, well into the irrigation season, was 112
3 nonpumping water level. So there doesn't appear
4 to be any significant evidence of decline in that
5 well.
6 Q. What about tab 3, the Alan Smith well,
7 another one of the protestants in this case?
8 A. Well, we have not any newer
9 water-level measurements. Mr. Smith declined to
10 have us measure his well on the questionnaire.
11 And all we have is the well driller's report that
12 was -- that we paired to it, which was actually
13 drilled by Mr. Smith in 1975.
14 But Mr. Smith did report that he
15 hasn't had any change in water level or
16 productivity in the last few years. And he says
17 that he had no problems with his well or pump.
18 Q. Mr. Squires, moving away, at least for
19 the moment, from -- from specific individuals, can
20 you tell us whether the other records in
21 Exhibit 76 confirm these kinds of conclusions or
22 are there any that diverge from that conclusion?
23 MR. ALAN SMITH: We would object to that
24 question. It's vague and ambiguous.
25 THE HEARING OFFICER: Mr. Fereday?

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1 MR. FEREDAY: Well, I simply asked him
2 whether he knows of anything else in these
3 questionnaires which would point to a different --
4 a different result.
5 MR. ALAN SMITH: We would like specific
6 questions.
7 MR. FEREDAY: I'll withdraw the question.
8 Q. Mr. Squires, what is your response to
9 the statement by Mr. Owsley at -- and here we can
10 show the Hearing Officer the actual transcript of
11 Mr. Owsley's statement -- that the Banducci,
12 Cummins, Dater, Taylor, and Edwards wells needed
13 to be deepened because of, quote, "lowered
14 groundwater levels in the area," unquote? What is
15 your response to that statement?
16 MR. ALAN SMITH: I would object to that as
17 improper impeachment. They're attempting to
18 discredit this witness without having called him
19 to ask him about his statements first.
20 THE HEARING OFFICER: Okay. Overruled. We
21 had a discussion on this subject earlier, and I
22 overruled the objection. Overruled.
23 THE WITNESS: I couldn't find any evidence
24 that these wells had to be replaced because of
25 declining water levels.

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1 Q. (BY MR. FEREDAY): Did you evaluate
2 the Banducci well? And I'd like to refer you back
3 to Exhibit 76 on tab 19, please.
4 A. Yes, I did.
5 Q. Could you describe what you found with
6 regard to that investigation?
7 MR. ALAN SMITH: Could I ask a question in
8 aid of objection, please?
9 THE HEARING OFFICER: Sure.
10 MR. ALAN SMITH: Mr. Squires, did you
11 actually go on the site and inspect the Banducci
12 well?
13 THE WITNESS: No, I did not, sir.
14 MR. ALAN SMITH: We would object.
15 THE HEARING OFFICER: Okay. Overruled.
16 THE WITNESS: I did evaluate this well,
17 yes.
18 Q. (BY MR. FEREDAY): And could you
19 explain what you did in that evaluation, please.
20 A. Well, we paired the driller's report
21 available on the IDWR website in the name of Randy
22 and Tracy Hall, which was also reported on the
23 questionnaire by Mr. Banducci.
24 Q. Was Hall Banducci's predecessor?
25 A. Yes, that's who he bought the property

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1 from.
2 And then we also drew a
3 cross-sectional diagram -- it's the third page of
4 tab 19 -- that shows the construction of the well.
5 And what I find from this is that
6 Mr. Banducci bought the well from Randy and Tracy
7 Hall, but he bought the property with the well
8 already drilled. So Mr. Banducci really had no --
9 other than what he might have heard from --
10 verbally from Randy or Tracy Hall of why the well
11 needed to be replaced.
12 Q. What about depth to water in
13 Exhibit 76, tab 19, what does Banducci say about
14 that?
15 A. He wrote that the depth to water was
16 61.39. And there's not a date by that. But the
17 water level on the well driller's report in '96
18 was 65 feet. So I'm assuming, since this may be a
19 Department water level, since they're working
20 together with Mr. Banducci.
21 So in the '95 well, it appears that
22 water levels are not significantly different.
23 Q. Is there any evidence that you see
24 that this well had to be deepened due to lowered
25 groundwater levels in the area, as Mr. Owsley

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1 testified?
2 A. Well, I can't -- I have no evidence of
3 that. I don't have the original well log. I
4 don't have any water levels originally.
5 Q. What about the quality of the Banducci
6 well as it's been -- as it was redrilled in 1996,
7 Mr. Squires, is it an efficient well, in your
8 opinion, based on its construction?
9 A. Is it an efficient well?
10 Q. Yes.
11 A. Well, I have some questions about this
12 well. It appears that the casing for one reason
13 or another was drilled through and beyond a sand
14 layer centering about 150.
15 I'm referring now to the
16 cross-sectional diagram, Mr. Hearing Officer, the
17 third page.
18 There isn't drawdown or pumping level
19 reported on the driller's report, but it had a
20 yield of 100 gallons per minute. It was more than
21 adequate for a domestic well.
22 Q. With regard to question 12A on tab 19
23 in the questionnaire, he answers yes to the
24 question, "Does your well produce sand?"
25 Do you see that?

1 A. I do.
2 Q. What is your opinion as to that
3 element with regard to the potential efficiency of
4 this well?

5 A. Well, we're unsure again from the --
6 from the information that's listed on the well
7 driller's report, but it would appear that there's
8 some infill -- there's at least a question about
9 some infill that Mr. Banducci has indicated --
10 he's indicated on his questionnaire that the well
11 produces sand. I have no reason to question that.

12 The well doesn't have screens, and I
13 can't -- I don't really want to speculate where
14 the sand is coming from. But it could be from the
15 150-foot layer coming around the end of the
16 casing. It's an open-hole completion, so there's
17 no screen and filter pack in the well.

18 Q. What about the others that Mr. Owsley
19 mentions, Taylor, Edwards, Dater, or Cummins, do
20 you have any information about whether lowered
21 groundwater levels were a cause of those wells
22 needing to be deepened?

23 A. Well, I am not sure which Edwards. If
24 that is referring to Norm Edwards' well, I am
25 pretty sure that Mr. Edwards never had his well

1 deepened.

2 Q. What about Taylor? This, again, is
3 one we've talked about; correct?

4 A. Isn't Taylor the record that
5 Mr. Thornton brought in at the last -- well, I
6 think that there's no conclusive proof that
7 declining water levels caused that well to need to
8 be deepened.

9 Q. Were you able to find any information
10 on Dater or Cummins?

11 A. I wasn't. I actually thought I
12 remembered seeing a well log for Dater at one
13 point, but I couldn't locate it afterwards. It
14 seemed to me -- well, I won't speculate on it. I
15 couldn't find the well log.

16 Q. Just to recap with regard to rebuttal
17 of Jason Smith's testimony of the public
18 witnesses, Jason seemed to be implying that water
19 levels have declined in the north Eagle area and
20 that replacement wells needed to be drilled and
21 that that's proof of water-level declines.

22 Do you agree?

23 A. No, I don't.

24 Q. Could you give us just as a summary
25 the reasons that you have that opinion.

1 A. You know, I could refer you to tab 12,
2 Mr. Thornton's well, Mr. Thornton's questionnaire,
3 well log, and a drawing of his well. And I think
4 this is repeated many times throughout this
5 document.

6 This is a well that was drilled in
7 2005, according to the response. Depth to water,
8 292 feet, approximately, as reported by the
9 Thorntons. Reported no problems. And on the
10 cross-sectional diagram of the well, it appears
11 that there's approximately 200 feet of available
12 drawdown in the well.

13 Q. That means 200 feet of water over the
14 screens?

15 A. Yes, approximately. A little bit
16 less, perhaps. And I would refer you to --
17 finally, to -- just taking a minute, these aren't
18 in -- the tabulation is not in alphabetical order.

19 Tab No. 18 is John Petrovsky and CJ
20 Thompson's well.

21 Q. What does that show?

22 A. That shows one of the protestant's
23 wells. And there's a diagram of it, a
24 cross-sectional diagram, shown on the third page.
25 And in 1975 the water level is 221 feet. And on

1 the questionnaire, which is the first page, under
2 question 1 -- actually, no. Yeah, under 12 --
3 under question 10, excuse me, "Per 2008 IDWR
4 measurements, level and productivity stable from
5 1975 to present."

6 Q. So what is your summary, then, with
7 regard to Mr. Smith's suggestion that water levels
8 have declined in the north Eagle area and that
9 replacement well drilling is proof of this?

10 A. I have no substantial or supportable
11 evidence that that's true.

12 Q. Could you comment on pumping levels
13 available to these protestants and others in the
14 Eagle -- in the Eagle area?

15 A. Could I comment to the water levels
16 available?

17 Q. Yeah. Based on what you've just
18 testified with regard to Mr. Thornton and
19 Mr. Petrovsky, for example, do you have an opinion
20 from the water levels that you've seen and the
21 well data that you've seen that wells generally
22 have available water -- water available to their
23 wells?

24 MR. ALAN SMITH: We would object to that
25 question as vague and ambiguous. It's asking for

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1 a general conclusion about all of these wells.
2 THE HEARING OFFICER: Overruled. This
3 question's appropriate for the expert witness.
4 THE WITNESS: Well, first I would point out
5 that some of these wells are completed in areas
6 of -- that's dominated by blue clay. So they're
7 not all in the same hydrogeologic setting.
8 But I think the general question that
9 you're asking could be answered in this way: I
10 think that it's very, very positive, the findings
11 of our studies, that it's great if you can depend
12 on a well for 35 years that was only drilled to
13 70 feet. Who wouldn't do that, if you could, if
14 the water quality was good?
15 But the good news is, that I think
16 should be good news for all the protestants and
17 all the Eagle area well owners, is that you can
18 deepen your well. It is possible. There's lots
19 of aquifer below.
20 And so in my view, in most of the
21 greater Eagle area, there is not a problem with
22 deepening a well and obtaining sufficient water
23 for domestic purposes.
24 Q. (BY MR. FEREDAY): Does it appear that
25 some of the replacement wells that Mr. Smith

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1 described extend from the shallow alluvial aquifer
2 down into the Pierce Gulch Sand Aquifer?
3 A. I think it's possible that some of
4 them do reach that depth. I haven't really
5 evaluated for that.
6 Q. With regard to Exhibit 34, which is a
7 previously admitted exhibit -- again, back to the
8 Eagle Pines well with that exhibit -- it -- I see
9 that it's screened between 117 and 200 feet below
10 groundwater level in an area of elevation that --
11 that -- my question is, whether that well might be
12 into the Pierce Gulch Sand Aquifer. It's also in
13 tab 2 of Exhibit 76, if that's easier to find at
14 the moment.
15 A. I believe that the Eagle Pines Water
16 Association well is completed in the Pierce Gulch
17 Sand Aquifer.
18 Q. If there were declining water levels
19 in the shallower zones, could pumping from the
20 PGSA be causing it?
21 A. Well, only if you could demonstrate
22 water -- lower water levels in the PGSA, and then
23 it would simply -- it would still just be a
24 suggestion. It wouldn't be positively confirmed
25 that PGSA pumping was causing it.

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1 Q. And what have we seen from pumping in
2 the Pierce Gulch Sand Aquifer in terms of water
3 levels?
4 A. The water levels that I have reviewed
5 and that I believe suggest to me that water levels
6 may be increasing in the Pierce Gulch Sand
7 Aquifer, in general, though there could be some
8 local declines. There could be -- you know,
9 there's some data that I can't explain, the wells
10 that are not completed very well or there's just
11 no data available.
12 For the wells that are completed with
13 seals that have good, long-term monitoring, to me
14 they suggest the water levels are very stable, if
15 not increasing over the last six or seven years.
16 Q. In the Pierce Gulch Sand Aquifer?
17 A. Correct.
18 Q. In response to a question from
19 Mr. Smith, do you recall Mr. Whitney testifying to
20 the effect that unsealed, shallower wells could
21 drain the upper aquifer?
22 A. Yes.
23 Q. Do you agree with that?
24 A. In the case where we're talking about,
25 where there's a decreasing potential with depth, I

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1 absolutely agree with that. I think it's
2 happening.
3 Q. You think it's happening?
4 A. I do.
5 Q. Could you explain why you think that.
6 A. Well, again, it goes back to this
7 idea -- a couple of ideas, really, that these
8 formations stand open more than we think they do,
9 that is, they're more cemented. They're more
10 consolidated. Our research tells us that. We
11 look at wells where, as we talked about, when we
12 look outside the casings there are voids outside
13 the casings.
14 And so if you have void space outside
15 the casing and you have a gradient, in this case a
16 downward gradient, and you connect those two, then
17 there is a natural tendency for the water to move
18 from higher head to lower head.
19 And I think it's certainly possible
20 that the preponderance of domestic wells in this
21 area may actually be a recharge source to the
22 Pierce Gulch Sand Aquifer. It may be a recharge
23 source to this deeper aquifer that many of the
24 replacement wells were extended into.
25 And like I say, I don't really have

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1 evidence of declines in the shallow aquifer, but I
2 also have no evidence that it didn't decline or
3 that it did decline and it could be -- I think it
4 was Mr. Taylor, the public witness, who testified
5 that what he noticed was there were a whole lot of
6 wells going in around him.
7 I could certainly see a number of
8 unsealed wells that are allowing the communication
9 from high head to low head to lower water levels
10 in the area. It would not surprise me at all.
11 Q. How does the -- with respect to what
12 Mr. Taylor testified, how does the Eagle area
13 compare to other areas with which you're familiar
14 in terms of the density of domestic and small
15 irrigation wells?
16 MR. ALAN SMITH: Object to that as
17 irrelevant and immaterial.
18 THE HEARING OFFICER: Overruled.
19 THE WITNESS: My experience -- within my
20 experience, and because of the way Eagle developed
21 with larger lot sizes, it has not been
22 economically attractive for municipal style
23 providers to build pipelines, expensive pipelines
24 and distribution systems. And so Eagle has grown
25 up pretty much with a domestic well per residence.

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1 And it is one of the densest well fields that I've
2 experienced -- that I've ever worked around, to be
3 quite honest with you.
4 Q. (BY MR. FEREDAY): Could you refer
5 back to Exhibit 17, which we discussed some time
6 ago, which is entitled "Well density map."
7 I'd just like to ask you whether
8 that -- you believe that is an accurate
9 description of the number of wells in the Eagle
10 area and ask how you arrived at these numbers?
11 THE HEARING OFFICER: This is Exhibit what,
12 Mr. Fereday?
13 MR. FEREDAY: 17.
14 THE HEARING OFFICER: 17.
15 THE WITNESS: This is a compilation of all
16 of the well records that we reviewed for the area
17 of this map from the IDWR well driller database.
18 And we plotted the wells in two ways: One, per
19 square mile, which is the larger numerals, the
20 larger bold numerals at the center of each square
21 mile; and then you'll see that there are smaller
22 numerals in each quarter-quarter section of a
23 square mile. And those represent the number of
24 wells in that quarter-quarter section.
25 So this is an overall diagram

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1 indicating the level of density of wells in
2 general -- of course, they're mostly domestic
3 wells -- in the Eagle area.
4 Q. (BY MR. FEREDAY): Mr. Squires, how
5 many years have -- you may have answered this
6 already, but -- and if so, just tell me, but how
7 many years have you been designing and inspecting
8 wells in the Treasure Valley?
9 A. A little over 20.
10 Q. And how many wells have you inspected
11 that have actually gone dry due to declining water
12 levels?
13 A. I can think of one out in the Micron
14 area that I physically observed the water level
15 drawn down below the level of the well.
16 Q. Mr. Squires, I'd like to ask you a few
17 questions now with regard to Mr. McVay's
18 testimony.
19 With regard to his comment at -- as
20 shown here on the screen in the transcript that
21 two of the non-Dry Creek wells he analyzed have an
22 upward water-level trend but that the rest have
23 negative trends, what's your response to that
24 statement?
25 A. To the last statement there, I believe

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1 that I revised that, and now there are two wells
2 that display positive water-level trends.
3 Q. Right.
4 A. I don't really see the statement that
5 you talked about.
6 Q. Well, above he says -- I asked whether
7 all -- "Do all of these wells show negative
8 water-level trends?" and he said that there were
9 two that didn't.
10 What's your response to that?
11 A. Well, I don't agree with that
12 statement per se.
13 Q. Why is that?
14 A. Well, because I don't agree with the
15 way that Mr. McVay plotted the data.
16 Q. And how did he plot the data, in your
17 opinion, and what was wrong with that?
18 A. Well, I believe -- with respect to the
19 water-level data and plots presented by Mr. McVay,
20 I would approach that exercise in a very different
21 way. I would -- I would first look at all the
22 data that was available. And I would start there.
23 And I would visually look at what is
24 available to me on water-level plots. And then I
25 would -- and then I would plot all of the data. I

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1 learned not to throw away data. The very first
2 step is to plot all of the data and if -- see what
3 shakes out.
4 Q. Did Mr. McVay not plot all of the
5 data?
6 A. No. In many cases where there were
7 hundreds of data points available, he plotted only
8 a very few.
9 (Exhibit 77 marked.)
10 Q. (BY MR. FEREDAY): I'd like to show
11 you Exhibit 77, which is a new exhibit, and ask
12 you to identify this, please.
13 A. These are two wells from -- that were
14 analyzed by Mr. McVay, and analyzed by Hydro Logic
15 as well in response to the staff memorandum. And
16 in the upper left-hand corner is the plot that
17 used to be available on the IDWR website of the
18 well DAD1, which is a well that I'm very familiar
19 with.
20 And I would point out in the upper
21 left that this is the -- this is the first visual
22 examination that I was speaking of. I would look
23 at a water-level plot like this, and I would break
24 it into pieces because I believe that there are
25 segments of this that are being affected by

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1 different things.
2 In the first four years from, say, '89
3 to '93, it looked like there was an annual
4 fluctuation of approximately a little over 2 feet
5 with a steady declining trend up until about 1993,
6 then there appears to be a 4 1/2 foot change in
7 the monitoring data, is what I would guess,
8 because an abrupt water-level change like that
9 doesn't make sense to me. And the fluctuation
10 just picks up at basically the same magnitude.
11 So I would -- I would break this down
12 into three sections. The section from 1989 to
13 1995; and then I would take a section from 1995 to
14 somewhere around 2000, 2001; and then the section
15 from 2001 to 2008 as another section.
16 And if I was evaluating what the
17 health, if you will, of the aquifer or what -- and
18 Mr. McVay has stated that he wasn't doing that.
19 He wasn't looking at water-level declining trends,
20 declining or water-level trends in general in the
21 aquifer, but trying to characterize different
22 aquifers.
23 Nevertheless, he still used trend data
24 to do that. And then later on Mr. Owsley, Dennis,
25 used the declining trends to make statements on

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1 the health of the aquifer, whether its recharge
2 exceeded -- or was less than its discharge.
3 And so for that purpose, I would look
4 at the last seven or eight years of data. And
5 Mike McVay took exception of the fact that we drew
6 hand-drawn lines on there. Well, that's exactly
7 my point, is that I would look at this data. And
8 to me it looks like it's slightly rising.
9 And in my analysis I would always pick
10 the highs and the lows of the data -- of the
11 annual fluctuation in water level.
12 Q. Now, the upper right-hand plot is
13 Mr. McVay's regression plot of all the data;
14 correct?
15 A. Well --
16 Q. Actually, the data points that he
17 selected; correct?
18 A. Correct.
19 Q. What does the lower right-hand segment
20 show us with regard to the green and red dots?
21 A. Well, first let me explain, if I can,
22 the lower left --
23 Q. Okay.
24 A. -- because it's kind of a progression.
25 Q. Okay.

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1 A. In the lower left is where we took
2 the -- all of the data -- and if memory serves me,
3 it was somewhere around 580 data points available
4 for this well -- and we plotted it, and we did
5 regression analyses within these sections that we
6 noticed specific trends.
7 And in the trend from 2001 through
8 2008 our regression showed, as our visual
9 inspection showed, that there is an increasing
10 water level over that period.
11 Then if we go to the final -- the
12 lower right-hand. And we took the water levels
13 that were plotted by Mr. McVay, we took the -- the
14 years that were plotted, and instead of doing any
15 kind of a random selection, we picked -- because
16 we believe that the top of the water cycle and the
17 maximum recovery in these wells is somewhere in
18 January, the dead of winter time, January,
19 February.
20 So we picked water levels that were
21 closer to that time period to plot. And those are
22 the red circles that are a layer in this plot.
23 Q. Excuse me, Mr. Squires, did you mean
24 to say the green circles?
25 A. Yes, I'm sorry. The green. The water

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1 levels that we picked are green. The water -- I'm
2 sorry if I was confusing about that. The water
3 levels in red are the water-level measurements and
4 data points that Mr. McVay used for his plot
5 above.

6 But for those same years, we picked
7 water levels that were close or in January, and
8 those are the green. And they looked very similar
9 to our regression of all the data in the lower
10 left. In fact, it would appear that in the last
11 eight years, picking those data that are closer to
12 the January recovery, that the water level is
13 rising even more than it was when we used all of
14 the available data.

15 But what is also apparent in this,
16 another layer, if you will, is you can see in red
17 letters, corresponding with the red data points,
18 you can see the months March, April, and May.

19 And what we believe happened, either
20 randomly or otherwise, is that the early parts of
21 the graph, the data points were picked for March,
22 and the middle part of the graph, the data points
23 were picked from April, and later on from May.

24 So as we've shown in our hydrographs,
25 at least in the Pierce Gulch Sand Aquifer and

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1 Terteling Springs formation, that that is a time
2 when water levels are changing greatly, and
3 they're declining. And that's why we prefer to
4 pick times that are at the top, the apex of the
5 water-level recovery when things aren't changing
6 so much.

7 And so we think that if you pick
8 progressively water levels that go later and later
9 in the year, you would expect to get deeper water
10 levels. That's what you would expect. And that
11 may have had some effect on the plot that's the
12 upper right-hand corner.

13 The second well is also similar.

14 Q. Now, when you speak of the data in
15 March, April, May, those are -- you're speaking of
16 the red values, correct, that Mr. McVay picked?

17 A. Yes. In fact, the second page for
18 well 12CCA1 is a better depiction of that. Again,
19 the original plot that was available on the IDWR
20 website. And in my view, this shows -- you know,
21 just a visual inspection tells me that it looks
22 like since about 2004 there's an overall increase
23 in water levels in this well.

24 Our regression analyses of the two
25 different segments of the well, which I think

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1 should be separated, show that. And again, in the
2 lower right we have the water levels in green that
3 we picked closer to January 1. They show even
4 more of an increase than all of the data on the
5 lower left.

6 And then we also plotted the
7 measurements of Mr. McVay in red, and also shown
8 with that is the months that they were picked in.
9 And in the early part, the early three
10 measurements were picked in March, the next one,
11 two -- three measurements were picked in April.
12 Actually, yeah, in April. And the last two were
13 picked in May.

14 So it's another example of if you pick
15 water levels that are on -- during a declining
16 trend, you would expect to get progressively
17 deeper water levels as the year advanced.

18 Q. So --

19 MR. ALAN SMITH: Could I ask a question in
20 aid of objection?

21 THE HEARING OFFICER: Sure.

22 MR. ALAN SMITH: Mr. Squires, where is this
23 well located?

24 THE WITNESS: Well, I don't have that
25 information right now without taking some time to

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1 find it on a map.

2 MR. ALAN SMITH: It's out by Star, is it
3 not?

4 THE WITNESS: I'd have to look at a map to
5 tell you 5 north, 3 west.

6 MR. ALAN SMITH: We would object to any
7 further testimony on that as irrelevant and
8 immaterial and beyond the scope of our evidence,
9 improper rebuttal.

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

12 THE HEARING OFFICER: Sure.

13 MR. FEREDAY: Both of these wells are wells
14 that Mr. McVay used in his testimony. This is
15 rebuttal to Mr. McVay.

16 THE HEARING OFFICER: Objection is
17 overruled.

18 MR. FEREDAY: We offer Exhibit 77.

19 THE HEARING OFFICER: Mr. Thornton?

20 MR. THORNTON: No objections.

21 THE HEARING OFFICER: Mr. Smith?

22 MR. ALAN SMITH: Same objection.

23 THE HEARING OFFICER: Okay. Mr. Edwards?

24 MR. EDWARDS: It's just putting this in the
25 record; right?

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1 THE HEARING OFFICER: Yes.
2 MR. EDWARDS: I have no objection.
3 THE HEARING OFFICER: Okay. It's in
4 evidence. This is rebuttal to McVay's testimony
5 and graphs that he produced. So it's received.
6 (Exhibit 77 admitted.)
7 THE HEARING OFFICER: This probably is a
8 good time for a morning break, Mr. Fereday?
9 MR. FEREDAY: Yes, it is.
10 THE HEARING OFFICER: We'll take 15
11 minutes.
12 (Recess.)
13 THE HEARING OFFICER: We're recording
14 again.
15 Mr. Fereday.
16 Q. (BY MR. FEREDAY): Mr. Squires, with
17 regard to your response to some of Mr. McVay's
18 testimony, you discussed the time of year when
19 water measurements were taken. I'd like to refer
20 you back to Exhibit 45, figure 5, which is the
21 draft of annual water-level fluctuations in
22 several wells and just ask you to describe whether
23 that helps shed light on the time of year
24 question, and if so, how?
25 THE HEARING OFFICER: Okay. It's

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1 Exhibit 45.
2 MR. FEREDAY: Figure 5, I believe.
3 THE HEARING OFFICER: Okay.
4 THE WITNESS: Well, this figure 5 is a
5 hydrograph showing water level with time. And as
6 almost all groundwater levels do, it fluctuates on
7 an annual schedule. And this is a couple of water
8 levels from a couple of the tube wells, the
9 piezometers, that we have up in Big Gulch as part
10 of the M3 monitoring network.
11 And this red line or orange line is
12 the M3 Eagle test well No. 1. And what is
13 apparent is that it fluctuates from approximately
14 91 feet to 106 feet.
15 MR. ALAN SMITH: I would object to this.
16 We've been through all this before. It's
17 redundant and repetitious.
18 THE HEARING OFFICER: Overruled.
19 THE WITNESS: And so it has a 15 foot
20 water-level decline, beginning, you know,
21 somewhere in the mid-March to mid-April time
22 frame, declining until somewhere in the August to
23 late September time frame when it then starts its
24 recovery back up to where it reaches its height
25 somewhere in the mid-December to mid-February time

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1 frame.
2 And as I stated previously, this is
3 where -- we prefer to pick monitoring points to
4 determine trends within an aquifer is when the
5 water levels are at the most stable time of year.
6 And I think it's pretty obvious that, say, if you
7 look at January 2008, there's a period there
8 between December and March where there's very
9 little fluctuation in that two-month period from
10 December to February, say.
11 Q. (BY MR. FEREDAY): So, Mr. Squires,
12 how is this relevant to your testimony about
13 Mr. McVay's statements?
14 A. Well, if you look at the same time
15 period -- and let's look at January 2007 on the
16 red line again and the middle of March, and you do
17 a two-month period to the middle of May -- that
18 shows a decline over that period of, you know --
19 well, that's almost the entire 15 feet that
20 occurred over that two-month period.
21 So picking water levels in that time
22 frame throws a lot of variability into any
23 analysis, because even the mid drawdown
24 fluctuations that may be the harvesting of a crop
25 or something like that, they fluctuate 2 feet.

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1 Whereas water levels taken at the height of the
2 recovery are relatively stable and they're more
3 diagnostic. They're more certain.
4 And the same could be said of the
5 drawdown, the base of the annual fluctuation, but
6 even it is shorter than the recovery. So that's
7 my point, that is if you take water levels
8 progressively and you take one in March, one in
9 April, and one in June, there's no question you're
10 going to see a declining water level in this well.
11 Does that --
12 Q. Yeah, I'd like to return just briefly
13 to the question of unsealed wells and the density
14 of wells in the north Eagle area. And I wanted to
15 make sure I understood you before when you talked
16 about leakage in unsealed wells down from one
17 aquifer into another.
18 Could you illustrate for the Hearing
19 Officer what you meant by that point.
20 A. Well, I think what I meant is that
21 water levels -- groundwater levels move, both
22 naturally and anthropogenically in response to
23 heads, from higher head to lower head.
24 If you have deeper water levels that
25 have higher water pressure in the aquifer, the

1 water level wants to move up. If you have higher
2 water level shallow than the deeper water levels,
3 water level moves down. But it moves relatively
4 slowly across the natural geology.

5 But when we build wells and drill
6 holes through it and there's void space and
7 conduits, it can move very quickly.

8 So an analogy might be that you drill
9 a well, and let's say you drill an 8-inch well and
10 you put a 6-inch casing in it, and if that stays
11 open and you have two different heads, such as we
12 have here -- the Smiths have postulated that
13 there's a foot -- approximately 30-foot
14 discrepancy between the shallow old wells and the
15 deeper new wells.

16 Well, so there's a 30-foot difference
17 in head just for the sake of this discussion.
18 Well, that means that -- let's assume that you've
19 got 10 gallons a minute that's moving through any
20 individual well 24/7 every day of every year.

21 Q. You mean moving outside the casing?

22 A. Moving outside the casing from the
23 shallow aquifer into the deep aquifer. And you've
24 got 100 wells, that's a thousand gallons a minute.
25 That is a -- that's an injection.

1 So you would get a cone of depression
2 around the well.

3 Q. Around the shallow well?

4 A. Well, around the same well, a well
5 that's completed into two. You would get a cone
6 of depression around the well in the shallow
7 aquifer, and you'd get a cone of impression, where
8 there's a mound around the aquifer, in the lower
9 level.

10 But a significant point about these
11 different heads and this water migration is that
12 in these types of wells that are unsealed you
13 don't get a true water level for either the
14 shallow aquifer or the deeper aquifer. You get an
15 additive. You get a sum of the two.

16 So you're not even really measuring a
17 shallow water level and a deep water level.
18 You're measuring some difference between the two,
19 and depending how much the flux is and what the
20 head is.

21 And so that's why we prefer these --
22 to isolate the zones using piezometer nests, where
23 each zone in each aquifer has its own head,
24 because we feel that that's diagnostic to tell the
25 story.

1 Q. That is piezometer nests that are
2 completely sealed?

3 A. Completely sealed from one another,
4 yes, at each depth.

5 Q. Mr. Squires, I'd like to move briefly
6 to the topic of recharge, and like -- I'd like to
7 ask you what your response is to Mr. Vincent's
8 statement -- we have it shown up here -- that he
9 does not know where the recharge is from and that,
10 quote, "We need evidence that the PGSA extends to
11 the Boise River upstream from Capitol Bridge and
12 is in hydraulic communication with the Boise River
13 upstream from Capitol Bridge," close quote.

14 What's your response to that
15 statement?

16 A. Well, that's going to be impossible
17 evidence to provide.

18 Q. Why is that?

19 A. Well, because the Pierce Gulch Sand
20 Aquifer does not extend to that part of the Boise
21 Valley. It comes up-dip and breaks the surface
22 long before then. There's no Pierce Gulch Sand
23 Aquifer left in that part of Boise. It's all been
24 eroded away or it wasn't deposited, so it's not
25 going to be possible to show that that aquifer

1 extends up there. It just simply doesn't -- it's
2 not there. It's not present.

3 Q. Now, you prepared a 1992 report that's
4 been testified about in this hearing.

5 Do you recall that?

6 A. Yes.

7 Q. And what area did that 1992 report
8 evaluate with regard to the Capitol Bridge and the
9 recharge question?

10 A. Well, it was concerned primarily with
11 the Boise area east of Cloverdale Road.

12 Q. And what aquifer did it primarily deal
13 with? Do you know?

14 A. Well, that is, in my view, the
15 Terteling Springs Aquifer, the sand facies of the
16 Terteling Springs.

17 Q. Is the Pierce Gulch Sand Aquifer in
18 hydraulic communication with the river upstream
19 from Capitol Bridge in some way?

20 A. Yes, I believe it is.

21 Q. Could you elaborate, please?

22 A. Well, we know that there's a downward
23 gradient in the sands -- the coarse, widespread
24 sands in the east Boise area, for example. And
25 those same sands are visible right in the

1 foothills outcroppings that are very close to the
2 river there, Warm Springs Mesa or the Botanical
3 Gardens area. I mean you're just -- you're
4 walking along the river, you look up there, you
5 see these coarse sands.

6 We know from many well evaluations,
7 and including the Treasure Valley Hydrologic
8 Project piezometer next in Municipal Park, there
9 is a downgradient in this part of Boise. That
10 means that water is moving from higher head at the
11 surface to lower head within the aquifers.

12 So it's not a surprise that water
13 enters the water -- the aquifer above Capitol
14 Bridge, in my opinion. It doesn't have anything
15 to do with losing/gaining reaches on the Boise
16 River. It's a downward gradient in the
17 groundwater system.

18 And it makes sense conceptually and,
19 as all basins do, you have recharge in the upper
20 part of the basin and discharge in the lower part
21 of the basin.

22 Q. Isn't the aquifer, though, there above
23 Capitol Bridge a separate geologic unit from the
24 Pierce Gulch Sand Aquifer?

25 A. Yes.

1 Q. Could you --

2 A. I mean Pierce Gulch Sand Aquifer was
3 derived from the Terteling Springs formation. But
4 yeah, I believe that they are separate
5 hydrogeologic settings and separate geologic
6 formations.

7 Q. Are they connected hydraulically?

8 A. Yes. I mean it depends how you define
9 "hydraulically." But obviously they are, because
10 water gets into the Pierce Gulch Sand Aquifer, and
11 I believe some of the water that moves through the
12 Terteling Springs formation moves into the Pierce
13 Gulch Sand Aquifer.

14 But I'm not sure where your question
15 is going. But I think it's important to point out
16 that there's been a lot of discussion about this
17 encountering the Boise River. And I think that
18 that is somewhat misleading.

19 And it goes back to my original
20 discussion in that the Pierce Gulch Sand Aquifer
21 is a dipping layer. It's like this (indicating).
22 And when it comes up --

23 Q. You're holding up a notebook that's
24 slanted at a 30-degree angle or something?

25 A. Correct. It's just for diagrammatic

1 purposes.

2 The aquifer is a dipping plain of some
3 thickness. And where it breaks the surface is not
4 just at the Boise River, but in the river gravel
5 that is the floodplain for modern terrace. If you
6 looked at it in map view, you'd see this
7 expression as a band that goes all the way across
8 the present-day floodplain of the Boise River and
9 would step up to the next bench and be a band
10 across that and the next bench, and all the
11 benches of the Boise River that have saturation in
12 them.

13 So the Pierce Gulch Sand Aquifer is
14 open to, you know, shallower water at many, many
15 locations, I think, around the valley, not just
16 the Boise River itself. It's a broad band.

17 Q. In response to Mr. Vincent's
18 statement, which is at 2078, that he agrees the
19 Pierce Gulch Sand Aquifer receives recharge but
20 states that in your response, HLI's response to
21 the staff's memo, you, quote, "throw out another
22 four or five different locations where recharge is
23 now thought to occur."

24 And according to him, he suggested
25 that we really don't have a very good handle on

1 recharge, and that was his comment there.

2 Can you respond to that, please.

3 A. Well, I don't think I threw out
4 something that I now think is recharge. What we
5 did is we respond -- we responded to the comments
6 in the staff memo that we did not say where the
7 recharge was occurring. And so I put out the -- a
8 number of places where I believe recharge is
9 occurring.

10 Q. And could you give us just an
11 overview -- unless you have done that already,
12 please, and the significance of various areas of
13 recharge.

14 A. Well, I believe that the basin is
15 being recharged, as has been long thought above
16 Capitol Bridge where there is a decreasing
17 downward gradient and decreasing potential with
18 depth.

19 I believe that in many places where
20 the Pierce Gulch Sand Aquifer comes up and doesn't
21 necessarily break the surface, because the Pierce
22 Gulch Sand Aquifer has been beveled off by these
23 series of terrace gravels, these modern-day and
24 older terrace gravels that are saturated. And the
25 Pierce Gulch Sand Aquifer truncates into those,

1 for lack of a better discussion.
2 And so wherever the Pierce Gulch Sand
3 Aquifer comes up-dip, it is potentially able to
4 receive recharge from any surface water body: a
5 drain, canals, lakes, the river itself, you know,
6 overflow out of the Terteling Springs formation.
7 It probably laps up on parts of the Boise Fan. I
8 don't know that for a fact. I haven't studied
9 that, but it wouldn't surprise me.

10 I think that there is a lot of
11 available recharge to the Pierce Gulch Sand
12 Aquifer. It's not just one source.

13 And certainly there's an upward
14 gradient in the Pierce Gulch Sand Aquifer, and so
15 there's a tendency for water to move up from
16 below. And we don't -- we haven't characterized
17 what amount that is, and it may be small across a
18 clay, but it's a very, very large area.

19 Q. What is your response to Mr. Owsley's
20 statement that he does not know whether wells in
21 the above-Capitol area have decreasing heads with
22 depth, he does not know whether the Boise River
23 has losing reaches, and he has not evaluated this
24 or measured river flows?

25 A. Well, I take him at his word. That's

1 what he says.

2 Q. With regard to the decreasing
3 potential with depth in the above-Capitol reach,
4 have you yourself evaluated this?

5 A. Yes, many times.

6 Q. And are these gradients changed by
7 pumping?

8 A. Yes, they are.

9 Q. And how are they changed? Decreased?

10 A. Well, they're in the pumping -- peak
11 pumping periods when all -- you know, the wells
12 are on and the water levels are drawn down and
13 there's a greater gradient inducing more water to
14 flow in.

15 Q. Could you comment on Mr. Vincent's
16 agreement with the proposition that the aquifer's
17 recharge from the Boise River could arrive, quote,
18 "through some different flow path," close quote,
19 than direct above Capitol Bridge contact with the
20 river?

21 A. Well, I think that is how it happens,
22 because the Pierce Gulch Sand Aquifer does not
23 extend to up there, so it has to be an indirect
24 path.

25 Q. Would a different or indirect flow

1 path affect travel time?

2 A. Yes, absolutely.

3 Q. What about Mr. Vincent's concerns
4 about the use of the terms "geologically
5 ancestral" or "ancestral" in geochemistry report
6 and his question whether it makes sense that the
7 PGSA, which has high transmissivity, could contain
8 geologically ancestral water? What's your
9 response to that concern that Mr. Vincent
10 enunciated?

11 A. Well, I think -- I don't see in my own
12 mind any disconnect on travel times in the Pierce
13 Gulch Sand Aquifer. But I think we've gotten off
14 on this rather confusing geologic age-dating
15 issue.

16 And what our geochemistry study was
17 designed to show was that prior to M3 studies
18 people thought the aquifer was being recharged in
19 the foothills north of Eagle and that the aquifer
20 was flat-lying.

21 When we discovered or at least
22 characterized the gradients that we believe move
23 to the west and then on into the Payette Basin,
24 the big news was that if that's true, it can't be
25 getting recharge to any great degree in the

1 foothills.

2 I think that's also very significant
3 because there's not a lot of available recharge
4 and precipitation in the foothills. So our
5 geochemistry study was designed to show the source
6 of the groundwater, and it showed very clearly
7 that the source is the Boise River, not the
8 foothills, not precipitation, not modern
9 infiltration from irrigation practices.

10 And so that was the big news in our
11 study and why we focused on the geochemistry study
12 to show that, not -- our study was not focused on
13 age dating. But as we've learned as a part of
14 this hearing, there's a lot of factors that
15 influence geologic date of water.

16 And it's not the water that you're
17 dating. It's the carbon. The carbon can come --
18 old carbon can come from a variety of sources, a
19 geothermal upwelling that we know we have in the
20 upper basin. It can come from residence time in
21 low permeability, even the riverbed. It can come
22 through a tortuous path that works its way through
23 various geologic formations and into the Pierce
24 Gulch Sand Aquifer.

25 So we never said that the water was,

1 you know, old. That wasn't our -- that wasn't
 2 where we were going with our geochemistry study.
 3 Q. But would it surprise you if it were
 4 somehow proven that the water that's recharged
 5 into the Pierce Gulch Sand Aquifer takes more than
 6 a hundred years, let's say, to make its way to M3?
 7 MR. ALAN SMITH: I would object to that
 8 question as "would it surprise you" as vague and
 9 ambiguous.
 10 THE HEARING OFFICER: Okay. Overruled.
 11 THE WITNESS: It wouldn't surprise me at
 12 all. I think that that happens. I think there's
 13 a lot of -- a lot of other variables.
 14 Preferential flow paths and dispersion and mixing.
 15 Geochemical dating, as Mr. Glanzman pointed out,
 16 is a difficult task. It's a daunting task.
 17 Q. (BY MR. FEREDAY): Are you familiar
 18 with the Crandlemire well, the former well that
 19 was found on the Floating Feather site and the
 20 Floating Feather -- I mean you've testified about
 21 the Floating Feather well.
 22 But are you familiar with the
 23 Crandlemire well and what it might tell us about
 24 any of the testimony you've been making just now
 25 about recharge?

1 A. Well, I'm very familiar with the
 2 Crandlemire well. I measured it for
 3 Mr. Crandlemire. I abandoned the well, I
 4 pump-tested it, and I replaced it with a design
 5 for the United Water of Idaho Floating Feather
 6 well. I would -- and this is also the well that
 7 Mr. Dittus testified about that runs pretty much
 8 continuously.
 9 What I think is interesting about the
 10 Crandlemire well is prior to the Floating Feather
 11 well being brought online and pumping
 12 continuously, the Crandlemire well was used for
 13 irrigation for a long time before that to irrigate
 14 those grounds right around the Floating Feather
 15 well on the Crandlemire property on the Chase
 16 Dairy.
 17 And in that situation you have
 18 groundwater being withdrawn from the Pierce Gulch
 19 Sand Aquifer and applied on the ground right at
 20 that location and you would -- you might expect
 21 that after some time you would see the
 22 anthropogenic effects of that vertical movement of
 23 groundwater because you're creating a lower head
 24 at depth by pumping, and you're creating a higher
 25 head at the surface by applying it right there at

1 the well.
 2 So that preceded the Floating Feather
 3 well by many years, decades. And the Floating
 4 Feather well has now been pumping for a very long
 5 time, over a decade. And it pumps continuously at
 6 a very high rate.
 7 I think Mr. Dittus testified that it
 8 frequently runs up -- you know, up to
 9 3,000 gallons a minute, yet we don't see the
 10 effect of water that has percolated down through
 11 the soils from irrigation water. We see fresher
 12 water -- you know, fresher water that is more
 13 indicative of the Boise River.
 14 Q. The geochem study also evaluated the
 15 Willow Creek Aquifer.
 16 Does that at all shed any light on
 17 your response to Mr. Vincent's concern about
 18 ancestral water? Is it part of the -- how does it
 19 relate to the PGSA?
 20 A. Well, the Willow Creek Aquifer, in my
 21 mind, is the Terteling Springs formation. And
 22 it's a -- you know, it's separate. It has -- it
 23 has separate recharge source. That is recharged
 24 by precipitation in the foothills, we believe.
 25 But it's distinctly separate, and I

1 think hydraulically pretty separate from the
 2 Pierce Gulch Sand Aquifer. I don't think it
 3 really has any bearing on the question.
 4 Q. What is your comment in response to
 5 Mr. Vincent's statement that Mr. Glanzman found no
 6 Boise River water in the Emmett wells? And in
 7 response to questioning, I believe Mr. Vincent
 8 appears to agree that this is an inconsistency in
 9 Hydro Logic's work, that is, that there was no
 10 Boise River water found in the Emmett wells, at
 11 least that's how I took it. Do you recall that?
 12 A. I recall that. I would not -- I would
 13 not expect there to be any Boise River component
 14 in the Emmett wells at all in our conceptual
 15 model.
 16 Q. Why is that?
 17 A. Well, because the Pierce Gulch Sand
 18 Aquifer doesn't go to Emmett. Again, it comes
 19 up-dip below Emmett. So it doesn't extend to
 20 there.
 21 I would expect that the Emmett
 22 wells -- and being pretty familiar with the
 23 geology over there and drilling wells over there,
 24 you know, you could refer to it as a sandbox, I
 25 suppose. But I'm sure it has strong recharge from

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1 the Payette River itself. And we've stated that
2 the so-called green line, that trends well to the
3 west of Emmett. So we would not expect there to
4 be any component of Boise River water in the
5 Emmett area.

6 Q. Mr. Vincent also stated that M3's
7 model, quote, "might not be a good predictor of
8 hydraulic impacts," close quote, because of what
9 he called a disconnect between water ages and
10 transmissivity and travel time. The -- I note
11 also that he observed that the model assumes that
12 river and New York Canal water flows to M3 in the
13 matter of depending on what you assume for
14 effective porosity, say a hundred years, so
15 there's a disconnect there, and that this doesn't
16 give him confidence in using the model to predict
17 hydraulic impacts.

18 Kind of a long dissertation there, but
19 what can you tell us in response to Mr. Vincent's
20 statement that the model might not be a good
21 predictor because of the hundred year or whatever
22 travel time issue?

23 A. Well, in a very top side, nontechnical
24 way, I would describe it like this, that we picked
25 the boundaries for the M3 model, the numerical

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1 model, based on a pretty reasonable understanding
2 of the geology.

3 And the boundaries where the water
4 flows into the -- flows into the model are far
5 enough away that the effects of the M3 wells don't
6 really cause a significant drawdown at that model
7 boundary.

8 I believe that the M3 model is the
9 best predictor available at this time for water
10 levels in the north Ada County area, in the
11 Eagle/Star area. I don't think there's anything
12 better -- there's a better predictive tool at this
13 time.

14 Treasure Valley project was a much
15 more regional scale model. We've calibrated the
16 M3 model through aquifer tests, gradients, and
17 water levels, and I don't see that there's a
18 disconnect. I do believe that the applied
19 irrigation water to the southeast is part of the
20 recharge to the PGSA. I think it's a driving
21 head.

22 I think I would analogize it in this
23 way: It's going to be hot out in Boise today.
24 And you go home after being in this hearing all
25 day and you want to water the tomatoes at the

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1 bottom of the yard, and you turn on the hose and
2 you get hot water because it's been laying out in
3 the sun and the heat all day, and maybe your wife
4 is up at the top of the yard turning on the tap
5 for you, and it's cold up there. It's going to
6 take awhile for that cold water to get out the end
7 of the hose.

8 And I have no problem with the fact
9 that there is irrigation water that will be coming
10 through this system at some point due to stress
11 and, you know, increased stress on the aquifer. I
12 believe it's well down in the aquifer in many
13 places already. But it's going to take awhile to
14 work its way through. And again, it's a tortuous
15 path.

16 But I don't really have a problem with
17 the disconnect -- or I don't really believe there
18 is a disconnect, that water can move through the
19 Pierce Gulch Sand Aquifer very rapidly. I think
20 all the data points to that. I think the
21 geochemistry points to that. The transmissivity
22 we've calculated, the model, the analytical
23 models, everything points to the water moves
24 through the Pierce Gulch Sand Aquifer pretty
25 rapidly.

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1 But how it gets into the Pierce Gulch
2 Sand Aquifer is another story. But that's beyond
3 the boundaries of our model.

4 Q. In your opinion, Mr. Squires, what
5 evidence demonstrates recharge in the Pierce Gulch
6 Sand Aquifer, just to summarize?

7 A. Well, I think, number one, this annual
8 fluctuation that we've been talking about shows
9 recharge. It shows that due to pumping stress the
10 aquifer is drawn down and it recovers.

11 In our nine-day aquifer test of the
12 Spring Valley No. 7 well, it's interesting that we
13 pumped that well for nine days, which is a very
14 significant quantity of water, and at that same
15 time a year later the water level was the same as
16 it was, actually slightly higher, than it was
17 prior to the test when we did the nine-day aquifer
18 test. That suggests to me strong recovery.

19 I think that the geochemistry,
20 according to Mr. Glanzman, suggests strong
21 recharge. The fact the conceptual model itself of
22 how the sands were laid down and the dip of the
23 aquifer and how it comes up, it all fits with -- I
24 would expect there to be strong recharge.
25 The long-term data that Mr. Dittus

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1 testified to and his own experience with strong
2 recovery in his pumping wells, and the fact
3 that --
4 MR. ALAN SMITH: Could we have an objection
5 to these narrative-form answers and the questions
6 that are asking for narrative-form answers?
7 THE HEARING OFFICER: If you want to
8 object, Mr. Smith, I'm willing to consider it.
9 MR. ALAN SMITH: Well, we'd object to the
10 question as calling for a narrative-form answer,
11 and the witness is giving a narrative-form answer
12 without us having any opportunity to object to any
13 of it.
14 THE HEARING OFFICER: Mr. Smith,
15 Mr. Squires has been -- although I don't think
16 I've ruled on this particular issue or question,
17 but at least from my perspective, given his
18 experience and his knowledge and expertise, he
19 qualifies as an expert witness, and I think these
20 kinds of questions and responses to them are the
21 very way in which expert witnesses respond and
22 have latitude to testify.
23 So overruled. If you want a
24 continuing objection, I'll grant it.
25 MR. ALAN SMITH: I would like specific

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1 questions rather than these questions calling for
2 narrative-form answers that we don't have an
3 opportunity to object to.
4 THE HEARING OFFICER: You're welcome to
5 interject an objection at any point in time during
6 the narration, but I think the question and the
7 answers are appropriate. Overruled.
8 Mr. Fereday.
9 Q. (BY MR. FEREDAY): Mr. Squires,
10 anything further on the recharge --
11 MR. ALAN SMITH: Same objection.
12 Q. (BY MR. FEREDAY): -- question that I
13 asked?
14 THE HEARING OFFICER: Overruled.
15 Q. (BY MR. FEREDAY): You had not
16 finished, I believe.
17 A. I don't know of any evidence that
18 points that there's any inhibition to recharge in
19 the Pierce Gulch Sand Aquifer.
20 Q. Is recharge a limiter of the -- of the
21 PGSA at this point in terms of groundwater
22 development?
23 A. Not in my opinion, no.
24 Q. I'd like to ask you some questions now
25 about flow to the Payette in response to both the

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1 staff's testimony and Dr. Ralston's testimony.
2 With regard to your testimony just a
3 minute ago that recharge is not a limiter to the
4 PGSA, would well interference be an eventual
5 limiter in the PGSA, in your opinion?
6 A. I believe it could be, yes.
7 Q. Do you believe that that is something
8 that is upon us at this point in the PGSA?
9 A. No.
10 Q. Do you anticipate that M3 Eagle's
11 pumping will be a limiter of further development
12 in the PGSA?
13 A. No. I believe that the impacts from
14 M3's wells will be relatively minor in terms of
15 well interference.
16 Q. With regard to the flow to the Payette
17 question, which Dr. Ralston questioned, how does
18 the question of flow to the Payette affect your
19 answer about well interference on the M3 site?
20 A. I think the big news about the flow to
21 the west and the flow to the Payette, as I stated,
22 they have -- it results in less impacts to
23 existing users from the withdrawal that will be
24 taking place at M3.
25 And the reason I say that is that in

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1 terms of well interference effects, remember that
2 the cone of depression underneath M3 is already
3 somewhat removed from the greater Eagle area.
4 There's a large strip of land owned by the BLM
5 between M3 and the City of Eagle. That's a
6 separator.
7 The wells are proposed to be
8 relatively toward the central part of the
9 property, but the cone of depression, the
10 collective cone of depression from those wells, if
11 we can refer in our minds back to that well
12 density map, there aren't any wells over there.
13 So --
14 Q. When you say "over there," you mean --
15 A. Over in the M3 area and to the west of
16 M3.
17 Q. When you say there aren't any, you
18 mean there are few?
19 A. There are very few, and there are many
20 sections that have no wells. I just happen to
21 have that right in front of me here.
22 So the cone of depression -- the
23 collective cone of depression from the M3 pumping,
24 underneath that cone of depression there's going
25 to be relatively very few wells to impact, as

1 opposed to the same withdrawal that would happen,
2 say, from a set of wells that were in this rather
3 dense area of greater Eagle.

4 So just by virtue of the fact that
5 there's less existing well owners over there,
6 there's going to be less interference effects to
7 that.

8 Q. Is this to say that the cone of
9 depression will be skewed in some way toward the
10 west-northwest because of this flow pattern?

11 A. Well, I say that that's true because,
12 remember, we're along the edge of the aquifer
13 there. So the cone of depression can't grow
14 areally in every direction because the aquifer
15 simply doesn't exist to the northwest --
16 northeast. So the cone of depression grows more
17 skewed to the northwest and the southeast and to
18 the south.

19 But the other reason why I would say
20 that impacts are less -- and it has to do with the
21 impacts to the Boise River, because if the water
22 does ultimately flow off to the Payette, which we
23 believe it does, and if some of it flows directly
24 to the Snake rather than back into the Boise
25 River, then those impacts don't affect the Boise

1 River.

2 Q. In Exhibit 50, which is the staff's
3 memorandum, I'll represent to you that they
4 criticize your use of the Zigler well and Caldwell
5 well No. 19 as support for flow gradients toward
6 the Payette Valley.

7 Can you address this concern, first
8 the Zigler well?

9 MR. ALAN SMITH: Again, I'll object.
10 Calling for a narrative-form answer.

11 THE HEARING OFFICER: Okay. Overruled.

12 THE WITNESS: Well, as in the Boise Valley,
13 we also looked at almost all the well logs over in
14 the Payette area, so we may have selected the
15 Zigler well as a point to put on our map.

16 But I can assure you when we reviewed
17 all the water levels over there, and all the water
18 levels over there are lower than water levels in
19 the Boise Valley, as you might imagine, because
20 the valley itself is 300 feet lower at that
21 elevation.

22 But the reason we chose the Zigler
23 well, because it was a well of fairly well
24 documented construction, it had a full-depth seal
25 pumped in, it had an aboveground artesian

1 pressure, one of the highest, if not the highest
2 aboveground artesian pressure we could find, so
3 therefore in our analyses, and I believe as within
4 all of our studies and all of our analyses, we
5 took a very conservative approach.

6 So it stands to reason that if you
7 pick the well in the Payette Valley, which is
8 where we believe the water is going, and you pick
9 the highest water level you can find, you're
10 taking the most conservative approach that you can
11 when drawing a gradient toward that point.

12 And that's why we selected that well
13 and that's why we believe it was a conservative
14 estimate.

15 The same thing is true of the Caldwell
16 No. 19 well. From the upper side we chose a well
17 that had -- that was completed above the Pierce
18 Gulch Sand Aquifer. We believe -- well, we know
19 that the vertical gradient at that location, and
20 throughout Caldwell, is an upward gradient, so
21 therefore we chose a well that would have a lower
22 head than a well completed into the Pierce Gulch
23 Sand Aquifer.

24 So again, that errs on the side of
25 being conservative when trying to construct these

1 flow gradient maps. And in spite of those
2 conservative data, we still showed a strong flow
3 in the direction of the Payette.

4 And I would also add that one of the
5 things that Spence touched on that I don't think
6 has come out so much, is another reason that
7 guides us to the idea that there's flow to the
8 Payette is not only that the Pierce Gulch Sand
9 Aquifer is present over there, which I believe it
10 is, but it's also that as we look at all the well
11 logs between M3 and into the Emmett Valley, the
12 ones that are available, you see a preponderance
13 of sand in that direction. You lose more and more
14 clay as you move in that direction.

15 And in our opinion, that opens up more
16 possibilities for it to be a conduit for
17 groundwater to move that direction.

18 Q. (BY MR. FEREDAY): Could you comment,
19 please, on Dr. Ralston's statement that there is
20 insufficient evidence to support the assumption
21 that the PGSA is laterally continuous from the
22 Boise River Valley to the Payette River Valley. I
23 know you've touched on it already. But I'd like
24 you to refer, especially to Exhibit 18, please, in
25 your answer because I'd like to ask you some

1 questions about this.

2 Do you recall Mr. -- or Dr. Ralston's
3 statement that there was insufficient field data
4 to show PGSA continuity toward the Payette?

5 A. Yes.

6 Q. I'd like you to refer to figure 1 of
7 Exhibit 18, please, and point out to us the number
8 wells that were used as data points to the west or
9 west-northwest of M3 on that -- just on that
10 figure, please.

11 A. Well, you know, I'd say there's four
12 or five. But I would also qualify that by saying
13 that we didn't just look at individual wells. We
14 may have plotted the wells that we felt best
15 represented -- that were the best wells to
16 represent what we thought the flow of the Pierce
17 Gulch Sand Aquifer, but we looked at every well
18 over here, and our conclusions and our flow
19 gradients were guided by that.

20 Q. What about figure 2, same question,
21 what data points did you use there? And I note --

22 A. A half a dozen, in that range.

23 Q. And I note that the Zigler well is on
24 this figure 2 as well.

25 A. Yes.

1 Q. And I'd like you also to refer to
2 Exhibit 63, please, which is a similar map, and
3 explain what data points show up on that map that
4 are relevant to the question of continuity to the
5 Payette of the PGSA.

6 THE HEARING OFFICER: Exhibit?

7 MR. FEREDAY: 63.

8 THE WITNESS: What is the question?

9 Q. (BY MR. FEREDAY): Again, I'd just
10 like you to identify for the Hearing Officer the
11 data points that were relied on in that for
12 establishing water levels in your contour maps.

13 A. Well, this particular map, if I'm
14 looking at the Exhibit 63, this is a map that is
15 not related to groundwater levels. This is a map
16 that is related to geology.

17 And so if you mean to Mr. Ralston's
18 comment that it's not been shown to his
19 satisfaction that Pierce Gulch Sand extends to the
20 Payette River Valley, I disagree quite strongly.

21 Q. And how does this Exhibit 63 help in
22 that conclusion?

23 A. Well, this exhibit shows some of
24 the -- some of the deep exploration wells that
25 Spence Wood testified to, not all of them, but

1 many of them, that show a characteristic
2 geophysical signature that is just unmistakable.

3 It's not just a single expression of a
4 geophysical log, it is a combination of two
5 expressions that -- it would be a million to one
6 to find those repeated like that, in my opinion.

7 Q. What are the --

8 A. It's something that's very
9 distinguishable, very traceable. It's something
10 that we've been working on for decades.

11 Q. What are those two expressions?

12 A. Well, the pro delta signature of the
13 sort of cone that we've referred to in our
14 hydrogeologic framework. First year report shows
15 a very characteristic, almost bed-for-bed
16 correlation when you have good data.

17 And then underneath that a small sand
18 outlayer that's present within the Terteling
19 Springs formation. That is a very distinctive
20 signature on the borehole geophysical logs.

21 Q. Could you please comment on
22 Dr. Ralston's closely related point that there is,
23 quote, "insufficient evidence to support the
24 concept that groundwater flow occurs from the
25 Boise River Valley to the Payette River Valley,"

1 close quote. And I'll represent to you that's
2 Exhibit 860 at page 4.

3 What's your response to that, the
4 groundwater flow question?

5 A. Well, I would answer that by saying I
6 haven't seen any evidence that it doesn't.
7 Everything that's in our conceptual model, all the
8 evidence that we have gathered, all the evidence
9 that we've reviewed, every line of evidence tells
10 us that it would flow that way.

11 The gradient exists, conduits appear
12 to exist. I don't know why it wouldn't flow that
13 way. The expression of the lake, the conceptual
14 model, the extensiveness of the depositional
15 system, which I previously discussed, I would -- I
16 would not expect it to go any other way.

17 Q. Mr. Squires, could you please turn to
18 Exhibit 51.

19 This is an exhibit which I believe,
20 Mr. Hearing Officer, was inadvertently not
21 offered, but it bears directly -- yet, but it
22 bears directly on the rebuttal of Dr. Ralston's
23 statements that I've just quoted.

24 Mr. Squires, could you identify that
25 exhibit, please, and then describe where it came

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1 from.

2 A. This was a technical memorandum from

3 me to Dennis Owsley, March 2nd, 2009. And it was

4 a memorandum prepared in response to the Hearing

5 Officer's February 10th, 2009 order authorizing

6 parties to submit a written analysis addressing

7 the other party's technical reports submitted in

8 this matter.

9 Q. And what does this exhibit address?

10 A. It addresses two points. Point one,

11 hydrogeologic data west and northwest of the Eagle

12 site. And point two, Pacific Groundwater Group's

13 additional model run with a no-flow boundary at

14 the assumed north boundary used in the Treasure

15 Valley Hydrologic Study.

16 Q. Does this exhibit bear on

17 Dr. Ralston's statements that there's insufficient

18 evidence, in his opinion, to support groundwater

19 flow toward the Payette or that the aquifer is

20 extensive toward the Payette?

21 A. Well, I think that there was

22 sufficient evidence submitted to the Department

23 that shows that the aquifer extends to the Payette

24 and that groundwater flows to the Payette.

25 I think that perhaps Mr. Ralston's

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1 inexperience in this area, and perhaps that he

2 didn't recognize some of the exhibits that were

3 included, that also include reports by Spence Wood

4 to the Treasure Valley Hydrologic Project that

5 show cross-sections of the Pierce Gulch Sand

6 extending to the Payette, may have been

7 overlooked.

8 Q. And are those points raised in

9 Exhibit 51?

10 A. They are. And in response to -- let

11 me say that I think for the purposes personally --

12 in my opinion, for the purposes of the M3 water

13 right, flow to the Payette is not that

14 significant.

15 In terms of understanding the basin as

16 a whole, I think it is very significant. But what

17 we did was we changed our model boundary to

18 reflect the boundary of the Treasure Valley

19 Hydrologic Project to see if it would cause any

20 difference in our projections.

21 Q. And that was a hypothetical exercise

22 on your part?

23 A. Yes, on the modeler's part, and my

24 project manager, Mark Utting, in conjunction with

25 Pacific Groundwater Group, ran that model run, and

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1 it showed no significant difference at all.

2 MR. FEREDAY: We offer Exhibit 51, which I

3 will point out to the Hearing Officer and the

4 protestants that it's been -- it was -- I believe

5 it was provided early on as part of the early

6 exhibit -- or the exhibit exchange. And I believe

7 it is relevant to Mr. Squires' rebuttal testimony.

8 THE HEARING OFFICER: Mr. Thornton?

9 MR. ALAN SMITH: Do you have copies for

10 counsel?

11 MR. FEREDAY: You already have it in your

12 materials. It was provided.

13 THE HEARING OFFICER: Mr. Thornton, any

14 objection?

15 MR. THORNTON: No.

16 THE HEARING OFFICER: Mr. Smith?

17 MR. ALAN SMITH: None.

18 THE HEARING OFFICER: Mr. Edwards?

19 MR. EDWARDS: No.

20 THE HEARING OFFICER: Document marked as

21 Exhibit 51 is received into evidence.

22 (Exhibit 51 admitted.)

23 Q. (BY MR. FEREDAY): With regard to the

24 question about flow to the Payette, Mr. Squires,

25 do you have any further comment on Mr. Ralston's

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1 statement that he disbelieves that there's

2 insufficient evidence to support groundwater flow

3 in that direction? Maybe I --

4 A. Well, he may feel that there's

5 insufficient evidence, but I do not. I think it's

6 also a well-known fact that there's escapeage

7 (phonetic) out of the Boise River to the Snake,

8 both to the south of Boise and to the west. It's

9 not a -- it's not a concept that's foreign.

10 Q. The concept of groundwater moving from

11 one river -- what's considered one river basin

12 into another is not --

13 A. Exactly. If there's a gradient and a

14 conduit, it will happen.

15 Q. To change gears just a bit, and to

16 focus for a minute on a statement that Mr. Owsley

17 made, I note that he gave the example of the

18 Southeast Boise Fan Aquifer in support of his

19 statement that you, quote, "can have a productive

20 aquifer and not have it be sustainable," unquote.

21 He also stated that the Southeast Boise Aquifer

22 has highly transmissive aquifer materials.

23 Could you respond to those points from

24 Mr. Owsley, please.

25 A. Well, I don't agree that the Boise Fan

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1 Aquifer is not a sustainable aquifer. I think
2 it's quite a sustainable aquifer.
3 Q. What's your experience with the Boise
4 Fan Aquifer?
5 A. Well, I studied it extensively, and I
6 wrote about it. I named it. I produced the
7 research that had it declared a groundwater
8 management area in 1992. And I continue to be on
9 the Technical Advisory Committee, which we just
10 had a meeting about a month ago.
11 So I've measured wells out there for
12 years. I've designed wells into the system. I'm
13 very, very familiar with it.
14 Q. What -- you mentioned that you
15 disagree with his statement about -- implying that
16 it might not be sustainable, even though it's
17 highly transmissive.
18 Could you elaborate on that statement.
19 A. Well, I disagree with the statement
20 that it's highly transmissive, as the Pierce Gulch
21 Sand Aquifer. As a fan aquifer would be, you
22 would not expect it to have high transmissivity.
23 Q. That's fan, f-a-n, aquifer?
24 A. Yes, it's an alluvial fan. So for
25 example, the average transmissivities we have in

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1 the Pierce Gulch Sand Aquifer in the greater Eagle
2 area are somewhere on the order of 200 gallons --
3 200,000 gallons per day, per foot. Just -- we
4 don't need to get into the technicality of that,
5 it's just a number.
6 But the average transmissivities in
7 the Boise Fan Aquifer are an order of magnitude
8 less than that. They're 35,000 gallons per day,
9 per foot. I conducted a 30-day aquifer test of
10 the Oregon Trail well of the Boise Fan Aquifer. I
11 conducted a test of the Les Bois soccer league
12 well, an aquifer test, and I've read geophysical
13 logs in many of the wells out there.
14 But I can tell you it's a very
15 sustainable aquifer, and many people depend on it.
16 And in spite of the fact that it's a groundwater
17 management area, I consider it to be one of the
18 successes of IDWR's administration because it
19 shows how a resource can be characterized,
20 quantified, and then kept from being a problem,
21 because in my opinion, and my knowledge, anyway,
22 no one in the southeast Boise area has ever been
23 administered to.
24 All those well owners out there,
25 Micron, United Water, Simplot, nobody has had to

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1 have their water curtailed. And from the most
2 recent results, the water-level monitoring network
3 out there, it's apparent that water levels have
4 greatly -- have pretty well stabilized at the
5 current level of withdrawal. So I --
6 (Exhibit 78 marked.)
7 Q. (BY MR. FEREDAY): Mr. Squires, I'd
8 like to show you what I've marked as Exhibit 78,
9 and ask you if you can identify this two-page
10 exhibit, please.
11 A. These are two hydrographs for two
12 wells that are completed in the Boise Fan Aquifer:
13 the Columbia test well and the Micron test well.
14 These are from water-level measurements that I
15 either took or caused to be taken in my capacity
16 of head of the geoscience department of United
17 Water Idaho, and also by graduate interns that
18 worked for me from Boise State, and from my own
19 measurements over many, many years.
20 And the water levels go up to the year
21 2000, because that's when I quit measuring. And
22 they were taken over by the well owners, that is,
23 Micron and Simplot. I was unable to obtain the
24 more recent data from the Department to update
25 these.

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1 But these show -- these show the
2 Columbia test well, the very first graph, shows in
3 the years 1991 and 1992 a water level slightly
4 above 310 feet for both years.
5 In response to several wells that were
6 drilled in this area in 1992, the Les Bois soccer
7 league well, the Golden Development well, and
8 increases in production from Micron, we started to
9 see a rather large decline each year progressively
10 through the years 1992 down to 1996.
11 And due long-term monitoring of this
12 aquifer, and these wells in particular, the
13 problem was recognized that we may be approaching
14 a reasonable pumping water level, because the Fan
15 Aquifer is limited at depth by heat, the 85-degree
16 isotherm, and the groundwater table in the
17 southeast Boise area is 500 feet below ground. So
18 there's a limited amount of saturated aquifer
19 available for screens and available drawdown.
20 So in response to a petition by United
21 Water Idaho, who I performed the research for, the
22 Department instituted the groundwater management
23 area, and restricted new uses until the water
24 level stabilized, which they slowly have. And
25 there's also injection going on in this fan to a

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1 limited degree. But this shows, in my view, how a
2 resource is administered, by long-term monitoring.
3 That tells the story of what's going on.
4 And it also shows that you need -- you
5 need a quorum of data. You need to be able to
6 monitor for a number of years from a long-term
7 designated monitoring well of known construction,
8 and that's what these graphs show. And that's how
9 you can understand that groundwater levels don't
10 decline immediately overnight.
11 You don't just wake up one morning, if
12 you're awake, and the groundwater has dropped
13 30 feet. It takes time for it to drop
14 progressively. And if you have good long-term
15 monitoring, you can forecast that and you can see
16 it coming.
17 Q. You say that the Southeast Boise
18 Aquifer has stabilized.
19 Does this mean it is in equilibrium,
20 in your opinion?
21 A. Yes.
22 Q. Could you describe aquifer equilibrium
23 and how it works.
24 A. I would say succinctly that the
25 recharge equals the discharge.

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1 Q. What about in the Pierce Gulch Sand
2 Aquifer, either compared to the Southeast Boise
3 Aquifer or otherwise, is that aquifer in
4 equilibrium, would you say?
5 A. Well, it's a big aquifer. But in the
6 parts that I've studied, it appears to be in
7 equilibrium or actually slightly increasing in
8 water level, which would suggest that its recharge
9 is greater than its discharge.
10 Q. Do you expect the Pierce Gulch Sand
11 Aquifer to find equilibrium after it is stressed
12 by pumping?
13 A. Yes. That's the expected result. As
14 many people have testified, in order to make
15 groundwater flow to a well, you have to lower the
16 water levels.
17 Q. What evidence of PGSA equilibrium or
18 recharge do you see in the data you have
19 evaluated -- equilibrium, I should say?
20 A. Well, I think in wells of known
21 construction that have been monitored for some
22 time, such as the State and Linder well, United
23 Water Idaho, the State Street well United Water
24 drilled and later donated to the Treasure Valley
25 Hydrologic Project, those are sealed wells of

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1 known construction that have been monitored for a
2 long time. And they generally show increases in
3 water level over the last, you know, seven to
4 eight years.
5 Q. Mr. Squires, with regard to
6 Exhibit 78, I think you started out by saying that
7 there weren't monitoring data after about 2000,
8 but I note that at least for the Micron test well
9 the data appear to go up to 2003; isn't that
10 correct?
11 A. Yes. And I honestly can't remember --
12 I would say -- these are my plots, so I would
13 say -- I was still monitoring this. I recall now,
14 I was still monitoring this for Micron after the
15 management area was declared.
16 MR. FEREDAY: Mr. Hearing Officer, we offer
17 Exhibit 78 in reference to Mr. Owsley's testimony
18 about the Southeast Boise Aquifer.
19 THE HEARING OFFICER: Mr. Thornton?
20 MR. THORNTON: No objection.
21 THE HEARING OFFICER: Mr. Smith?
22 MR. ALAN SMITH: Could I ask a couple of
23 questions in aid of objection to this exhibit?
24 THE HEARING OFFICER: Yes.
25 ///

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1 VOIR DIRE EXAMINATION
2 BY MR. ALAN SMITH:
3 Q. Mr. Squires, the Columbia test well
4 has not been monitored beyond the year 2000, so
5 that's about nine years old?
6 A. No, it has been monitored, sir. What
7 I said was that I quit monitoring it in 2000.
8 Q. But it's not shown on this graph?
9 A. It's not shown on this graph, but I
10 also testified that I did see the most recent
11 graph a month ago at the annual Technical Advisory
12 Committee meeting. I was just unable to obtain
13 that data from the Department in time to reply.
14 Q. How far is the Micron test well and
15 the Columbia test well from the M3 site, in miles?
16 A. Off the top of my head, I would say 10
17 to 12 miles, perhaps further.
18 MR. ALAN SMITH: We would object to the
19 exhibit as irrelevant and immaterial.
20 MR. FEREDAY: Mr. Spackman, if I could?
21 THE HEARING OFFICER: Sure.
22 MR. FEREDAY: This exhibit is intended to
23 respond directly to Mr. Owsley's testimony, which
24 we've got up there on the screen, where he made
25 statements about the nature of the Southeast Boise

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1 Aquifer to compare it one way or another to the
2 PGSA and to suggest that we can see productive
3 aquifers that are not sustainable. We believe
4 that it is appropriate to offer this exhibit and
5 this testimony to respond directly to that
6 statement by Mr. Owsley and the innuendo that it
7 contains.
8 MR. ALAN SMITH: Sir, could I make a couple
9 of statements?
10 THE HEARING OFFICER: Yes.
11 MR. ALAN SMITH: We believe it's still too
12 far removed and too far away to have any relevance
13 to the M3 project, and we would object on that
14 ground.
15 THE HEARING OFFICER: Okay. And
16 Mr. Fereday might have made the same argument, but
17 the evidence came in from Mr. Dennis Owsley in
18 comparison, and I think Mr. Fereday rightfully has
19 the right and the privilege of challenging the
20 statement.
21 I -- just as a commentary, I think
22 perhaps what we're arguing about is semantics in
23 testimony of Mr. Owsley as to what he meant by
24 "sustainable," is probably my take on it.
25 I have personal knowledge about the

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1 southeast Boise groundwater management area and
2 the fact that the withdrawals, at least in one
3 point in time, were perceived to be exceeding the
4 recharge, and as a result further appropriations
5 were prohibited and there were some corrective
6 activities taken.
7 So --
8 MR. ALAN SMITH: We agree.
9 THE HEARING OFFICER: -- I think it has
10 marginal relevance, but I think Mr. Fereday has
11 the opportunity to respond to it.
12 I'll overrule the objection.
13 Mr. Edwards, any objection?
14 MR. ALAN SMITH: We realize it's in
15 rebuttal to Mr. Owsley's statement, but we still
16 think it's far removed. I suppose it goes to the
17 weight rather than the admissibility, if the
18 Hearing Examiner wants to admit it.
19 THE HEARING OFFICER: That's true. It's
20 received into evidence.
21 (Exhibit 78 admitted.)
22 MR. FEREDAY: Mr. Hearing Officer, at this
23 time we've kind of come to a breakpoint, and it's
24 just a few minutes before noon. Perhaps we should
25 break for lunch.

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1 THE HEARING OFFICER: Okay. Let's come
2 back at one o'clock.
3 (Lunch recess.)
4 THE HEARING OFFICER: Let's start. We're
5 recording.
6 Mr. Fereday, your witness still.
7
8 CONTINUED DIRECT EXAMINATION
9 BY MR. FEREDAY:
10 Q. Mr. Squires, do you recall the staff's
11 criticism of your reference to the Eagle Pines
12 well, which is not sealed?
13 A. Yes.
14 Q. Why did you include the Eagle Pines
15 well cross-section in your response memo to the
16 staff?
17 A. Well, first of all, Eagle Pines is a
18 protestant in this matter. Second of all, I
19 believe that's tab 2 in this document.
20 Q. In Exhibit 76?
21 A. Yes.
22 Q. Yes.
23 A. And at the end of that, right above
24 tab 3, is the cross-section of the Eagle Pines
25 well.

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1 Q. Yes.
2 A. Well, one thing that would make this a
3 better monitoring well than a well that's perhaps
4 completed across several subaquifer zones is the
5 fact that in both lithologies by the driller there
6 are no overlying saturated zones. So it would
7 make a better monitoring well than one that didn't
8 have that. So for those two reasons.
9 Q. I'd like to ask you about aquifer
10 tests now, please.
11 What is your response to Mr. Vincent's
12 statement that a downward gradient in the
13 shallowest piezometer completion in test well
14 No. 1 is, quote, "an anomaly that's not
15 explained," close quote?
16 A. Well, it wasn't explained. I don't
17 really think of it as an anomaly. I think as
18 we've been talking today, there's downward --
19 there's downward gradients in many places in the
20 Eagle area.
21 And in this particular case where --
22 in fact, maybe we could go to that diagram
23 quickly.
24 Q. Of test well No. 1?
25 A. Yes.

1 Q. Yes.
 2 A. That would be Exhibit 44. Exhibit 44,
 3 figure 10.
 4 MR. THORNTON: Is that 44?
 5 THE WITNESS: Yes.
 6 Q. (BY MR. FEREDAY): And what does
 7 Exhibit 44, figure 10 show us?
 8 A. Well, it shows a cross-sectional
 9 schematic of the lithology, the drilled geologic
 10 section and the construction of the piezometer
 11 nest. The piezometer nest, under the heading
 12 "As-built well construction," it shows five
 13 piezometers, five different zones of completion.
 14 The lower four are within the Pierce Gulch Sand
 15 Aquifer up to -- to a depth of about 350.
 16 And then there's the zone five, which
 17 is the zone between 97 and 137, much higher in the
 18 well. And we put that piezometer zone in there
 19 because it was right along the -- right along the
 20 edge of the Farmers Union ditch.
 21 And so I do not find the fact that
 22 that has -- I can't imagine that zone five having
 23 a -- you know, a different water level.
 24 Q. A different water level gradient --
 25 A. I can't imagine --

1 Q. A different gradient than downward,
 2 given its shallow depth?
 3 A. Yes, it would be expected. I don't
 4 think it's an anomaly.
 5 Q. What about the PGSA piezometers
 6 completed, the other four that are completed in
 7 that test well No. 1 in the PGSA, what gradient do
 8 they have?
 9 A. They show a slight upward gradient.
 10 Q. What is your response to Mr. Vincent's
 11 statement --
 12 A. You know, if I could, Counselor, I
 13 might just add --
 14 Q. Yes.
 15 A. -- the big news on this was that
 16 there's an upward gradient within the Pierce Gulch
 17 Sand Aquifer. That was another line of evidence
 18 in the fact that this is not recharge in the
 19 foothills, because it's not a recharge area, it's
 20 a discharge area because it has an upward
 21 gradient. That's what that was all about.
 22 It was not surprising to me that there
 23 were other flow regimes in this area that would
 24 have a downward gradient in some places, and the
 25 wells that we talked about in the Smith group show

1 that pretty clearly.
 2 Q. In the shallower zones; correct?
 3 A. Yes.
 4 Q. Is that "yes"?
 5 A. Yes.
 6 Q. What is your response to Mr. Vincent's
 7 statement that both the Kling and the SVR-7
 8 aquifer tests are, quote, "degraded in quality
 9 because neither well is a," quote, "perfectly
 10 constructed well"?
 11 A. Well, I agree that they're not
 12 perfectly constructed wells. But I don't believe
 13 that the aquifer test data is degraded. I think
 14 in pumping well tests, the pumping well, as long
 15 as it stresses the aquifer, it does its job.
 16 You rely on any case that you can, and
 17 to qualify as an aquifer test you rely on
 18 monitoring wells. And I believe that the results
 19 of the Kling and the SVR-7 aquifer tests are very
 20 good, very good quality results.
 21 Q. How does the SVR-7 aquifer test stack
 22 up in comparison to the hundreds of aquifer tests
 23 that you've testified that you've done in your
 24 career?
 25 A. I think it's one of the most thorough

1 jobs I've ever done.
 2 Q. What is your response to Mr. Vincent's
 3 concern that the pumping well in the SVR-7 test
 4 only partially penetrated the aquifer? And I
 5 might add that perhaps this is what he may have
 6 been getting at as well with the poorly
 7 constructed comment. But with regard to the fact
 8 that it doesn't fully penetrate the aquifer as a
 9 pumping well, what is your response to his concern
 10 there?
 11 A. Well, I've heard several discussions
 12 on partial penetration, and I think they're
 13 somewhat insignificant. Partial penetration
 14 effects are generally only important in the
 15 pumping well itself or a single well pumping test.
 16 And in a nutshell, what partial
 17 penetration means is that they're -- the well
 18 screens or the open area in the well only
 19 partially penetrates the entire thickness of the
 20 aquifer. And most wells do that. Most wells
 21 don't fully penetrate the aquifer because you only
 22 penetrate the aquifer to the extent of the water
 23 that you need.
 24 But as long as you have an observation
 25 well that's one-and-a-half times the thickness of

1 the aquifer away from the pumping well, partial
2 penetration effects do not apply. They're only
3 very close to the pumping well, because if the
4 screen only partially penetrates and you're
5 drawing from the entire aquifer, there's an upward
6 gradient, and it's not lateral -- lateral flow to
7 the aquifer, so you have a commensurate increase
8 in drawdown due to frictional losses.

9 Q. At the pumping well?

10 A. At the pumping well, or monitoring
11 well that's very close.

12 So -- and even in the cases of the
13 pumping wells that partially penetrate, the reason
14 we did partial penetration corrections and used
15 partial penetration software was we believe in our
16 16 -- reanalysis of 16 aquifer tests, many of
17 those were single well tests. And we felt that
18 the transmissivity would be somewhat
19 underestimated by those because of the additional
20 drawdown for partial penetration.

21 But I say that it's a moot point
22 because the transmissivities are so huge anyway,
23 with or without partial penetration, I think it's
24 insignificant.

25 Q. That's transmissivities in the PGSA?

1 so I'm left wondering what happened to all the
2 data between 30 feet and 2.3 feet," end quote? So
3 again, what's your response to Mr. Vincent's
4 statement in that regard, that there is some data
5 missing between around 30 feet and around 2.3 feet
6 in the residual drawdown data?

7 A. Well, I agree that the data from --
8 the data that's deeper than 2.3 feet were not
9 presented on our hydrograph. The data were
10 included in the submission to the Department in
11 our data disc, because we recorded these things
12 continuously.

13 But I might direct your attention to,
14 again, your Exhibit 44 --

15 Q. Okay.

16 A. -- which is the nine-day aquifer test
17 report, to page 100, figure 18.

18 Q. What does that show? I notice there
19 are two photographs in figure 18 of Exhibit 44.

20 A. Well, what's important to this
21 discussion is that the Spring Valley 7 well is an
22 8-inch diameter well. So it's a very small
23 diameter well, especially to obtain -- to be able
24 to house a pump that can pump over 900 gallons a
25 minute.

1 A. Yes.

2 Q. Now, did I get this correctly, that
3 you said that once you have an observation well
4 that's at least one-and-a-half thickness distances
5 away from the pumping well, that is, aquifer
6 thickness distances, then partial penetration
7 effects are of no consequence?

8 A. That's the general rule of thumb, yes.

9 Q. And the aquifer is how thick in this
10 location?

11 A. Approximately 275 feet.

12 Q. So twice --

13 A. None of our monitoring -- none of our
14 observation wells were within partial penetration
15 distance.

16 Q. That would be some 540 feet, or
17 something like that?

18 A. Correct. And our closest observation
19 well was 800 feet away.

20 Q. What is your response to Mr. Vincent's
21 statement at 1987 -- I think it's page 1987
22 here -- that in SVR-7 test, the pumping well had a
23 drawdown of almost 30 feet, but -- and here's the
24 quote -- "at the beginning of residual drawdown
25 data, the highest value that we see is 2.3 feet,

1 And this picture shows the pump
2 contractor actually grinding down a few rough
3 spots on the well just to, as we put it, shoehorn
4 the pumping plant bowls into the well. It was a
5 very tight fit.

6 So there's very little room between
7 the inside of the well casing and the outside of
8 the pump column and the pump bowls. It was very,
9 very tight.

10 Well, when you turn off a pumping
11 well, there is an in-rush of water into the well
12 very suddenly, partially from well loss and from
13 the recovering water level. And what happens in
14 the early part of a test, especially when you
15 don't have any room for that water to fill, is
16 that the water rushes up the casing, and it
17 actually comes up above the original nonpumping
18 water level for a while, and then it subsides.

19 And we chose to leave that data off of
20 our plot because we don't plot garbage data.

21 Q. Is that garbage data, as you call it,
22 just simply an artifact of the instantaneous
23 recovery and upwelling of water in that very small
24 area that you've described that then
25 immediately -- or nearly immediately subsides to a

1 more normal level, is that --
 2 A. Yeah, it bleeds away and becomes
 3 insignificant after a while.
 4 Q. Did you --
 5 A. But the fact that the data plots on
 6 the line after that is enough, in our opinion, to
 7 disregard the data before that, especially since
 8 the data is meaningless.
 9 Q. Did you do any plots of the actual
 10 data, though, the garbage data that you --
 11 A. In response to this criticism, yes, we
 12 did.
 13 (Exhibit 79 marked.)
 14 Q. (BY MR. FEREDAY): I'd like to show
 15 you what's been marked as Exhibit 79, which is a
 16 graph entitled "SVR-7 end of test detail plot
 17 showing IDWR's," quote, "missing data."
 18 Could you describe what this is,
 19 please.
 20 A. Sure. This is a plot of the data from
 21 our continuous recording digital data logger in
 22 the well for the pretest part of the pumping test,
 23 the drawdown, and the recovery.
 24 Q. Now, I notice that in the middle of
 25 the graph we start at zero.

1 just below the nonpumping water level are that
 2 recovery level that Mr. Vincent referred to; is
 3 that correct?
 4 A. Yes.
 5 MR. FEREDAY: We offer Exhibit 79.
 6 THE HEARING OFFICER: Mr. Thornton?
 7 MR. THORNTON: No objections.
 8 THE HEARING OFFICER: Mr. Smith?
 9 MR. ALAN SMITH: None.
 10 THE HEARING OFFICER: Mr. Edwards?
 11 MR. EDWARDS: No.
 12 THE HEARING OFFICER: It's received into
 13 evidence.
 14 (Exhibit 79 admitted.)
 15 Q. (BY MR. FEREDAY): Mr. Squires, do you
 16 have any other comment about this Exhibit 79 and
 17 what it's tending to show, or did that complete
 18 your testimony about it?
 19 A. Well, it's by way of response of
 20 explaining why the data wasn't on the plot. I
 21 think it complicates the plot. As I indicated
 22 before, the fact that the data resumed the
 23 expected line in the residual drawdown plot, I
 24 don't need to see the data that happened before
 25 that.

1 Is zero the recovery period to the
 2 right and the negative numbers to the left are --
 3 or the numbers over to the left side of the chart
 4 would be the pumping?
 5 A. That's correct. If you start on the
 6 left side of the plot in the lower left, you'll
 7 see a dashed line connecting the diamond data
 8 points. That represents the pumping water level
 9 in the very last stages of the test 12,950
 10 minutes, 12,955 minutes, and so on.
 11 And so it shows the pumping water
 12 level just prior to turning off the pump. And at
 13 12,960 minutes, the pump shut off, and immediately
 14 the water level recovered up to approximately,
 15 looks like, 7 feet above the original nonpumping
 16 water level due to the in-rush of water from the
 17 turning off of the pump in the small, annular
 18 space.
 19 And so the green shaded area is that
 20 in-rush and the bleeding off of that water, and
 21 then we started plotting data from the period
 22 where we felt that the water levels had resumed
 23 actual.
 24 Q. And so the dotted line going over to
 25 the right through the diamonds on the right there

1 Q. What is your response to Mr. Vincent's
 2 statement that although the Big Gulch stock well
 3 in the SVR-7 test did have about 1.7 feet of
 4 drawdown, which he noted is appreciable and
 5 significant, and that the well responds to pumping
 6 in the Pierce Gulch Sand Aquifer, what is your
 7 response to his quote that -- and I'll quote here,
 8 "The problem with the Big Gulch stock well is that
 9 it's only 180 feet deep. Its open interval is
 10 above the top of the aquifer. And this" -- again
 11 quoting, "greatly compromises our ability to
 12 evaluate what's going on with the aquifer"?
 13 Could you respond to that concern.
 14 A. Well, I would say it's a perfect
 15 example of why we prefer not to use wells of known
 16 construction, like this.
 17 Q. You prefer not to use wells of --
 18 A. We prefer to use wells of known
 19 construction. There's some things that we don't
 20 know about the Big Gulch stock well. It was
 21 800 feet away, and we measured it, especially
 22 since drawdown was observed in it previously when
 23 the SVR-7 well was completed. It was measured
 24 during the completion -- short completion test of
 25 that well.

1 Q. What did you do to the Big Gulch stock
 2 well to prepare it, if anything, as an observation
 3 well?
 4 A. Well, we don't -- we try not to
 5 monitor wells that we don't know very much about.
 6 So we -- we pulled the rig onto the Big Gulch
 7 stock well. We baled it. We scraped it. We
 8 wire-brushed it. We camerad it. We pumped it.
 9 Q. When you say you camerad it, what do
 10 you mean?
 11 A. We did a downhole video inspection of
 12 the inside of the well casing. And so we ran
 13 geophysical logs in it. We characterized it to
 14 the best of our ability for a well that's already
 15 constructed.
 16 Q. What did the camera survey show?
 17 A. Well, it showed in the bottom of the
 18 well that there was another 2-inch pipe at the
 19 very bottom of the well, and that's why our
 20 driller could no longer bail it down any further
 21 than he was able to.
 22 Q. A 2-inch pipe apparently extending
 23 downward, or what?
 24 A. Well, we can't say. But we
 25 hypothesized that it was either an extension -- a

1 reduction in a deeper piece of casing that
 2 extended below 180 feet, or it could similarly be
 3 the top of a pump column that had been dropped
 4 into the well.
 5 In either case, you could infer that
 6 the well was -- is deeper than 180 feet, but we
 7 have no proof of that so we didn't draw it that
 8 way. But in the case of the Big Gulch stock well,
 9 its response was -- it fit the distance drawdown
 10 plot perfectly.
 11 Q. The distance drawdown plot from
 12 pumping in the Pierce Gulch Sand Aquifer?
 13 A. Yes, from Spring Valley 7. It plotted
 14 on the distance drawdown curve right where it
 15 should, and along with the other monitoring wells
 16 in Big Gulch. So it gave us some confidence
 17 that -- granted, we don't know all the --
 18 everything there is to know about the Spring
 19 Valley -- or the Big Gulch stock well, but it
 20 appears to give good evidence about the Pierce
 21 Gulch Sand Aquifer.
 22 Q. How soon did it, Big Gulch stock well,
 23 respond to pumping from the SVR-7 well?
 24 A. I would have to look at one of the
 25 plots. I can't remember. To me, it's a few

1 minutes, within an hour.
 2 Q. Does -- in your opinion, does the
 3 nature or character of the Big Gulch stock well
 4 greatly compromise our ability to evaluate what's
 5 going on with the aquifer, as Mr. Vincent
 6 suggests?
 7 A. Oh, no, I don't think so. I prefer to
 8 rely on the good observation wells of known
 9 construction that we used that are sealed that we
 10 received drawdown in from the test.
 11 Q. And --
 12 A. And the fact that the Big Gulch stock
 13 well fit into that is positive as well.
 14 Q. You did have other observation wells
 15 that fit on those curves, then?
 16 A. Yes.
 17 Q. In your opinion, Mr. Squires, does
 18 either the SVR-7 recovery plot that had what you
 19 called the garbage data or the Big Gulch stock
 20 depth create uncertainties in your conclusions
 21 about the Big Gulch -- about the Pierce Gulch Sand
 22 Aquifer?
 23 A. No.
 24 Q. What is your response to Mr. Vincent's
 25 statement that, quote, "We don't have enough

1 drawdown in the Big Gulch stock well during the
 2 SVR-7 test," quote, "in relation to the other
 3 factors that are going on to really make
 4 meaningful determinations based on the test data.
 5 We don't have enough drawdown in Big Gulch
 6 stock"?
 7 A. I don't think he said that it was in
 8 Big Gulch stock. I just think he said there was
 9 not enough drawdown, in general, in the
 10 observation wells, is what I understood.
 11 Q. Okay.
 12 A. In fact, I think you said earlier that
 13 he agreed that there was a significant amount of
 14 drawdown in the Big Gulch stock.
 15 Q. Okay. I stand corrected on that.
 16 A. I think Sean makes a good point here.
 17 I mean it's certainly true that our measurements
 18 and the response that we see from this pumping,
 19 which is a significant amount of pumping, are
 20 relatively small. And the -- the other factors
 21 that we're having to correct for, including
 22 trends, barometric effects, et cetera, are in some
 23 places on the same order of magnitude as the
 24 drawdown that we recorded.
 25 However, we believe that we did a very

1 good job of obtaining quality data. We believe
2 that we have the tools necessary to subtract
3 those -- make those corrections, subtract the
4 trends, compensate for barometric effect, and we
5 feel that the drawdowns in the observation wells
6 were significant and characteristic, certainly
7 adequate to characterize the aquifer.

8 One of the things we must realize is
9 that we have a very, very productive aquifer.
10 That's the big news. It's pretty hard to stress
11 this aquifer its so productive and so
12 transmissive.

13 And so, you know, we felt like we
14 stressed it adequately at 900 gallons a minute.
15 And, for example, we had 4/10ths of a foot of
16 drawdown at the nearest constructed monitoring
17 well, a little less than half a foot.

18 But if you increased the discharge to
19 2,000 gallons a minute, which is a horrific
20 discharge, you'd still have less than a foot of
21 drawdown. You'd only have 8/10ths of a foot of
22 drawdown by doubling the discharge.

23 So no matter what you do within
24 reason, you're not going to have big drawdowns to
25 measure. But it tells us that we have a very

1 productive aquifer, very productive and very
2 transmissive.

3 Q. If you have only, say, 4/10ths of a
4 foot of drawdown, is that useful data to you,
5 though, in an aquifer test?

6 A. Oh, absolutely. I believe much less
7 than that is useful. I believe if you can get a
8 measurable drawdown and show a measurable recovery
9 in response to your pumping that you've
10 accomplished what you set out to do.

11 Q. I note that Mr. Owsley pointed out
12 that he did not know why the -- quote, "the well
13 with the greatest drawdown among observation
14 wells, the Big Gulch stock well, was left out of
15 the SVR-7 hydrograph," which is Exhibit 44,
16 figure 46.

17 Could you explain to the Hearing
18 Officer why the Big Gulch stock well is not
19 included on that particular hydrograph. And I
20 note that that's at page 128.

21 A. Yes. Well, this hydrograph was not
22 intended to really have a whole lot to do with the
23 aquifer test. This was to show a comparison of
24 the monitoring well network that we have at M3 and
25 the water levels that we see across the site.

1 We did include the SVR No. 7
2 hydrograph, which is 800 feet from the Big Gulch
3 stock well hydrograph, because we have a better
4 handle on the construction of Spring Valley Ranch
5 No. 7 well. And they're so close and the water
6 levels are so similar that if we plotted the Big
7 Gulch stock well on this graph, it would just
8 serve to occlude the -- what we're intending to
9 show, because they essentially plot right on top
10 of one another.

11 Q. It would plot right on top of SVR-7?

12 A. Pretty much, yeah. It would just --
13 we didn't feel like it was necessary, and it would
14 just complicate it. You know, the data is there.
15 We submitted it. It certainly could be plotted.
16 But again, if we have a well in the vicinity of
17 known construction that we can rely on, we would
18 prefer to use that than information from a well
19 that we don't have all the knowledge of.

20 Q. So I take it that you would disagree
21 with any suggestion that leaving out the Big Gulch
22 stock well from this particular hydrograph group
23 is not an uncertainty or creates an uncertainty or
24 a flaw in your analysis; is that -- would that be
25 correct?

1 A. That's correct.

2 Q. What is your response to Mr. Vincent's
3 statement that we, quote, "need to run a test of
4 sufficient duration with a significant pumping
5 rate with well-constructed wells in order to
6 evaluate hydrologic boundary conditions"?

7 A. Well, I think we did that. Spring
8 Valley 7 nine-day aquifer test did that.

9 Q. And why do you say that?

10 A. Well, because we pumped for nine days
11 at a significant volume. It affected a very large
12 area of aquifer, well beyond the M3 site, in my
13 opinion. And we saw drawdown in the observation
14 wells. We were able to obtain transmissivity and
15 storitivity values. The test plotted great, and I
16 feel like we accomplished our goal.

17 Q. Do you think a longer duration test
18 would result in any different conclusions about
19 the aquifer?

20 A. No, I don't. I think that -- I won't
21 say that we reached steady state, but we actually
22 carried the test on two days longer than where we
23 would have called it. And we feel like it was
24 sufficient duration.

25 Q. What about rate of pumping? You

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1 testified earlier about doubling the rate. What
2 about your response to Mr. Vincent's comment
3 suggesting that that should be done?
4 A. Well, given the time of year that we
5 tested this and the extensiveness of our
6 monitoring network, we obtained water-level
7 drawdown -- we produced a water-level drawdown up
8 to 2 miles away. I'm pretty happy with that. I
9 think it did a good job of characterizing the
10 aquifer.
11 Even -- the aquifer is so transmissive
12 and so productive, that even if you increased that
13 pumping rate to 1500 gallons a minute, instead of
14 4/10ths feet of drawdown at monitoring well No. 4,
15 you would add 6/10ths. Instead of 2/10ths at
16 Little Gulch stock well, you'd have 3/10ths.
17 It's just -- it -- in my opinion,
18 given the productivity of the SVR-7 well, I say
19 that we accomplished our goal of characterizing
20 the aquifer.
21 Q. With respect to the aquifer
22 characteristics, Mr. Vincent stated that the PGSA
23 is a sand layer that is, quote, "complex
24 because" -- excuse me -- "it is difficult to
25 distinguish from the overlying aquifer materials

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1 in some areas, because," he said, quote, "'it's
2 faulted,'" close quote, "and because," quote,
3 "'the dip of the strata is not uniform.'"
4 What is your response to that
5 testimony from Mr. Vincent?
6 A. I'm not sure I follow -- maybe you
7 could repeat that question. I'm not sure I follow
8 what precedes that statement.
9 Q. Let's start with the first part of his
10 statement. "The PGSA is a sand layer that is
11 complex because it is difficult to distinguish
12 from the overlying aquifer materials in some
13 areas."
14 What about that?
15 A. Well, I think it needs to be
16 recognized that the top of the Pierce Gulch Sand
17 Aquifer is a change. It's a change from lake
18 sediment, deposition, and deltaic sediments to a
19 more fluvial-dominated section. So therefore, it
20 is going to be a little harder to characterize the
21 top of, just because of the heterogeneity.
22 The lower part, however, is very
23 characteristic, very traceable, and I think the
24 big news is that wherever we find it, it's at
25 least 250 feet thick. I don't need an aquifer

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1 that's thicker than that to make productive wells
2 in long-term water supplies.
3 So the fact that it is not completely
4 well defined at the top is something that doesn't
5 strike me as extremely significant, although I
6 will say that it's remarkable, in my mind, that
7 there are clay layers over the top of the Pierce
8 Gulch Sand Aquifer that are traceable for many,
9 many miles, tens of miles in some cases, as
10 Dr. Wood showed in his cross-sections.
11 And I think even Sean mentioned the
12 clay above the Swift well where the Pierce Gulch
13 Sand Aquifer came up-dip. That's the same clay
14 layer that we've been able to trace off through
15 those deep oil exploration wells all the way over
16 to the Payette Valley.
17 Q. How good are your correlations through
18 geophysics showing the various elements of the
19 Pierce Gulch Sand Aquifer?
20 A. Well, I think there's two components
21 to that that go together. One is it doesn't get
22 any better than that.
23 Q. What do you mean by that?
24 A. I mean that it's a very good
25 correlation. And it's the only way, in my

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1 opinion -- everything that I've tried in the last
2 20 years, it's the only way you're going to be
3 able to characterize and connect the dots in the
4 aquifer. There is no other way. It's the only
5 way. It's a very good way, and the way we've done
6 it is quite sound.
7 Q. Is that through geophysics?
8 A. Yes, borehole geophysics.
9 Q. What about his comment that the dip of
10 the strata is not uniform?
11 A. Well, I don't know why -- you know, we
12 can't lose sight of the fact that these are
13 natural processes. And this isn't a regional
14 structural dip so much as you would think of
15 ancient seabeds. This is a lake bottom. You had
16 a lake bottom, a huge enormous lake.
17 And when the water drained from that,
18 the strata that we're talking about, they were
19 deposited on this sloping lake bottom. The lake
20 bottoms aren't that regular. So it's not a
21 surprise to me that they're not overly uniform.
22 But by the same token, I think it's
23 pretty darn uniform. And we can trace it pretty
24 consistently with the dips that we've shown, and
25 we've used those to project the layers, project

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1 the dip and, et cetera, including the green line.
2 Q. What about his statement that it's
3 faulted?
4 A. "It" being the Pierce Gulch Sand
5 Aquifer?
6 Q. Yes.
7 A. Well, I believe that the Pierce Gulch
8 Sand Aquifer could have some slight faulting in
9 it. But I myself have never mapped or documented
10 significant faulting in the Pierce Gulch Sand
11 Aquifer. In fact, one of the reasons we wanted to
12 do the seismic survey in Big Gulch was one of the
13 big questions that Spen and I and Will Burnham
14 have had over the years is whether the West
15 Boise/Eagle fault actually faults the Pierce Gulch
16 Sand Aquifer, because almost everywhere where I've
17 traced the Pierce Gulch Sand Aquifer from the
18 outcroppings of the subsurface, you can do it
19 pretty easily with dip.
20 And so I haven't seen significant
21 faulting myself in the Pierce Gulch Sand Aquifer.
22 There's no evidence that I've seen that shows that
23 it's faulted on the M3 property. I -- there's
24 some slight offsets up in the Pierce Gulch area
25 itself, but they're very insignificant. They're

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1 on the order of a few feet, at most, less than a
2 foot.
3 Q. Would any of those slight offsets
4 cause any kind of a hydrologic barrier or
5 hydraulic barrier in the aquifer?
6 A. Well, I wouldn't expect one, and none
7 of our hydraulic tests have shown hydraulic
8 barriers.
9 Q. With regard to the SVR-7 test, I note
10 that Mr. Vincent also stated that where the Big
11 Gulch stock well had only one and a half feet of
12 drawdown and the residual intercept -- that is,
13 the residual recovery, I assume -- is .05 or
14 .1 feet, he says, quote, "I have to start
15 thinking, Well, does that have meaning here? Is
16 that significant in relation to total drawdown?"
17 What is your response to this
18 statement? Does this raise uncertainty in your
19 mind?
20 A. None whatsoever. I think it's a very
21 insignificant amount. I think the point is very
22 insignificant. I think it's an incredibly good
23 recovery, better than most I see.
24 Q. That is, a recovery to 5/100ths of a
25 foot?

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1 A. Yeah. I mean it's barely -- it's
2 getting within the range of our ability to measure
3 it. A very small amount. The width of a pen.
4 Q. How many aquifer tests have you seen
5 that have had recoveries within the pumping period
6 to within that type of a distance?
7 A. Very few. More likely it's within
8 feet, even in wells that are completed within the
9 Pierce Gulch Sand Aquifer that are solidly in it
10 that have been producing wells for years.
11 Q. And could you give an example?
12 A. I could give many examples. I could
13 give an example from a well last week.
14 Oftentimes what we do when we do
15 aquifer tests is we'll pump a well for a few hours
16 ahead of the test to do some development and to
17 characterize the level and the discharge rate that
18 we will run the test at. And typically what we
19 see is let's say you pump for six hours in your
20 development test and to determine what the pump
21 rate ought to be. Then you come back the next
22 morning after 18 hours of recovery, and the well
23 may still be several feet below where it was when
24 you did the first pumping.
25 It is not unusual in the real world to

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1 have that happen. It's only theoretical in
2 textbooks that that returns to the origin, in my
3 experience. I've had it happen a time or two, in,
4 you know, river -- next to a river or in
5 fractured-flow aquifer that has a constant head
6 boundary nearby. But in the sediments of Pierce
7 Gulch Sand Aquifer, it doesn't happen.
8 Q. The well that you just referred to
9 that still was a couple of feet below after a
10 significant time --
11 A. It was actually 5 feet.
12 Q. -- where was that?
13 A. That was in Meridian in the Pierce
14 Gulch Sand Aquifer.
15 Q. So was it anomalous that you had that
16 kind of recovery in the Big Gulch stock well?
17 A. Oh, no, not in my mind. I thought it
18 was a very good recovery.
19 Q. What is your response to Mr. Vincent's
20 statement in the transcript that in the SVR-7
21 test, the Big Gulch stock's residual drawdown
22 versus T over T prime plot wasn't towards zero,
23 but towards some positive number, and that,
24 according to Mr. Vincent, was the, quote, "the
25 fundamental concern that we had," close quote?

1 And then in response to a question on that by
 2 Mr. Thornton, Mr. Vincent stated that, quote,
 3 "This is a characteristic of an aquifer of limited
 4 extent, a bounded aquifer," close quote. What do
 5 you say about the residual recovery plot in Big
 6 Gulch stock with regard to the fundamental concern
 7 that it did not recover towards zero, but some
 8 positive number, .05 feet, I take it, and that
 9 this is characteristic of an aquifer that is of
 10 limited extent or bounded? Could you respond to
 11 that, please.

12 A. Well, point number one would be that
 13 we know that the Pierce Gulch Sand Aquifer is a
 14 bounded aquifer. It does have limited areal
 15 extent. No aquifer does. Only in textbooks do
 16 you have infinite areal extent.

17 Q. So all aquifers are bounded?

18 A. Yes.

19 And it's true that in our plot it
 20 trended towards a positive number, a very, very
 21 small positive number. As I said, close to our
 22 level to even be able to measure to that level.

23 We would expect there to be a boundary
 24 effect. But what I find remarkable about this
 25 aquifer is that it behaves as an aquifer that does

1 have areal infinite extent, because it recovers so
 2 well toward the origin in residual graph plots and
 3 because we don't see any boundaries in our aquifer
 4 test data.

5 I think that you could say that
 6 according to the textbook theory of residual
 7 drawdown you could make the statement that the
 8 fact that it doesn't return to the origin
 9 indicates an aquifer of bounded extent. But I
 10 think that's a very academic statement, and I
 11 don't think it holds up in the real world.

12 Q. What is your response to Mr. Vincent's
 13 statement that a larger diameter, fully
 14 penetrating well would allow greater stress on the
 15 aquifer and eliminate a variable that has to be
 16 factored into all the analysis, which is one of
 17 the impacts of partial penetration, or have you
 18 already answered that?

19 A. I think I've pretty well answered
 20 that. It would only apply to the pumping well,
 21 and it would be -- you know, I think -- I can't
 22 imagine -- just imagine this. You're going to
 23 drill a well with 250 feet of screen to make a
 24 pumping well? I mean that's ridiculous.

25 You get all the water you wanted out

1 of a well with 100 feet of screen. You just don't
 2 do that, especially if the partial penetration
 3 effect is going to be limited to the pumping well,
 4 and the software and modeling packages are
 5 available there to calculate the effects of
 6 partial penetration.

7 Q. I'd like to pursue a little bit more
 8 of this question about aquifer boundaries and ask
 9 you what your response is to Mr. Vincent's
 10 statement that we do have indications that the
 11 aquifer is faulted elsewhere, other than the WBE
 12 fault. And I believe that under questioning he
 13 named only the Goddard No. 2 well as such an area,
 14 although I don't think he attempted to say that
 15 the negative boundary at Goddard is from a fault
 16 or some other cause.

17 But could you respond to the statement
 18 from Mr. Vincent that we have indications that the
 19 PGSA is faulted.

20 A. Well, certainly. I did the test
 21 myself on the Goddard No. 2 well. I forget the
 22 name of the exhibit that we referred to, but I
 23 think it was in my 1992 report where we did not
 24 say it was a fault. We said it was a hydraulic
 25 boundary that could be any number of five things.

1 I don't think there's any evidence
 2 that that's a fault, any substantial evidence that
 3 it's a fault and not some other kind of boundary.
 4 My own feeling is that it's not a fault boundary,
 5 that it's another pumping well, a nearby pumping
 6 well.

7 Q. Is there any evidence of boundaries in
 8 the PGSA in the vicinity of M3 Eagle?

9 A. Would you say that again, please?

10 Q. Is there any evidence showing up in
 11 the aquifer tests of boundaries in the PGSA in the
 12 vicinity of M3?

13 A. I see no evidence in the aquifer tests
 14 or any of the other five or six lines of evidence
 15 that we investigated, that we measured. And we
 16 put all those lines of evidence together,
 17 including geochemistry, flow gradient. There's no
 18 perturbations to the flow gradient, there's no
 19 topographical impression of a fault.

20 There's absolutely zero indication of
 21 hydraulic boundaries in the Kling or Spring
 22 Valley 7 aquifer test data, drawdown and recovery.
 23 The cross-sectional diagrams that we've drawn,
 24 there couldn't be any significant faulting in
 25 there, using the borehole geophysics.

1 Q. Or boundaries, is my question.
 2 A. Boundaries. And what our conclusion
 3 is that there really aren't any significant
 4 hydraulic barriers, not only on the M3 property,
 5 but far beyond, other than the ones that we've
 6 identified, which is the edge of the aquifer and
 7 unconfined water table that was conceptualized by
 8 the so-called green line.

9 Q. Do you find it interesting that the
 10 green line boundary does not appear to show up on
 11 the aquifer tests?

12 A. Not really. I've seen this before. I
 13 think that the aquifer is so transmissive that the
 14 drawdown effects are in contact with the boundary
 15 almost instantaneously beyond our ability to
 16 measure. So that's why I say the aquifer appears
 17 to act as though it is indeed an aquifer of
 18 infinite areal extent, even though we know that it
 19 isn't. It can't be.

20 Q. Now, Mr. Squires, do you recall,
 21 though, that Mr. Vincent testified that there are
 22 lines of evidence, in his opinion, that are
 23 suggestive that there may be faulting in the PGSA?
 24 "We don't know," he said, "and I don't claim to
 25 know whether it's faulted and whether it affects

1 groundwater flow in a significant way, but there
 2 are numerous lines of evidence that suggest it
 3 could be affected," end quote. And I'd like to
 4 list for you the five lines of evidence that
 5 Mr. Vincent identified, and ask you to comment or
 6 respond to each. And the first one is this:
 7 "Aquifer tests in which we saw negative hydraulic
 8 boundary indications in the one observation well
 9 during the SVR-7 test."

10 Could you respond to that contention
 11 as a line of evidence for boundaries or faulting.

12 A. I can't think of what well that would
 13 be. I don't -- I didn't recognize that there are
 14 any boundaries that showed up.

15 Q. Have you evaluated the -- both aquifer
 16 tests, the Kling and the SVR-7 test, for evidence
 17 of boundaries in either of the drawdown or the
 18 recovery plots?

19 A. Oh, very thoroughly. And not only
 20 that, when we did the tests, we were extremely
 21 careful to make sure that we kept the discharge
 22 very constant and that we took adequate number of
 23 data points to be able to evaluate for that very
 24 parameter.

25 Q. Mr. Squires, I'd like to show you what

1 I will mark as Exhibit 80 and ask you to identify
 2 this, please.

3 (Exhibit 80 marked.)

4 Q. (BY MR. FEREDAY): Could you tell the
 5 Hearing Officer what this is, please. I see that
 6 it's a three- -- or excuse me, a four-page exhibit
 7 with some plots on each page.

8 What is it, please?

9 A. I think what I would like to do this
 10 to -- I would like to do this to avoid confusion,
 11 I'd just like to do one page at a time, please.

12 Q. Sure.

13 A. This are -- these are some exhibits
 14 that we developed to try to help the Hearing
 15 Officer understand some of the confusion that's
 16 been created around the technical aspects of
 17 drawdown recovery. I tried to show this in just a
 18 very conceptual way in hopes of keeping it pretty
 19 simple.

20 Page No. 1 is the recovery, the
 21 residual drawdown plots, for the Kling aquifer
 22 test. And the -- there are two hydrographs --
 23 there are two plots on the upper part of the page
 24 and one on the lower part of the page.

25 And so we plotted the -- we plotted

1 our actual data, which is the single plot on the
 2 lower part of the page. This is the residual
 3 drawdown from the Kling aquifer test.

4 In the upper left we plotted a
 5 theoretical Theis recovery curve with no
 6 boundaries, a theoretical computer simulation of
 7 what the graph would look like if you just let the
 8 computer derive the theoretical recovery.

9 Q. With no boundaries?

10 A. With no boundaries. And you'll see
 11 that it's a very straight line that does return
 12 directly to the origin.

13 On the upper left -- on the upper
 14 right is a theoretical -- another theoretical plot
 15 generated by a computer that shows the so-called
 16 panhandle fault, where it would be positioned with
 17 respect to the Kling aquifer test, and where that
 18 no-flow boundary that's been suggested by the
 19 staff would show up in this plot.

20 And that is the -- the divergence
 21 there that's indicated by the arrow and that
 22 returns down more steeply at the end.

23 If you compare our actual data, actual
 24 measured data, hand and digital data logger, it
 25 looks very close to the theoretical no-boundary

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1 curve.
2 Q. In your opinion, is --
3 A. And quite different from the
4 theoretical boundary that would show the no-flow
5 boundary of the panhandle fault in question.
6 Q. In your opinion, did the Kling
7 irrigation well recovery plot show evidence of a
8 no-flow boundary?
9 A. No, it did not. And neither did the
10 drawdown plot, which is the next page, page 2.
11 This is the Cooper-Jacob drawdown plot
12 semilogarithmic plots of the drawdown in the Kling
13 irrigation well. Again, the actual data is
14 plotted in the single graph at the bottom of the
15 page, and the two theoretical simulations are
16 shown in the page at the upper part of the page.
17 The upper left shows the hypothetical
18 plot, the theoretical plot, if there's no
19 boundaries encountered.
20 The upper right shows the theoretical
21 no-flow boundary posited by the staff at the
22 panhandle location.
23 If you compare the actual water-level
24 measurements, it looks very similar to the
25 theoretical no-boundary graph of the upper left.

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1 There's no indication whatsoever of the no-flow
2 boundary as would be indicated if it -- in the
3 theoretical plot or if there was a hydraulic
4 barrier close to the well.
5 Q. In your opinion, is there a no-flow or
6 negative boundary shown from the Kling irrigation
7 well drawdown plot?
8 A. No. And I believe that this is the
9 best and most conclusive evidence that we have,
10 that there's no boundary. I think this is what a
11 hydrogeologist would use to -- this is the kind of
12 plot that a hydrogeologist uses to determine for
13 the presence of boundaries.
14 Q. Continue.
15 A. Page 3, we switch to the Big Gulch
16 stock well and its residual drawdown, recovery
17 plot. Same M.O. We've got the actual
18 measurements on the lower plot, and the two
19 theoreticals in the upper plot.
20 Again, on the left is a no-boundaries,
21 computer-generated plot.
22 On the right is the theoretical plot
23 showing the boundary supposed at the panhandle
24 location and what it would look like, the
25 divergence from the line.

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1 Q. And this is for the Big Gulch stock
2 well; correct?
3 A. Yes.
4 And in the Big Gulch stock well, the
5 recovery -- the residual drawdown plot looks very
6 similar, to me, to the theoretical no-boundary
7 plot. The plot falls on a line very well through
8 most of the recovery. At the end it begins to
9 vacillate and oscillate a little bit around --
10 around the straight line. I believe that's due to
11 the interference effects of pumping wells at some
12 great distance from the well. And to me, that
13 shows interconnection, not a hydraulic barrier.
14 And I believe that the recovery returns are very,
15 very close.
16 Q. So this page 3 is the SVR-7 test;
17 correct?
18 A. That's correct.
19 Q. And pages 1 and 2 were the Kling test;
20 correct?
21 A. That's correct.
22 Q. And what's the final?
23 A. The final page is, again, the
24 Cooper-Jacob drawdown plots of the Big Gulch stock
25 well. Same thing, actual data below, theoretical

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1 data above. The theoretical no-boundary data and
2 how it plots on a straight-line plot indicating no
3 divergence and no boundaries indicated.
4 The theoretical no-flow boundary is a
5 simulation of the boundary in the panhandle, and
6 then the actual data that we see below that we
7 measured very closely follows the theoretical
8 no-boundary simulation.
9 Q. Mr. Squires, does this exhibit -- the
10 material on Exhibit 80 accurately portray the
11 points that you just made?
12 A. Yes, except I could take you back to
13 page No. 3 for a moment. And as I said before, I
14 think that our analyses throughout this whole
15 evaluation has been to err on the conservative
16 side, that is to not make things bigger, better
17 than they really are.
18 And in this lower plot on page 3, the
19 straight line that's generated through our data,
20 that is something that was generated by a
21 computer. I wouldn't have actually drawn the line
22 like that, because the computer took into account
23 all the lines, all the data. And as it got down
24 to where the data were oscillating a bit around
25 the line, it compensated the line for that.

1 Q. Down there in the lower left?
 2 A. Yes.
 3 And it's difficult to see in this
 4 particular graph, but if you could follow that
 5 line, if it was a different color through there,
 6 you would -- excuse me, you would see that in the
 7 time frame between 10 and 100 T over T prime that
 8 the line actually falls to the top of those data.
 9 And I believe that the line has been
 10 drawn off somewhat by these interference effects
 11 that we see in the late stages of recovery. So if
 12 I -- if it was up to me to plot this line
 13 manually, which I would prefer to do, I would have
 14 plotted it more along the straight line, and it
 15 would have even coincided closer to a return to
 16 the origin, if that were to happen.
 17 Q. That is, you would have plotted it
 18 along the beginning part of the line in the upper
 19 right and allowed that to control the trajectory
 20 down to the lower left more than the oscillations
 21 in the lower left?
 22 A. Yes. I would have plotted it along
 23 the majority of the data in the center part of
 24 graph that follows the straight line.
 25 (Exhibit 81 marked.)

1 Q. (BY MR. FEREDAY): Mr. Squires, I'll
 2 hand you what has been marked as Exhibit 81.
 3 Please explain what that is.
 4 A. Well, this is the point that I was
 5 just making, that if you blow that up to where
 6 you're really looking at it in very close detail,
 7 this is the end of the residual drawdown -- or the
 8 residual drawdown plot, the recovery plot --
 9 Q. In the Big Gulch stock well?
 10 A. In the Big Gulch stock well, the same
 11 data we were just looking at.
 12 If you look at the graph on the right,
 13 you'll see what I mean about -- when you really
 14 zoom in on this how the straight line got pulled
 15 up off the data because of these slight
 16 oscillations toward the end of the test.
 17 But if you would plot -- if you would
 18 have drawn the line that is a manual fit, as I did
 19 in the left-hand plot, it does come down closer to
 20 the origin.
 21 Q. Mr. Squires, is Exhibit 81 a
 22 reasonable interpretation of data, based on your
 23 experience and expertise in hydrogeology?
 24 A. Well, I think it's a very reasonable
 25 representation of data. What it tells me, in

1 looking at it in this sort of zoomed-in view, is
 2 what we see towards the end of the test where the
 3 drawdown is diminishing or the recovery is
 4 diminishing.
 5 And so now these other effects of
 6 pumping wells, barometric effects, et cetera, they
 7 are now growing larger in magnitude with respect
 8 to the recovering water level, so they start to
 9 evidence themselves.
 10 But in my opinion, I see this as a
 11 very positive result, because to me this indicates
 12 that we're seeing the effects of pumping wells in
 13 the data and at a great distance from the pumping
 14 well from this observation well. And that
 15 indicates to me interconnectivity.
 16 Q. How do you know that they would be at
 17 a great distance?
 18 A. Well, just because of the amount of
 19 stress that we placed on the aquifer. I believe
 20 the cone of depression extended for miles, perhaps
 21 10 miles. That's much beyond where -- the M3
 22 property.
 23 Q. Is the Big Gulch stock well fairly
 24 isolated as well?
 25 A. Well, it's in the middle of the

1 property, so it's a long ways away from other
 2 wells. That's true.
 3 I would also point out that -- if we
 4 could look at -- we could compare pages 3 and 4 in
 5 another way.
 6 Q. On Exhibit 80?
 7 A. Yes.
 8 If you compare the actual -- between 3
 9 and 4, the actual Big Gulch stock recovery plot
 10 and you compare the actual Big Gulch stock
 11 drawdown plot on page 4, you'll see that at the
 12 end of the drawdown part of the test there is a
 13 divergence from the straight line, at the very end
 14 of the test, a small divergence upwards off the
 15 straight line.
 16 Q. Yes.
 17 A. In the recovery plot we see the
 18 oscillations that I talked about in the later
 19 stages of that recovery test.
 20 Well, if this was a -- if this were a
 21 physical boundary, such as a fault, you would
 22 expect that you would see them both in the
 23 drawdown and the recovery at the same time.
 24 Well, these -- these perturbations in
 25 these drawdowns do not occur at the same time. In

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1 fact, they're 2,000 minutes separated. So to me
2 that indicates an ephemeral effect, not a physical
3 boundary.
4 MR. FEREDAY: Mr. Hearing Officer, we offer
5 Exhibits 80 and 81.
6 THE HEARING OFFICER: Mr. Thornton?
7 MR. THORNTON: No objections.
8 THE HEARING OFFICER: Okay. Mr. Smith?
9 MR. ALAN SMITH: Could I ask a couple of
10 questions in aid of objection?
11 THE HEARING OFFICER: Yes.
12 MR. ALAN SMITH: Mr. Squires, is the Kling
13 irrigation well in the PGSA?
14 THE WITNESS: Yes, it is, sir.
15 MR. ALAN SMITH: And the Big Gulch well, is
16 it or is it not in the PGSA?
17 THE WITNESS: I can't say that for certain.
18 I believe it is, based on all the lines of
19 evidence and its response to pumping. Certainly
20 connected to the PGSA.
21 MR. ALAN SMITH: We would object on the
22 grounds of relevancy.
23 THE HEARING OFFICER: Okay. Overrule the
24 objection.
25 Mr. Edwards?

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1 MR. EDWARDS: No.
2 THE HEARING OFFICER: The documents are
3 received into evidence.
4 (Exhibits 80 and 81 admitted.)
5 Q. (BY MR. FEREDAY): Thank you,
6 Mr. Squires.
7 The second -- that was a fairly
8 lengthy discourse on that first line of evidence,
9 which the -- in which Mr. Vincent testified to
10 seeing negative hydraulic boundaries in one
11 observation well -- or a negative hydraulic
12 boundary in one observation well.
13 I take it you disagree with that?
14 A. I do.
15 Q. The second line of evidence is -- and
16 I'll quote here, "The fact" -- quote, "The fact
17 that the recovery was not quite complete in wells
18 suggests that maybe there's limited recharge or
19 possibly some sort of boundary effect," is this
20 really the same question?
21 A. Pretty much, yes.
22 Q. Do you have anything further to add on
23 that point?
24 A. Only that I think it was quite a
25 remarkable recovery, especially since we know the

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1 edge of the aquifer is close at hand.
2 Q. And that's the SVR-7 test?
3 A. Yes, and the Kling test.
4 Q. The next item, the third line of
5 evidence, is the goodness of fit that was seen in
6 the aquifer test analyses support, but again don't
7 conclusively indicate that perhaps there's
8 negative boundaries. And that's from Mr. Vincent
9 as well.
10 Can you comment on why he would make
11 that statement?
12 A. You know, in my opinion, I think we've
13 addressed this boundary issue. We looked at six
14 to seven lines of completely different evidence.
15 And all those lines of evidence point to the fact
16 that there are no hydraulic boundaries.
17 And there's no evidence that points to
18 the fact that there is a hydraulic boundary,
19 especially the hydraulic evidence itself. And our
20 conclusion, based on all the measurements we took
21 and all the interpretation we did and the multiple
22 lines of evidence, our conclusion was is there's
23 not a hydraulic boundary.
24 Q. With regard to this goodness of fit,
25 I'm assuming that Mr. Vincent was referring to the

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1 use of the boundary package in the software for
2 the Kling test.
3 Can you comment on that.
4 A. Well, after we -- let's see. After we
5 did the Kling test -- let's see. I'm trying to
6 remember my chronology here.
7 We did -- we did the aquifer test at
8 Kling before we knew about the so-called panhandle
9 fault that Spence Wood identified in his
10 magnetometer surveys. After -- we did find,
11 though, that in the Kling test that the aquifer
12 transmissivity was somewhat lower than it was in
13 many of the 16 aquifer tests that we'd evaluated
14 and all the aquifer tests higher up in the gulch.
15 So after we learned -- when Spence
16 returned from Thailand and worked up this
17 magnetometer data and we learned that there was a
18 fault there, to be, again, thorough and
19 conservative, we looked at the possibility that a
20 boundary package, a fault barrier could have some
21 effect on the transmissivity, just as an
22 investigation.
23 And we did find that in the
24 observation wells, which were not fully
25 penetrating individually, but they were fully

1 penetrating all together, that in the early parts
2 of those tests, they did fit the boundary package
3 of Modflow to a certain extent.

4 Q. Was that in each of the zones in the
5 piezometer nests, or do you recall?

6 A. I think it was. It was more profound
7 in one. But I think there were -- it was an
8 artifact of these being just individual little
9 piezometers, because our ultimate conclusion from
10 that was that when you added all of the four
11 piezometers in the Pierce Gulch Sand Aquifer
12 together, you got the same straight line that you
13 got from the Kling drawdown recovery.

14 But our conclusion, based on all of
15 the evidence, was that there was not a hydraulic
16 barrier.

17 Q. The next line of evidence that
18 Mr. Vincent cited was, quote, "The hydraulic
19 gradient reversal in the shallow zone in test
20 well 1." You've already testified about this,
21 but --

22 A. That's a line of evidence to, again?

23 Q. To suggest a boundary.

24 A. I don't have any idea how that could
25 indicate a boundary.

1 Q. The fifth and final one that -- at
2 least that we could see from Mr. Vincent was,
3 quote, "The order of magnitude difference in
4 water-level fluctuation on one side of the
5 fault" -- and this is the panhandle fault area --
6 "and on the other side of the fault, that suggests
7 something to me."

8 Do you recall that testimony?

9 A. Yes.

10 Q. And in this connection, I noted that
11 Mr. Vincent agreed a few minutes later that the
12 fluctuations in up-gulch wells are harmonic with
13 fluctuations elsewhere in the PGSA, but that an
14 order of magnitude difference between the up-gulch
15 wells and, say, test well 1 is, quote, "something
16 that's unexplained," close quote.

17 Can you help explain that.

18 MR. ALAN SMITH: Could I make an objection
19 here?

20 THE HEARING OFFICER: Sure.

21 MR. ALAN SMITH: On the grounds of
22 redundance and repetition. He's already gone into
23 all of this in Exhibit 45 that's been admitted
24 where he's critiqued everything that Owsley and
25 Vincent have said.

1 Are we going to go on with this for
2 days on end? I would object to it as repetitious
3 and redundant.

4 MR. FEREDAY: If I could?

5 THE HEARING OFFICER: Sure.

6 MR. FEREDAY: Exhibit 45, which is Hydro
7 Logic's written response to the staff's memo,
8 which we -- I'm sure the Hearing Officer has read
9 or will read, did not respond to this testimony
10 that was -- that was given in this hearing room --
11 and that is what this question was directed at --
12 nor was the statement in Exhibit 50, the staff's
13 memo, exactly on point with what Mr. Vincent is
14 saying here. At least that is our contention.
15 And we would like Mr. Squires simply to respond to
16 that testimony.

17 THE HEARING OFFICER: Overruled.

18 Q. (BY MR. FEREDAY): So, Mr. Squires,
19 the fact that -- to quote again -- an order of
20 magnitude difference between the up-gulch wells
21 and, say, the test well 1 -- and that part is not
22 a quote. That's my interpretation of this, is
23 quote, "something that's unexplained."

24 A. Well, I think we tried to explain that
25 in response to the staff memo in our memo to the

1 Hearing Officer. But to put it succinctly, we
2 believe that these annual fluctuations are in
3 response to pumping. They're like a collective
4 cone of depression that emanates from the pumping
5 centers and up into the gulch area where there are
6 no pumping centers.

7 And just as the SVR-7 drawdown aquifer
8 test produced drawdown that is an order of
9 magnitude different from up in the gulch to down
10 in the gulch, that's what drawdown is. It's an
11 exponential function.

12 So where we had, say, 23 feet of
13 drawdown in the -- in the Spring Valley 7 aquifer
14 test, some of which was well loss, and by the time
15 you get down to test well No. 4, you're already at
16 4/10ths of a foot of drawdown. That's an
17 exponential difference right there. That's what
18 the shape of the cone of depression looks like.

19 What needs to be realized is that
20 these interfering effects are caused by pumping.
21 So the closer you are to the pumping center, the
22 more drawdown you're going to have.

23 If you do a simulation where you put a
24 pumping center at Highway 16 and you do a
25 simulation where you have the 15 foot drawdown

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1 that we have at test well No. 1, and you put in
2 the transmissivities from the Kling test and you
3 put in the transmissivities from the SVR-7 test,
4 those all plot perfectly reasonably on that graph.
5 Q. Including an order of magnitude
6 difference?
7 A. Certainly, including an order of
8 magnitude difference.
9 Q. Mr. Squires, I'd like you to shift
10 gears just a bit to the question of the conceptual
11 geologic model and respond to Mr. Vincent's
12 testimony where in response to questions he
13 answered yes to the inquiry whether, quote, "the
14 appearance of the PGSA at a higher elevation than
15 the valley floor is evidence of faulting rather
16 than deposition," close quote.
17 And he stated that "This was the
18 explanation given me by Dr. Wood and Mr. Squires
19 during a field trip in Stewart Gulch."
20 Do you recall that?
21 A. I do.
22 Q. What's your comment on the concept
23 that the appearance of the PGSA at a higher
24 elevation than the valley floor is evidence of
25 faulting rather than deposition?

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1 A. Well, I don't recall a field trip to
2 Stewart Gulch with Sean and Spen. I do recall a
3 field trip there with myself, Sean, and Dennis
4 Owsley, but I can speak for the faulting in Pierce
5 Gulch and Stewart Gulch because I've studied that
6 area and mapped that area extensively. And
7 there's not any faulting in the Pierce Gulch in
8 the Stewart Gulch. There's no displacement.
9 There's no faulting.
10 There's faulting in the underlying
11 Terteling Springs formation, and that's well
12 represented and very visible in outcropping, as it
13 is in many places where the Terteling Springs
14 formation outcrops. But I see no evidence of
15 offset or faulting in Stewart Gulch or the Pierce
16 Gulch Sand at all.
17 The reason we went there was to see
18 that the Pierce Gulch Sand Aquifer was well above
19 the valley floor at that location. But it
20 descends via dip. The dip of the aquifer allows
21 it to descend down to the valley floor and then
22 underground underneath the Boise area, where it
23 becomes saturated and becomes an aquifer.
24 Q. What is your response to Mr. Owsley's
25 comment that Exhibit 44, figure 4, shows the

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1 screen of a well of one of your test wells
2 completed into Terteling Springs Mudstone and
3 this, quote, "raises an uncertainty," close quote?
4 A. Exhibit 44, figure 4?
5 Q. Correct.
6 A. Okay. Would you repeat the question
7 again, please?
8 Q. Mr. Owsley indicated that this exhibit
9 shows a well screen completed -- and I think it's
10 the left -- in fact, maybe both of well screens of
11 test wells 1 and 2, and M3 test well No. 4,
12 especially, completed into Terteling Springs
13 Mudstone and this, according to him, quote,
14 "raises an uncertainty," close quote.
15 Can you explain to the Hearing Officer
16 how this cross-section is to be read.
17 A. Well, this is a cross-sectional
18 diagram using borehole geophysics to map the
19 aquifer, as we have done through several of our
20 reports. So the database that we're starting with
21 is the borehole geophysics.
22 To correlate these lines between the
23 aquifers, they are drawn to the geophysics.
24 That's how I do it, because those are the data.
25 So I drew these connecting dots to show the Pierce

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1 Gulch Sand Aquifer, Terteling Springs Mudstones,
2 et cetera, to the corresponding points on the
3 geophysical logs that we're using to draw these
4 lines.
5 Now, as another visual aid, I also
6 plotted the lithology that corresponds to the
7 geophysics, and I also indicated by these hatched
8 lines where the well screens in the piezometer
9 nests are.
10 But one must realize that it's a
11 matter of scale, that you put all three of these,
12 the geophysics and the screens and the thing
13 together, that represents, you know, a mile or so
14 width on this diagram that's just a line in
15 reality.
16 Q. The well would be just a line and
17 it's -- if it were in scale?
18 A. Yeah.
19 And so I designed these wells that
20 are -- you know, I used the geophysics and the
21 cuttings on which to base the screen setting. So
22 there's not much of a chance that I'm going to put
23 the screens in mudstone. And even if I did, I
24 don't know why that would create any uncertainty.
25 The diagram here is used to show the

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1 correlation of the Pierce Gulch Aquifer and the
2 dip of the Pierce Gulch Aquifer based on the
3 borehole geophysical logs that I believe have a
4 very strong correlation.
5 Q. So was the screen completed into
6 mudstone?
7 A. No.
8 MR. FEREDAY: Mr. Hearing Officer, perhaps
9 we could take a short break. It's almost 2:30.
10 We have some more questions for Mr. Squires yet.
11 I think we should be able to be done within -- in
12 an hour at the most.
13 THE HEARING OFFICER: Okay. Let's break
14 for 15 minutes. So we'll be back about 20 to the
15 hour, 20 to 3:00.
16 (Recess.)
17 THE HEARING OFFICER: We're recording again
18 after the afternoon recess.
19 Mr. Fereday, your witness.
20 Q. (BY MR. FEREDAY): Mr. Squires, I have
21 a few concluding questions for you about the
22 scientific questions we've been discussing. But
23 before we get to those, I would like to ask you a
24 few questions that pertain to the Hearing
25 Officer's inquiries and comments, as well as some

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1 of the staff's comments, about the reasonable
2 anticipated future needs nature of this water
3 right.
4 I'd like to ask you whether you have
5 experience in working on or obtaining reasonably
6 anticipated future needs water rights?
7 MR. ALAN SMITH: Could I have an objection
8 to this? It's irrelevant and immaterial and
9 beyond the scope of proper rebuttal evidence.
10 THE HEARING OFFICER: Okay. Well, let's
11 see where it goes, Mr. Smith.
12 MR. ALAN SMITH: All right.
13 THE HEARING OFFICER: I'll at least right
14 now overrule the objection. If it's going
15 somewhere where I think it might, I may shorten
16 it -- shorten it up.
17 Go ahead, Mr. Squires.
18 THE WITNESS: Did you finish your question?
19 Q. (BY MR. FEREDAY): Yes.
20 A. I have some experience with that, yes.
21 Q. Do you have experience in designing
22 municipal water supply wells for public drinking
23 water systems?
24 A. I do.
25 (Exhibit 82 marked.)

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1 Q. (BY MR. FEREDAY): I'd like to show
2 you what has been marked as Exhibit 82 and ask you
3 if you can identify this, please.
4 A. Yes, this is an e-mail transmission
5 that I sent to the engineering manager of the
6 drinking water program, the water quality, at
7 IDEQ -- I guess it was yesterday -- in response to
8 an inquiry about Shelley Keen of the Department as
9 to whether M3 had been in contact with the
10 Department of Environmental Quality with respect
11 to its proposed public drinking water system,
12 status of its water system, and its wastewater
13 system.
14 Q. Could you describe the contacts that
15 you have had with the Idaho Department of
16 Environmental Quality pertaining to the M3 project
17 and its proposed municipal supply wells?
18 A. Well, we've been in contact, as we are
19 on most projects, with the DEQ early on, shortly
20 after we made contact with the Department here,
21 Department of Water Resources. We have
22 transmitted our reports to the DEQ, our first-year
23 hydrogeologic reports and other reports. We've
24 had numerous meetings with DEQ. I would say
25 "numerous" being half a dozen that I was involved

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1 in. I know many more that M3's been involved in
2 with respect to the water system and the
3 wastewater system.
4 We also presented at the recent
5 wastewater reuse conference sponsored by the DEQ.
6 I was a featured speaker, as were Mr. Brownlee and
7 Stanley Engineers, who are handling the wastewater
8 treatment plant.
9 Q. Is it your understanding that M3 Eagle
10 intends to construct public drinking water system
11 wells certified by DEQ on the project?
12 A. Yes.
13 Q. Have you submitted materials designing
14 or setting forth a prospectus for such wells?
15 A. I did.
16 Q. To DEQ?
17 A. Yes. I submitted a well-siting -- a
18 well-site checklist and a well-construction
19 checklist for approval of a municipal public
20 drinking water system -- well site and well
21 construction of a public drinking water system
22 well.
23 Q. Is this e-mail exchange, Exhibit 2,
24 part of that same process of interchange with DEQ,
25 looking forward to establishing a drinking water

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1 system at M3 Eagle?
2 A. Yes.
3 MR. FEREDAY: Mr. Hearing Officer, we offer
4 Exhibit 82.
5 THE HEARING OFFICER: Okay. Let me explain
6 before we start in, so that there's clarity so
7 that the parties understand. There's a reference
8 here about an inquiry by Shelley Keen of IDWR.
9 Mr. Keen telephoned me this morning
10 shortly after eight o'clock, said he had received
11 this e-mail, a copy of it. Said he did not know
12 what it was about at all. Wondered if -- he
13 didn't recall any contact.
14 So he asked me if I knew anything
15 about it or whether his name had come up during
16 the hearing.
17 And I said, "Not to my knowledge."
18 I -- in fact, he asked me what to do with this,
19 and I said, "As far as I'm concerned, it should
20 not be a part of the record," at least I would not
21 make it part of the record on my own volition.
22 And I guess the reason that I'm
23 explaining this is that I have not read the text
24 of this, and I do not want the parties to think
25 that there is -- that the Department is,

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1 particularly at my prompting, is making inquiries
2 at this point in time as an end-run around the
3 hearing process with DEQ.
4 I'm just trying to make sure that all
5 the parties recognize that the Hearing Officer is
6 not initiating anything through Department staff
7 with DEQ at the present time. So -- and that may
8 be the assumption that might be taken from this.
9 So I want to make sure that the
10 parties understand that I did not initiate with or
11 through Shelley Keen or any Department employee
12 contact with DEQ to any -- to either try to
13 establish or not establish something.
14 Mr. Fereday.
15 MR. FEREDAY: Mr. Hearing Officer, if I
16 could ask a few more questions of Mr. Squires with
17 respect to this point.
18 THE HEARING OFFICER: Okay. Fine.
19 Q. (BY MR. FEREDAY): Mr. Squires, could
20 you explain the contact you had from Mr. Keen at
21 the Department of Water Resources pertaining to
22 this subject matter?
23 A. I did not receive a contact from
24 Mr. Keen. I received a contact from Chris Meyer
25 of your office who had been contacted by Shelley

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1 Keen. And I was asked to -- since I had already
2 applied and received approval from DEQ for a
3 public drinking water site and for a public
4 drinking water well, and that had happened some
5 time ago. And those approvals are only good for a
6 year.
7 Mr. Meyer asked me that I reconnect
8 with the engineering manager and -- since those
9 certifications had expired to indicate that we had
10 been keeping DEQ in the loop all the way through
11 and they were apprised of our current status. And
12 that's what this was about.
13 Q. So the point of this was to go to DEQ
14 and to get a response from DEQ that they
15 anticipate that we will be following this course;
16 is that right?
17 A. That's correct.
18 MR. FEREDAY: We again offer the exhibit.
19 THE HEARING OFFICER: Okay. Mr. Thornton?
20 MR. THORNTON: No objection.
21 THE HEARING OFFICER: Mr. Smith?
22 MR. ALAN SMITH: We would object to it on
23 the grounds of relevancy. It still does not
24 qualify them as a municipal provider. They were
25 not qualified as a municipal provider or a

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1 municipality or an entity with a public water
2 system regulated by the State of Idaho at the time
3 they filed their application. And they are not
4 now. And this is totally irrelevant and
5 immaterial and beyond any proper rebuttal of our
6 evidence.
7 THE HEARING OFFICER: Okay. Mr. Fereday,
8 response?
9 MR. FEREDAY: Yes. Mr. Hearing Officer,
10 the question of how an applicant qualifies as a
11 municipal provider is, because of Mr. Smith's
12 motion, a legal issue in this case.
13 Mr. Smith's theory as to how it should
14 come out is one theory. We have a different
15 theory. We believe that we do qualify as a
16 municipal provider for purposes of applying for
17 such a water right, and that this is evidence
18 suggesting why that is so, evidence among several
19 other pieces of evidence that are already in the
20 record or that will be further amplified by
21 further testimony in this case. But we believe it
22 is relevant to that point, and therefore we ask
23 that the exhibit be admitted.
24 MR. ALAN SMITH: Judge, it's just a ruse to
25 get around the legal points that we have already

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1 made regarding municipal provider. They're trying
2 to come back now and get around it. It's totally
3 beyond anything that would be proper rebuttal.
4 They never presented any of this in their
5 case-in-chief, and they can't do it now.
6 THE HEARING OFFICER: Okay. Well, let me
7 rule, and then we'll move on.
8 As you indicated, Mr. Smith, this
9 document and what it purports to show is beyond
10 the scope. And it most surely is.
11 It does respond to that legal
12 argument, Mr. Fereday, but it still is factual
13 evidence that's being presented with respect to a
14 particular legal argument that was not in the
15 record during the direct case. So it is beyond
16 the scope.
17 However, the Hearing Officer has the
18 ability to, I think, accept evidence into the
19 record to -- in an administrative hearing, and I
20 think I've said earlier, my primary responsibility
21 and goal is to gather all of the evidence that I
22 can to write a decision that is based on the facts
23 and the facts as a whole that I can gather.
24 And so I think this kind of evidence
25 is important to me. It may also to some degree be

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1 characterized as evidence coming in without having
2 the opportunity to examine the author of this
3 evidence. I hate to prolong the matter to bring
4 in somebody from DEQ. I think there's some
5 authenticity to this exchange and to whom it's
6 being directed, just by the e-mail itself.
7 So I will allow this document into
8 evidence, Mr. Smith, with this caveat.
9 And, Mr. Fereday, you're on notice,
10 there are -- there are other matters of evidence
11 that I think the protestants perhaps wanted to
12 explore, and my guess is, based on the testimony,
13 that that evidence included some discussion of the
14 water rights and the possible appropriations of
15 water that either may be within the area in the
16 modeled area or nearby or prospective
17 appropriations of water.
18 And I want everybody to know that
19 that's an issue in question that I will look at,
20 either internally with the Department or through
21 presentation of testimony, if the protestants want
22 to bring that into the record. That's also
23 outside the scope of any of the direct
24 examination, but I'll allow that as part of their
25 surrebuttal. So on both sides I'll allow some

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1 latitude in presenting additional information.
2 MR. ALAN SMITH: If it is going to --
3 excuse me. Are you --
4 THE HEARING OFFICER: Yes, Mr. Smith.
5 MR. ALAN SMITH: If it is being admitted,
6 we ask that you give no weight to it at all.
7 THE HEARING OFFICER: Well, I'll consider
8 that. So it's received into evidence.
9 I think, Mr. Edwards, I did not ask
10 you. Any objection?
11 MR. EDWARDS: No.
12 THE HEARING OFFICER: Okay. It's received
13 into evidence.
14 (Exhibit 82 admitted.)
15 THE HEARING OFFICER: And I hope everybody
16 understands, again, that this e-mail exchange and
17 the dates and the references, I think Mr. Squires
18 explained, that perhaps the inquiries from Shelley
19 Keen came some time ago. I don't know when they
20 were made. Mr. Keen at least didn't remember, but
21 he was concerned about this.
22 And I said, well, I don't recall any
23 discussion about Shelley or anything related to
24 this subject that's previously come up at the
25 hearing.

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1 MR. ALAN SMITH: We still contend that
2 they're not a municipal provider, this matter
3 should have never been set for hearing because
4 they did not qualify under the statute 42-202, I
5 believe it is, (5)(a), (b), and (c).
6 THE HEARING OFFICER: Okay. And I'll
7 reiterate that in my opinion -- and the decision
8 will reflect this -- unless you can convince me
9 otherwise, and I'll give you an opportunity, but
10 it's my belief, Mr. Smith, that the applicant
11 qualifies to obtain -- I shouldn't use the word
12 "qualify." They can apply and obtain a permit for
13 municipal purposes.
14 I think the more -- the issue that is
15 presented is whether as an applicant for a
16 municipal use they can also seek an appropriation
17 of water for reasonably anticipated future needs.
18 And I think that is a significant legal question,
19 reading the words of the statute. I think it's
20 42-202.
21 But anyway, I think that is the issue.
22 And I think it is a significant issue.
23 Okay. Mr. Thornton.
24 MR. THORNTON: Just a clarification for me
25 on that significant legal issue.

1 Would that be, I believe I remember
2 you stating, that would be part of the discussion
3 in your decision; is that right? I mean the legal
4 interpretation of that.

5 THE HEARING OFFICER: Yes. In fact, I'll
6 ask for briefing on that issue after we're
7 finished.

8 MR. THORNTON: Okay.

9 THE HEARING OFFICER: Because I think it
10 needs to be fully aired. And I think we should go
11 so far as to look at the legislative history of
12 the statute itself to see what the meaning is of
13 the wording in 42-202 to the extent that there is
14 any discussion of that verbiage as the legislation
15 what was being discussed.

16 Okay. All right. Mr. Fereday.

17 Q. (BY MR. FEREDAY): Mr. Squires, are
18 you familiar with the Tamarack water right
19 application permit for a reasonably anticipated
20 future needs water right?

21 A. Yes.

22 Q. Did you work on that project?

23 A. I worked on that project. I worked on
24 that application.

25 MR. ALAN SMITH: Objection. Immaterial.

1 THE HEARING OFFICER: Mr. Fereday, I'll
2 sustain this objection. I'm aware of the Tamarack
3 application. I'm aware of the approval. And to
4 the extent that it's precedent, which I don't
5 think it is, this particular issue was not raised,
6 and I don't think the Department is bound by it in
7 any way.

8 Q. (BY MR. FEREDAY): Mr. Squires,
9 returning to the scientific issues at issue in
10 this case and to which you've testified, what, in
11 your opinion, is needed in terms of additional
12 studies for the PGSA or studies of the PGSA to
13 support a conclusion to a reasonable degree of
14 scientific certainty that there is sufficient
15 water for development of the M3 Eagle project as
16 proposed?

17 A. In my opinion, no further studies are
18 needed.

19 Q. Have you an opinion as to the quality
20 and sufficiency of the data that has been
21 developed to date to characterize this resource?

22 A. I think M3 has conducted substantial
23 high-quality studies that have added greatly to
24 our understanding of Pierce Gulch Sand Aquifer and
25 the basin in general, and has reduced an enormous

1 amount of uncertainty in the process.

2 Q. What is your response to the staff's
3 repeated statements that there is uncertainty
4 about various aspects of the science in this case?
5 And I know you've testified to that some already,
6 but what is your response in general to that
7 position?

8 A. I think that there's always an element
9 of uncertainty in science. That's what science is
10 for.

11 Q. In your opinion, what is the
12 appropriate way to protect the resource and to
13 guard against impacts -- material impacts to other
14 water rights as this project goes forward?

15 MR. ALAN SMITH: Objection. Calling for a
16 legal conclusion.

17 THE HEARING OFFICER: Well, maybe I didn't
18 listen to the question well enough. Re-ask the
19 question or read it back, either one.

20 What's your preference?

21 MR. FEREDAY: I can re-ask the question.

22 THE HEARING OFFICER: All right.

23 Q. (BY MR. FEREDAY): In your opinion,
24 what is the best way to evaluate the amounts and
25 nature of impacts or effects on aquifer levels or

1 other water levels as this project goes forward?

2 THE HEARING OFFICER: Still object,
3 Mr. Smith?

4 MR. ALAN SMITH: I do.

5 THE HEARING OFFICER: Overruled.

6 THE WITNESS: I have a very strong
7 conviction that the best way to administer and
8 manage our water resources is through high-quality
9 monitoring of good-quality wells of known
10 construction that are designated as long-term
11 monitoring wells. I think that forms the
12 cornerstone of any way of gauging the effects on
13 the aquifer.

14 We need good wells. We need good
15 monitoring. It's not easy to do. It's a tough
16 job. And in my opinion, we don't -- we don't have
17 a wide enough net, in general, in the basin. I
18 think of all the clients that I've ever had, I've
19 never had a client like M3 that's been committed
20 to monitoring the way they have, and the amount of
21 expense that they've spent in putting high-quality
22 monitoring wells on their property, which I
23 believe will be sufficient to gauge the effects
24 that they cause to the aquifer.

25 I believe that as a community in

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1 general we need to devote more attention and
2 resources to good-quality monitoring, because I
3 believe that is the way, not individual, little,
4 small projects. The way that you really find out
5 what's going on with the resource is to be able to
6 measure and monitor it in an ongoing fashion.
7 MR. FEREDAY: We have no further questions.
8 THE HEARING OFFICER: Okay. Mr. Thornton,
9 are you prepared to examine? Do you want a
10 minute?
11 MR. THORNTON: No, I think I'm fine,
12 Mr. Hearing Officer.
13 THE HEARING OFFICER: Okay. Before you
14 start -- and let me just give you a rest for a
15 minute to gather your thoughts.
16 One of my concerns in listening to the
17 testimony of Mr. Squires and the questions that
18 were asked is probably half of the examination,
19 perhaps not that much, but a good share of it
20 referred specifically to testimony of the
21 Department witnesses who testified.
22 And I don't know that I've been in a
23 situation where the examination of a rebuttal
24 witness was as exacting as this was with respect
25 to the Department witnesses.

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1 Under normal circumstances, I would
2 put Department witnesses on once and allow them
3 questioning and some rebuttal or response. Under
4 the circumstances, I guess I'm asking a question
5 about whether the Department witnesses ought to be
6 allowed some ability to respond to the questions
7 and the answers. And so I throw that question out
8 to the parties, and I want your response.
9 Mr. Fereday?
10 MR. FEREDAY: Well, Mr. Hearing Officer, I
11 think that the exacting, as you put it, inquiry
12 into their statements is, I think, precisely a
13 reason why it would not be appropriate or
14 necessary to have the staff take the stand for
15 some type of surrebuttal.
16 This is because the staff was asked to
17 testify and narrate their testimony, and they did
18 that. And we faithfully responded to exact
19 points.
20 The point of rebuttal is to do just
21 that. We wanted to make sure we were accurate.
22 That's why we displayed their exact words. And we
23 feel that it would be prejudicial and make this
24 hearing unduly protracted, which it already is
25 threatening to be today, to allow them back up on

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1 the stand.
2 The same would go for Dr. Ralston. We
3 were careful with respect to his testimony as
4 well. We tried to present rebuttal testimony.
5 That's what it's for. That's what we believe we
6 did.
7 And therefore, you know, to the extent
8 that perhaps -- if it could be shown that
9 Mr. Squires or any other of our witnesses brought
10 up new material in some way that went beyond that
11 point, that that witness may -- I don't think we
12 have in any case, then arguably surrebuttal would
13 be appropriate.
14 But we would ask that the parties rest
15 after the presentation of rebuttal testimony. And
16 any surrebuttal that you may find is appropriate,
17 but we don't believe that the staff is
18 appropriately recalled.
19 THE HEARING OFFICER: Mr. Thornton?
20 MR. THORNTON: Thanks for the opportunity
21 to at least discuss NACGUA's thoughts. In this
22 long hearing we haven't objected to one thing.
23 And the main reason is if it is factual
24 information, we feel it's important for everyone,
25 and obviously the Hearing Officer knows making the

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1 decision, to have that information.
2 The question that we were going to ask
3 in terms of potential rebuttal witnesses is, not
4 understanding the legal process, is it appropriate
5 to have Department staff to ask them some very
6 succinct questions.
7 We just went through probably a total
8 of seven hours, if you include the last hearing
9 day, with Mr. Squires where they very specifically
10 were discussing points, many of them, with my
11 experience, I'm going, you know, I don't think
12 that is exactly what the Department staff would
13 agree to.
14 And if we're really trying to get the
15 information out, flushed out, it appears that it
16 would be appropriate to have Department staff, if
17 they choose, to respond to specific comments and
18 testimony that was provided by either Dr. Wood or
19 by Mr. Squires. It's just getting fully vetted,
20 the information out. So we would support
21 definitely having Department staff be able to be,
22 whatever the term is, part of rebuttal.
23 THE HEARING OFFICER: Okay. Mr. Smith?
24 MR. ALAN SMITH: Well, if these witnesses
25 cannot respond, we're in the Star Chamber

1 proceeding here. These witnesses have been
2 discredited. They've tried to impeach these
3 witnesses. And I think the Department ought to
4 either be able to call them or we should be able
5 to call them to rehabilitate them after we heard
6 all of this knock down and drag out by
7 Mr. Squires.

8 And all they've done is ask, "Well,
9 Mr. Vincent said this. Do you agree with it?"
10 "No. No. No, we don't."

11 We've got to -- they've got to have
12 the right to respond or this proceeding is not
13 going to be fair at all.

14 THE HEARING OFFICER: Okay. Mr. Edwards?

15 MR. EDWARDS: I think they should have a
16 chance to respond.

17 THE HEARING OFFICER: Okay. All right.
18 Let me tell you what I will do. I will give the
19 Department witnesses an opportunity to choose
20 whether they come back up and testify about the
21 subjects, and very specifically the subjects that
22 were asked about. So it needs to be directly and
23 very carefully within the scope of what was asked
24 of Mr. Squires.

25 The protestants have the option, if

1 they want, to call the Department witnesses back
2 up for as witnesses on surrebuttal. But again,
3 you'll be under the same restrictions. The
4 questions that you ask must be very carefully and
5 very precisely confined within the questions that
6 were asked on rebuttal, otherwise we're off
7 another couple of days of hearing.

8 So at the close of the rebuttal
9 testimony, then, we'll ask the Department
10 witnesses whether they want to testify.

11 MR. ALAN SMITH: And if they don't, we can
12 call them?

13 THE HEARING OFFICER: Yes.

14 MR. ALAN SMITH: Why are we restricting the
15 rebuttal now so strictly when we haven't with
16 Mr. Squires and Mr. Whitney?

17 THE HEARING OFFICER: The reason that I
18 want to restrict rebuttal for the Department
19 witnesses, Mr. Smith, is because the -- in my
20 opinion, the references to what the Department
21 testified to, as I said before, those references
22 and those questions were very exacting. They were
23 with respect to particular portions of the
24 testimony of the Department witnesses. And for us
25 to then expand and go beyond that, I think is --

1 is not appropriate at this point.

2 MR. ALAN SMITH: That's not our intent.

3 THE HEARING OFFICER: Okay.

4 MR. ALAN SMITH: We intend to ask them
5 about -- or let them testify as -- the Department
6 witnesses about what they've been attacked on,
7 those specific points that they've been
8 discredited on or they sought to impeach them on.

9 THE HEARING OFFICER: So I don't see that
10 we disagree, Mr. Smith.

11 MR. ALAN SMITH: Right.

12 THE HEARING OFFICER: Okay. All right.
13 All right, Mr. Thornton.

14 MR. THORNTON: Mr. Hearing Officer, I'd
15 like to just, before I get into questions of
16 Mr. Squires is -- obviously Mr. Squires has been
17 on the stand for several hours the last two days,
18 and then obviously several hours before. We did
19 have a chance to ask numerous questions of
20 Mr. Squires earlier. A fair amount of the
21 information today seemed to be similar as before.

22 And so NACGUA is assuming that instead
23 of us re-asking a couple hundred questions or
24 whatever that you just have in the testimony the
25 answers to the same questions that I potentially

1 could ask. I'm going to try to not go that way,
2 just in terms of the length of the trial here.
3 But I'm assuming that will be part of the record
4 that you'll be able to review.

5
6 CROSS-EXAMINATION

7 BY MR. THORNTON:

8 Q. And then for Mr. Squires, I appreciate
9 your time sitting there for so many hours now,
10 probably a couple more.

11 I believe you said -- two important
12 points that I guess I want to make sure you're in
13 agreement with. One, I believe you just stated
14 just recently that it's very important to have a
15 well thought out monitoring plan, throw an
16 appropriate net across the north Ada County area
17 or wherever the aquifers are in the Treasure
18 Valley to best determine what's going on; is that
19 true?

20 A. I agree with that, yes.

21 Q. And I believe you also stated that's
22 really the best evidence in terms of what is
23 actually going on in terms of the sustainability
24 of the aquifers; is that correct?

25 A. I believe that's correct.

1 Q. Okay. And I think I also heard you
2 state that -- maybe an hour ago or before lunch, I
3 believe, that you believe that there is evidence
4 to show that at least in the Pierce Gulch Sand
5 Aquifer that the water level is actually
6 increasing; is that correct?

7 A. Appears to me to be that way, yes.

8 Q. So in your opinion, from a technical
9 supply standpoint of groundwater, does it not seem
10 feasible and appropriate for M3 to have a phased
11 water right, with such certainty that there's so
12 much water out there, and allow the monitoring
13 system to be put in place for the phases of their
14 development, so to actually have a phased approach
15 with monitoring? Does that seem appropriate to
16 you?

17 A. No, not at all, sir. In fact, I -- as
18 a technical matter, I don't see how the phased
19 approach can work or be monitored.

20 Groundwater monitoring doesn't
21 coincide with the development of phases. It just
22 doesn't work that way. What's needed is
23 continuous monitoring of the aquifer as it's
24 developed, not only by M3, but by everyone. But
25 to think that you're going to build a certain

1 phase of a development and be able to monitor the
2 effect of that immediately, that isn't how it
3 happens.

4 Developments happen one house at a
5 time. You need to have the kind of data that we
6 showed with respect to the Micron matter that
7 shows long-term data that you can use to project
8 and to gauge what's going on.

9 And if necessary, as was the case in
10 the southeast Boise area, to arrest further
11 development until you see what's going on. But it
12 doesn't coincide with a phase of a development.

13 Q. So over a period of five years you
14 don't gain much more information in monitoring
15 groundwater? Is that what I heard you say?

16 A. Well, I personally believe that five
17 years is about the right amount of data that you
18 need to be able to use monitoring data.

19 Q. So why wouldn't that coincide with
20 five-year phases within M3's development over a
21 30-year period?

22 A. Well, I'm not sure that the M3
23 development would be conducted in five-year
24 phases. If you mean just five-year increments --

25 Q. They talked about --

1 A. -- unrelated to the development
2 itself.

3 Q. Okay. When they talk about a
4 development over a 30-year period, five phases,
5 that's six years.

6 So my question to you is, is five
7 years or six years -- and I believe I just heard
8 you say that that is a good amount of time to tell
9 what's starting to go on?

10 A. Well, I would say that you use every
11 scrap of data that you have from Day One. But I
12 would think that it would be appropriate to have
13 phased interpretations. I certainly think that,
14 for example, if you were monitoring water levels
15 and you were required -- or required as part of a
16 monitoring plan to submit data every year on an
17 annual basis of the actual information to the
18 Department, that every five years you were
19 required to do -- to evaluate and do an
20 interpretive report, that kind of a -- I agree
21 with that kind of a phased approach. I think
22 that's a very responsible way. And if you want to
23 call that phasing.

24 I think it's going to be up to the
25 Department to administer something like that,

1 providing not only the data for them to review,
2 but also an interpretive report of what the
3 monitor -- what the monitoring is showing. I
4 agree with that type of a phased approach.

5 Q. And earlier in your testimony today I
6 believe you testified that the Southeast Boise Fan
7 Aquifer is a good example of a resource managed
8 with long-term monitoring; is that correct?

9 A. That's correct.

10 Q. So would you therefore believe that
11 M3's proposed withdrawals in the PGSA should be
12 controlled and/or curtailed with data from a
13 long-term monitoring, if that is showing a loss of
14 sustainable groundwater levels?

15 A. Well, I think that's a -- that's a
16 decision that's up to the Department, and only to
17 the Department, because only they will be able to
18 answer the questions of reasonable pumping water
19 level sustainability.

20 But what I believe the technical
21 community needs to do and what the groundwater
22 developers need to do is to provide good quality
23 data to the Department. And I again will say that
24 I think it's a responsible thing to have a phased
25 interpretation of the data, rather than just

1 providing the data and leaving it out there. I
 2 think it makes a lot of sense to me to investigate
 3 it on timely intervals, say here's our
 4 interpretation of what's going on in the aquifer
 5 and why it's responding and how.
 6 Q. So again, your belief is PGSA is
 7 showing trends of increased water levels, and so
 8 along with that to me comes a fair amount of
 9 responsibility, potentially on your part and your
 10 firm's part -- and that's why I'm asking this
 11 question is because of the potential effects to
 12 senior groundwater rights holders potentially from
 13 this development, is does your firm maintain a
 14 professional liability insurance, otherwise known
 15 as errors and omissions insurance?
 16 A. Yes, we do.
 17 Q. And if so, what amount of coverage is
 18 that?
 19 A. Oh --
 20 MR. FEREDAY: Objection. This is way
 21 beyond the scope of the direct examination.
 22 THE HEARING OFFICER: Just tell me why.
 23 Tell me why you need this information.
 24 MR. THORNTON: I think "why" is the
 25 potential senior water rights that are concerned

1 about being injured, especially when they're
 2 making such statements as the Pierce Gulch Sand
 3 Aquifer is actually increasing in water level,
 4 when we've heard testimony from other expert
 5 witnesses just totally disagreeing with that, the
 6 Treasure Valley Hydrologic Report disagreeing with
 7 that, the water budget for the lower Treasure
 8 Valley disagreeing with that.
 9 What I look at is the basis that Hydro
 10 Logic and Mr. Squires' firm is saying that there's
 11 this tremendous amount of water. If that in fact
 12 is a basis for allowing a water right that has
 13 injury in the future, that's who the people are
 14 going to come back to.
 15 THE HEARING OFFICER: Well, Mr. Squires'
 16 potential liability is not at issue here.
 17 Sustained.
 18 MR. THORNTON: Okay.
 19 Q. If you'd turn to Exhibit 20 -- well,
 20 it's Exhibit 33, Mr. Squires, Treasure Valley
 21 Hydrologic Project. And it is -- let me look
 22 here. I believe it is in section -- I have 33-6.
 23 And it's titled -- it's probably about halfway --
 24 a little more than halfway through that large
 25 document.

1 MR. FEREDAY: Excuse me, Mr. Thornton.
 2 It's Exhibit 33, sub what?
 3 MR. THORNTON: 33G, I believe.
 4 MR. ALAN SMITH: Yes, 33G is right.
 5 MR. THORNTON: 33G.
 6 MR. ALAN SMITH: Not 6, G.
 7 MR. THORNTON: Yeah. Sorry.
 8 Q. Okay. So 33G titled -- main title is
 9 "Geochemistry and isotope study."
 10 Have you had a chance to get there?
 11 A. Was there a particular section?
 12 Q. Page Roman numeral -- small Roman
 13 numeral iii. It's on the executive summary.
 14 A. Yes.
 15 Q. Earlier you were discussing the
 16 potential recharge to the Pierce Gulch Sand
 17 Aquifer. And I believe that you said that -- and
 18 correct me if I'm in error -- that the Boise River
 19 provides recharge to the Pierce Gulch Sand
 20 Aquifer?
 21 A. Yes.
 22 Q. And can you tell me how much that is?
 23 A. Not specifically, no.
 24 Q. Is it -- do you have an idea if it's
 25 more than 50 percent?

1 A. 50 percent of what?
 2 Q. Of the recharge to the Pierce Gulch
 3 Sand Aquifer comes from the Boise River.
 4 A. I would say more than 50 percent.
 5 Q. More than 50. Okay. And if you go
 6 to -- excuse me -- Roman numeral iv, small Roman
 7 numeral iv, the next page, on the second bullet
 8 there it states, "Contemporary seepage from rivers
 9 and/or irrigation diversions is not the primary
 10 source of recharge for most deeper regional
 11 aquifers."
 12 And I believe you were a part of
 13 this -- maybe not this particular section, but I
 14 believe your company was part of the Treasure
 15 Valley Hydrologic Report; is that correct?
 16 A. My company wasn't. But I was
 17 appointed by the director at that time in my
 18 capacity as a hydrogeologist for United Water
 19 Idaho.
 20 Q. Okay. Because it says
 21 "Acknowledgments to Ed Squires, Hydro Logic,
 22 Inc.," on page 2 of that same section. It looks
 23 like it's with your company.
 24 A. Well, you know, I guess by the time
 25 this was over, maybe I had formed my company.

1 Q. Okay.
 2 A. But for most of my -- I had resigned
 3 from the Technical Advisory Committee prior to
 4 that. And so I think that's not exactly a true
 5 statement.
 6 Q. Okay.
 7 A. While I was -- while I was a
 8 participating member of the Technical Advisory
 9 Committee, I worked for United Water Idaho.
 10 Q. Okay. And so what information do you
 11 have to refute that bullet point on Roman numeral
 12 iv where this Treasure Valley Hydrologic Project
 13 whose interagency and numerous consulting firms
 14 got together to try to describe the aquifers, and
 15 it appears to be in direct conflict with your
 16 statement in terms of the recharge to the river?
 17 What evidence do you have to refute that bullet
 18 point?
 19 A. Is that the bullet point that starts
 20 "A strong relationship"?
 21 Q. No. "A contemporary seepage from
 22 rivers and/or irrigation diversions." It's the
 23 second -- first bullet on page 4 of the Treasure
 24 Valley Hydrologic Report.
 25 A. Well, I think you're confusing -- as I

1 suggest that there is little natural flow in these
 2 aquifers." It seems to conflict with what you've
 3 been saying.
 4 How do you reconcile that?
 5 MR. FEREDAY: Excuse me. Mr. Thornton, did
 6 you identify which page you were reading from?
 7 MR. THORNTON: I did. Roman numeral
 8 No. iv, page starting on page 3, Roman numeral
 9 iii, first bullet, goes over to Roman numeral iv.
 10 Q. How do you reconcile the difference
 11 there with all the experts that put this report
 12 together? What additional data do you have?
 13 A. Well, I don't think there were a lot
 14 of experts that put this report together. I think
 15 it was very few.
 16 And number two, I think the narrative
 17 is somewhat confusing. The old dates that you're
 18 referring to are waters that were taken from the
 19 clay wells down near Marsing in the Terteling
 20 Springs Mudstone. They don't have anything to do
 21 with the Pierce Gulch Sand Aquifer. It's not
 22 surprising to me they would be quite old.
 23 I don't think that the -- I don't
 24 think there was even a knowledge that there was a
 25 Pierce Gulch Sand Aquifer when this thing was

1 pointed out earlier, we say that the source of
 2 recharge to the Pierce Gulch Sand Aquifer is the
 3 Boise Valley, the Boise Basin. And most of the
 4 water in the Boise Basin originates with the Boise
 5 River.
 6 So I think what this study is saying
 7 is is that leakage directly from the river, in the
 8 narrow confines of the river, is not the primary
 9 source of recharge.
 10 Q. So if you go to Roman numeral iii, the
 11 last bullet, and that paragraph which goes over to
 12 page Roman numeral iv, it identifies "Residence
 13 times of the Treasure Valley groundwater generally
 14 increase with depth and distance along the
 15 regional east to west trending flow path.
 16 Youngest waters entered the subsurface a few
 17 thousand years ago and are found along the
 18 northeastern boundary of the basin adjacent to the
 19 foothills. The oldest waters entered the
 20 subsurface between 20- to 40,000 years ago and are
 21 found in the western regions of the basin near the
 22 Snake River. Groundwater in the deep deltaic
 23 aquifers beneath Boise was recharged 10- to 20,000
 24 years ago. The proximity of these Paleo
 25 groundwaters to the mountain from recharge area

1 written. I think we've added new evidence on the
 2 three-dimensional framework of the Boise Aquifer.
 3 It's now called the Pierce Gulch Sand Aquifer.
 4 We've indicated that the geochemistry shows very
 5 clearly that it's sourced from the Boise River.
 6 Q. So if you go back to page Roman
 7 numeral iii, the second bullet, about halfway
 8 down, it says, "Specific conductance and by
 9 inference total dissolved solids is greatest in
 10 shallow alluvial aquifers and decreases with
 11 depth. This finding indicates that water in
 12 deeper aquifers did not enter the groundwater
 13 regime through the carbon-rich sediments found in
 14 the Treasure Valley soils."
 15 How do you reconcile that statement?
 16 A. I don't need to reconcile it. I
 17 believe that's true. I've known that for many
 18 years. The deeper aquifer, but prior to
 19 diversions for irrigation, is recharged laterally
 20 from the Boise River. It has characteristics very
 21 similar to the Boise River and the flood
 22 irrigation.
 23 Since then, and vertical infiltration
 24 from the surface downward, has dissolved to salts
 25 in the desert environment, and it shows up in the

1 wells. That's very well-known, very clear.
2 There's nothing in my reports that disputes that
3 or contradicts that.

4 Q. So this states that "river going --
5 the river going through the carbon-rich soils."

6 Does not the Boise River go through
7 the carbon-rich soils?

8 A. What this is referring to is applied
9 irrigation water percolating downward vertically
10 through the soils, picking up salts and specific
11 conductants and total dissolved solids. It's not
12 related to the river flowing through any soils.

13 Q. Does not the majority of the --
14 specifically in the upper Boise River, especially
15 historically, drain back into the Boise River,
16 even above Capitol Bridge to Glenwood? Isn't that
17 a fact? Wouldn't that be through the same
18 irrigated fields?

19 A. Well, it hasn't necessarily percolated
20 downward through the soils. It's runoff.

21 Q. Okay. I'm trying to think of which
22 one to go to next. Let's go to -- if you go to
23 Exhibit No. 12, the reanalysis of 16 aquifers.
24 And we'll go back to Appendix A, which is
25 probably, oh, two-thirds of the way back.

1 I believe one of the points you just
2 made in your testimony after lunch was --

3 THE HEARING OFFICER: Okay. What's the
4 reference again, Mr. Thornton?

5 MR. THORNTON: It is --

6 THE HEARING OFFICER: Exhibit 12.

7 MR. THORNTON: Exhibit 12, for right now
8 just Appendix A, and I'll ask this question
9 without specifically going to a figure, which I
10 will do shortly.

11 Q. Did you not state that a starting
12 point in terms of characterizing aquifers was
13 based on borehole geophysics?

14 A. "A starting point"?

15 Q. I think in terms of characterizing the
16 aquifer. I may be misstating that. But the
17 importance of borehole geophysics to help
18 characterize the aquifers.

19 A. We use borehole geophysics to
20 characterize the aquifer.

21 Q. Okay. I just had written down
22 starting point.

23 But you -- would you agree that that
24 is important information to have?

25 A. The borehole geophysics?

1 Q. Yeah.

2 A. I personally do, yes.

3 Q. Okay. And a question that I have, if
4 you go to -- I don't know if there's a figure
5 number, but it's very close near the end, and it's
6 one of your geophysical logs that's identified as
7 test well No. 3.

8 A. Yes.

9 Q. And on this, if I'm interpreting this
10 correctly, on your left-hand column, your far
11 left-hand column, I see a little box that states
12 "Pierce Gulch Sand Aquifer," I have written in
13 there that it appears the top level of that is
14 about 265 feet or so belowground level and the
15 bottom of that Pierce Gulch Sand Aquifer is
16 500 feet.

17 Am I interpreting that correctly?

18 A. Yes.

19 Q. Okay. And then when you go to the
20 right underneath the "Lithology" column, and what
21 questions that I've got is one of them is if you
22 look at the 400-foot level, and right across from
23 that it says, "Gravel inferred by Hydro Logic, but
24 not reported by drilling contractor or evident in
25 cuttings." And what I didn't see in this report

1 but what I pulled off the Department's website
2 were the well driller's report, of which
3 Mr. Purvis can hand out to you folks for --
4 actually for the M3 No. 1, 2, and 3. And if you
5 would go in this packet that we're -- Mr. Purvis
6 is handing out, to page 7.

7 What I'm interested in is your
8 explanation -- when I look at your lithology
9 diagram and your geophysics well for the test well
10 No. 3 and Exhibit 12, and I read from the
11 approximate line of the Pierce Gulch Sand Aquifer
12 at 265, I'm reading something that says --
13 possibly, if I'm reading this correctly, "fine,
14 gray sands and sticky, dark clays," and I see it's
15 mostly all sand all the way down to the -- various
16 descriptions of sand all the way down to the
17 500-foot level.

18 Would you agree with that?

19 A. I would say it's mostly characterized
20 as sand between 300 and 470.

21 Q. And when I look at -- if you'd refer
22 to the well driller's report on page --
23 handwritten in there No. 7, hopefully it's 7,
24 which is the well log for test well No. 3, when
25 I've looked at the lithologic log from 265 to 500

1 and I've looked at what says "clay" versus what
2 says "sand," when I add those up for that depth of
3 about 235 feet of the Pierce Gulch Sand Aquifer,
4 I -- I add up 119 feet of clay and 116 feet of
5 sand. Yet when I look at your lithologic log,
6 it's -- the vast majority is sand.

7 And I'm wondering what do you do to
8 infer that that is sand or gravels in there when
9 the well logs says half of it is clay? If you
10 could help me understand that.

11 A. We don't believe the driller's log.
12 We believe our lithologic log. You believe what
13 you wish to. We're basing -- it says at the top
14 under "Lithology," it says, "This lithologic log
15 is interpreted and drawn from geophysical logs and
16 drill cuttings." It's our experience the drillers
17 often don't know what they're drilling.

18 Q. Who employed what appears to be
19 Treasure Valley Drilling Company to drill the
20 well -- did they not? -- for M3 Eagle?

21 A. Yes.

22 Q. So you're saying you don't trust the
23 people that you employ to give accurate
24 information?

25 A. I'm saying the cuttings that come out

1 of the well don't often always represent what's
2 truly drilled. They're mixed, they're hard to
3 interpret, and they're -- that's why we prefer
4 geophysics. They're not subjective. They report
5 the same thing every time.

6 Q. And so how do you infer sand versus
7 clay on your geophysics log? I see in the far
8 left-hand column you've got a clay and a sand bar
9 down there. So how accurate is that? What can
10 you show me that shows the accuracy of your
11 resistivity or geophysical logs to be more
12 accurate than a well driller determining the
13 diversion between a clay texture and a sand
14 texture?

15 A. I'm not sure I understand your
16 question.

17 Q. What -- what testing, what QA/QC do
18 you have to show that your geophysical log
19 interpretations are more accurate than a well
20 driller doing a textural feel for information as
21 they're seeing the cuttings come up?

22 A. 20 years of experience making wells
23 into sands that are indicated by the geophysics,
24 and seeing others put wells in with respect to the
25 well drillers that don't produce any water.

1 Q. So do you have any documentation, any
2 studies to show that, other than experience?

3 A. I've got a record of several hundred
4 supply wells completed according to geophysics and
5 not drillers' reports that are productive wells.
6 That's the documentation.

7 Q. So you have no journal, no
8 published -- and is there any other data, not
9 necessarily by you, but around the world that
10 identifies the accuracy of geophysical sampling?

11 A. Yes.

12 Q. Do you have that?

13 A. I don't have it, no.

14 Q. So what I see -- and the question is
15 to you again, is that on this particular M3 No. 3
16 well where I add up what the well driller who's
17 right there on site paid by M3, with I'm assuming
18 some oversight by Hydro Logic -- I don't know that
19 for sure -- they said 119 feet of clay, 116 feet
20 of sand, and you're saying probably 90 percent
21 sand?

22 A. Correct.

23 Q. Okay. If we could go to test well
24 No. 2, M3, which is just the previous page. And
25 excuse me, what I would like to bring up on M3

1 that I forgot, test well No. 3.

2 You had said early in your testimony
3 that the Pierce Gulch Sand Aquifer everywhere was
4 more than 250 feet in thickness, and yet I went
5 through probably five or six of these and found
6 them all to be less than 250 feet, some as small
7 as 180 feet of thickness. So I'll try to bring
8 those up for you to comment on, because the depth
9 of M3 No. 3 well is 235 feet, not 250, where you
10 said everything was greater than 250, which makes
11 me wonder about modeling, which I'll get into
12 later.

13 THE HEARING OFFICER: Okay. You have a
14 question --

15 MR. FEREDAY: Objection. We're looking for
16 a question here. Mr. Thornton tends to testify at
17 some length often, and we've been quite
18 conservative in offering objections to this. But
19 we feel that this is dragging out the hearing and
20 not appropriate questioning.

21 THE HEARING OFFICER: Sustained. There was
22 not a question. And I'll strike what was said.

23 Mr. Thornton, if you want to ask
24 specific questions, you can do that.

25 MR. THORNTON: I will do that. Thank you.

1 Q. So is the depth on the Pierce Gulch
2 Sand Aquifer on M3 No. 3 test well 235 feet deep?

3 A. It looks like we've drawn it about
4 that. You know --

5 Q. Okay.

6 A. -- we've identified that with the
7 arrows on the geophysics.

8 Q. Okay. And do the well driller logs on
9 M3's No. 3 show approximately 50 percent clays and
10 50 percent sand?

11 A. I hadn't really tallied it. If you
12 say so, I believe you.

13 Q. Okay. So if we can go to test well
14 No. 2, which is M3 test well No. 2.

15 What is the approximate depth of the
16 M3 test well No. 2 to the PGSA, the thickness of
17 that?

18 A. Well, the PGSA at test well No. 2 is
19 the Pierce Gulch Sand is coming up out of the
20 water. So the saturated thickness at that
21 location is close to 160 feet.

22 Q. So I get 140 feet from 220 to 360.
23 Can you tell me where I'm wrong?

24 A. You get what, sir?

25 Q. I see the water table's at 220 and the

1 bottom of the Pierce Gulch is at approximately
2 360.

3 A. I would say -- I would say that's
4 correct.

5 Q. So it's 140 feet thick; is that
6 correct?

7 A. At that location, yes.

8 Q. Okay. And again, I'd bring up the
9 same thing, when you look at the well logs -- I'll
10 ask you to look at those on page -- for M3 No. 2
11 well log.

12 On page 5, comparing that to what you
13 have on your geophysical well log, how do you
14 account from that bracket -- and I'm asking you,
15 do you see that the PGSA at 220 to 360, would you
16 agree that I'm somewhat close that the clay
17 identified by the well log is 128 feet of clay and
18 12 feet of sand?

19 A. If you say so.

20 Q. Could you describe to me in this case
21 where there appears to be large layers, continuous
22 layers of clay, how a well driller could be so
23 incorrect on the textural feel of the clay from
24 that of the sand?

25 A. Well, there's a lot of variables that

1 go along with mud drilling. Number one, you're
2 drilling with mud. That's the type of drilling
3 method. So you're drilling with clay. The entire
4 drill stream is filled with clay.

5 Depending on the well driller's
6 capability and his mud pump and how fast he drills
7 and what kind of bit he has in there, oftentimes
8 what comes out doesn't look like what he's
9 actually drilling.

10 Do I think there's 12 feet of sand in
11 there and the rest is clay? No, I don't.

12 Q. So if we can go to test well No. 1,
13 previous page, M3 test well No. 1. And also to
14 refer to the well logs for M3 test well No. 1,
15 which is on page 1.

16 And I would -- were these all the
17 three wells, M3 No. 1, 2, and 3 test wells all
18 drilled by Treasure Valley Drilling?

19 A. Yes, they were.

20 Q. Okay. And I see where on the M3
21 No. 1, on your lithology again, where you've
22 inferred gravel by HLI in a couple of places.

23 Do you see that?

24 A. Yes.

25 Q. Okay. And the overall thickness of

1 this PGSA is 232 feet.

2 Would you agree from 300 and -- what
3 is it? -- 58 feet to -- or is it to 590 feet?

4 A. Yes.

5 Q. So that's not greater than 250, is it?

6 A. No.

7 Q. Okay. And then where I added up the
8 sand and clays here, I ended up getting about 36
9 of clay and 90 feet or so -- excuse me. I get
10 about 98 feet of clay and 134 feet of sand,
11 almost -- different than the other one.

12 So what made -- what was the
13 difference between the person texturally feeling
14 the samples and being closer to what you were
15 saying apparently on this?

16 MR. FEREDAY: Mr. Hearing Officer, we're
17 going to have to object again here. I believe
18 this is beyond the scope. I have been waiting
19 for -- I have assumed that this was setting the
20 foundation for some questioning that dealt -- that
21 deals with what we were -- what he was testifying
22 on in direct, and I haven't yet heard it. So
23 therefore we would object to it being beyond the
24 scope.

25 THE HEARING OFFICER: Well, I'll sustain

1 the objection because, Mr. Thornton, I didn't
2 understand the question at all, and I don't think
3 Mr. Squires could understand what the question
4 was.

5 MR. THORNTON: Okay.

6 THE HEARING OFFICER: I'll just tell you,
7 Mr. Thornton, you put so much in the narrative of
8 the question with qualifiers in it that it becomes
9 so that it's not understandable.

10 MR. THORNTON: Okay.

11 THE HEARING OFFICER: I think you need to
12 ask more direct questions.

13 MR. THORNTON: Thank you.

14 THE HEARING OFFICER: I'll also tell you
15 that the relationship, in my opinion, to the
16 examination of Mr. Squires on rebuttal to the
17 subjects that he testified about is very obscure
18 to me, if there is a relationship at all. It's
19 very obscure.

20 And the only relational tie that I can
21 establish between your questions and what you're
22 asking Mr. Squires is that he testified about
23 identification of the Pierce Gulch Aquifer -- or
24 Pierce Gulch Sand Aquifer by its signature, its --
25 in his graphs, in his geophysical graphs. And

1 that's the only relationship that I can -- I can
2 establish. So I think we're going through
3 information that we don't need. Now, that's my
4 take.

5 MR. THORNTON: Can I respond to that?

6 THE HEARING OFFICER: Yes.

7 MR. THORNTON: What I'm apparently not
8 doing a good job of and -- I apologize for that --
9 is important to this whole discussion on the
10 aquifer is what is the characteristic of that
11 aquifer. We hear it is a robust, sand-filled
12 aquifer.

13 What I've simply gone through is
14 looking at M3's own well logs. I've gone through
15 several more, and easily 50 percent of that depth
16 is identified as clay. And to me it's suspect.
17 And I've seen and heard nothing from Mr. Squires
18 to show where his geophysical well logs are more
19 accurate than a well driller identifying sand and
20 clay, which anybody that's done that knows is a
21 very simple thing to tell the difference between
22 sand and clays.

23 MR. FEREDAY: Objection. He's testifying
24 again. The witness has said several reasons why
25 cuttings can often -- often can be mixed and

1 confused as they come up the well.

2 THE HEARING OFFICER: Okay. I want to move
3 on, Mr. Thornton. And I will tell you that the
4 Department and the Hearing Officer recognizes
5 geophysical logging as a method of determining
6 what the strata is.

7 And Mr. Squires has, at least in the
8 Hearing Officer's opinion, presented sufficient
9 information about his long-term experience in this
10 area to be able to make that interpretation. He's
11 also explained why his geophysical logs and what's
12 shown there are different than what's on the well
13 construction report.

14 And consequently, I don't have to -- I
15 don't need to go through every one of these well
16 construction reports.

17 So I'll sustain the objection. Let's
18 move on. Thank you.

19 MR. THORNTON: What I would like to do, if
20 I could, is to enter as an exhibit the well-log
21 information as part of the record.

22 THE HEARING OFFICER: Okay. You're
23 referring to the document numbered -- with numbers
24 1 through 8 that's unmarked at the present time?

25 MR. THORNTON: Yes, correct.

1 THE HEARING OFFICER: Do you know what the
2 next available number is for you?

3 MR. THORNTON: I do not. Sorry.

4 THE HEARING OFFICER: It seems to me we
5 were -- let's go off the record for a second.

6 (Discussion.)

7 (Exhibit 868 marked.)

8 THE HEARING OFFICER: We're recording
9 again. The document you moved for admission of,
10 Mr. Thornton, has been marked as Exhibit 868.

11 Mr. Fereday?

12 MR. FEREDAY: No objection.

13 THE HEARING OFFICER: Okay. It's received
14 into evidence.

15 (Exhibit 868 admitted.)

16 THE HEARING OFFICER: Mr. Thornton.

17 MR. THORNTON: Yeah.

18 Q. Mr. Squires, at the start of today's
19 testimony I've written down here that you
20 identified that you had investigated a number of
21 failed wells.

22 Is that correct?

23 MR. FEREDAY: Objection. I don't believe
24 that was the testimony.

25 THE HEARING OFFICER: Overruled.

1 Mr. Squires can correct the question if that's not
2 correct.

3 THE WITNESS: I am sorry. I can't -- I'm
4 not recollecting that, the context of that.
5 Perhaps you can --

6 Q. (BY MR. THORNTON): We were talking --
7 in general you identified that in the Eagle area
8 it was one of the densest well fields that you
9 had -- you were familiar with; is that correct?

10 A. That's correct.

11 Q. I believe, at least what I've written
12 down here -- you can correct me -- is that you had
13 investigated specific failed wells, not dry ones,
14 wells that just weren't working for some reason;
15 is that correct?

16 A. I can't recall any, John.

17 Q. So have you investigated any domestic
18 wells in the Eagle area that people have said
19 failed?

20 A. No.

21 Q. Of the wells that Mr. Smith had
22 identified on that map -- I can't remember the
23 exhibit number, but I think you remember the
24 map -- there were numerous wells that were
25 described as replacement wells.

1 Have you investigated -- personally
2 investigated on site any of those wells?

3 A. No, sir.

4 Q. Okay. But another statement you had,
5 did you not, said that "I have looked at all the
6 wells in north Ada County"?

7 A. I said I looked at the records in the
8 IDWR well base as part of my evaluation.

9 Q. And you looked at thousands of those;
10 is that correct?

11 A. Yes.

12 Q. How many of those on the ground have
13 you looked at?

14 A. Very few.

15 Q. And again, have you looked at any of
16 them that were failed for some reason?

17 A. I don't know of any that failed.

18 Q. Okay. Any of them that weren't
19 pumping water you looked at?

20 A. I haven't looked at any domestic wells
21 per se as part of this. I've looked at the
22 records. I haven't gone to any domestic well
23 sites. We offered to go to the domestic well
24 sites, and we were prevented from doing so.

25 Q. So as part of your business, you

1 haven't investigated any wells, domestic wells,
2 that were not producing water for whatever reason?

3 A. No.

4 Q. And yet I believe I heard you say
5 you've only known of one well -- today you said
6 one well, several weeks ago you said two wells in
7 the Treasure Valley that have gone dry; is that
8 correct?

9 A. I can remember one well that I have
10 personal experience with that did go dry in the
11 Treasure Valley.

12 Q. So on this Exhibit 76 that was entered
13 in today, I believe, which you talked to at great
14 length, how many of these wells did you physically
15 go to?

16 A. None of those. None at all.

17 Q. You're basing that off of what
18 information? Your knowledge of this is based off
19 of?

20 A. The questionnaires that were submitted
21 and the well driller's reports at IDWR.

22 Q. Didn't I just hear you say a little
23 while ago for the M 1, 2, and 3 test well sites,
24 the well logs aren't any good?

25 A. I said that I didn't agree with the

1 lithological description.

2 Q. And yet you seem, do you not, yet to
3 seem, base your opinion on all these based on the
4 same information that was presented at -- just a
5 little while ago on M3 1, 2, and 3?

6 A. That is all that's available, sir.

7 Q. So sometimes it's good enough
8 information?

9 A. It's all we have.

10 Q. I have written down here in your
11 testimony this morning that you testified -- did
12 you not testify that domestic wells may be a
13 source of recharge to the PGSA?

14 A. Could be.

15 Q. And have you proposed this theory
16 prior to this morning?

17 A. I've been campaigning about unsealed
18 wells for ten years or longer and the leakage that
19 occurs between them. It's no secret.

20 Q. So was that theory reflected in the
21 modeling of the PGSA prepared by the Pacific
22 Groundwater Group?

23 A. No, it wasn't.

24 Q. If we could refer to a handout that
25 was provided by M3 this morning, Exhibit 77. If

1 you'd get a chance to get that in front of your
2 hands. And Exhibit 77 on page -- the first page,
3 and the bottom right, figure D, do you see that?

4 A. Yes.

5 Q. And there's been quite a bit of
6 testimony this morning going over some of your
7 thoughts and potential inaccuracies of Mr. McVay
8 with the Department of Water Resource on that
9 figure D.

10 The question I have to you is, the
11 last set of years, 2002 to 2008 was showing an
12 upward trend with that data?

13 A. Yes.

14 Q. So if you were to take the data and do
15 a regression line from 1990 to 2008, what would
16 that tell you? Would that be an increasing or
17 decreasing water table?

18 A. It would be decreasing.

19 Q. Okay. And then you broke the data out
20 to better display what's happening; is that
21 correct?

22 A. Yes.

23 Q. Okay. So what if you were to take the
24 last three years of data -- not the last,
25 whatever, seven years of data, just the last

1 three.

2 What does the last three data points
3 in figure D, what would that tell you?

4 A. It looks like there might be a slight
5 declining trend.

6 Q. Well, isn't it true you could pretty
7 much -- could you not pick whatever data points
8 you wanted and make an interpretation on this, in
9 terms of decline or increasing water tables?

10 A. Well, I think someone could do that,
11 yes.

12 Q. Okay. Is there a reason why you
13 didn't pick the last three years?

14 A. No.

15 Q. Okay. And, Mr. Squires, I believe you
16 testified, did you not, this morning that the
17 Eagle Pines well, that the reading in March of
18 2001 was, quote, "well into the irrigation
19 season"?

20 A. I'd have to look at that diagram.

21 Q. Yeah, if you could do that, please.

22 THE HEARING OFFICER: What's the reference,
23 Mr. Thornton?

24 MR. THORNTON: You got me on that one.

25 THE WITNESS: It's tab 2 of this document.

1 MR. ALAN SMITH: Tab 2 of Exhibit --

2 MR. JASON SMITH: What exhibit is that in?

3 MR. THORNTON: It's Exhibit 76.

4 MR. EDWARDS: It's Exhibit 76.

5 MS. GIBSON: Can we go off the record while
6 I change the tape real quick?

7 THE HEARING OFFICER: Yeah, let's go off
8 the record.

9 (Discussion.)

10 THE HEARING OFFICER: We're recording
11 again.

12 Q. (BY MR. THORNTON): And then if you
13 look at Eagle Pines well, is that on tab 2? Okay.
14 It is.

15 Do you see that, Mr. Squires?

16 A. Yes.

17 Q. And they had a reading in March of
18 2001; is that correct?

19 A. Yes.

20 Q. And then I believe you identified that
21 that was, quote, "well into the irrigation
22 season."

23 Do you remember stating that?

24 A. Well, it's 15 days into the irrigation
25 season.

1 Q. And are you aware that the Farmers
2 Union ditch does not typically contain water until
3 April 1st?

4 A. Sometimes later than that.

5 Q. Yeah. So would that be -- who is
6 irrigating as of March 1st?

7 A. Well, somebody is because the water
8 levels are declining and it is irrigation season.
9 Golf courses are irrigating. Schools are
10 irrigating.

11 Q. So you've seen golf courses irrigating
12 in March?

13 A. Yes, I have several clients that are
14 golf courses.

15 Q. You've seen farms being irrigated in
16 March?

17 A. Some years, yes.

18 Q. And so you really believe that
19 March 15th is well into the irrigation season?

20 A. I didn't say March 15th. I said
21 March 30th. That's what the water level is
22 stating.

23 Q. March 30th is well into the irrigation
24 season?

25 A. Well, it's 15 days into the irrigation

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1 season. Schools, subdivisions, homes all
2 irrigate.
3 Q. Would you agree that the groundwater
4 levels are typically highest before the irrigation
5 season?
6 A. Generally speaking, yes. In this
7 aquifer, definitely.
8 MR. THORNTON: Can we go off the record for
9 just a --
10 THE HEARING OFFICER: Yes.
11 (Discussion.)
12 THE HEARING OFFICER: We are recording
13 again.
14 Q. (BY MR. THORNTON): And if we could go
15 to -- have you go, Mr. Squires, to Exhibit No. 50.
16 And that's the IDWR staff report. And if you
17 would go to -- and the back in the last of the
18 appendix, IDWR staff memo, let's see, and it's
19 Appendix -- it's Appendix A near the back, from
20 Mr. McVay.
21 A. Yes.
22 Q. Okay. And if you could turn to the
23 graph of the water level for its very last well.
24 The last pneumonics on it is 32DBD1.
25 A. Yes.

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1 Q. And do you know that -- are you aware
2 that this well is located near the intersection of
3 Beacon Light and Eagle Road?
4 A. I wasn't aware of that specifically.
5 Q. And you talked this morning, did you
6 not, a lot about Mr. McVay's work in water-level
7 declines; is that correct?
8 A. Yes.
9 Q. Okay. And for this particular well
10 here located close to a lot of the protestants,
11 could you describe how you can get anything else
12 other than a declining water table from 1996 to
13 2008?
14 MR. FEREDAY: Mr. Hearing Officer, we
15 believe that this is beyond the scope, because
16 Mr. Squires testified specifically about the
17 selection process that was used in those -- by
18 Mr. McVay illustrating that those two wells, it
19 didn't refer to this well, but at least that's the
20 way we see it. We believe it's beyond the scope.
21 THE HEARING OFFICER: Overruled.
22 THE WITNESS: Based on the few data points
23 that are on this graph, it looks like there's a
24 declining water level.
25 Q. (BY MR. THORNTON): And then if you'd

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1 go back to -- to the figure -- Exhibit 77, once
2 again. And this is obviously information you
3 provided this morning.
4 So on the first page of that exhibit
5 for the well pneumatic -- last pneumonics are
6 3DAD1, from 1996 to 2008, is there a declining
7 water table?
8 A. Over part of the period there appears
9 to be, yes.
10 Q. From 1996 to 2008, is there a
11 declining water table?
12 A. Doesn't appear to be, no.
13 Q. So is the water table in 2008 higher
14 than in 1996?
15 A. No.
16 Q. If you'd go to the second page of that
17 same exhibit. And that is a well identified with
18 the pneumonics as 12CCA1.
19 From 1996 to 2008, is the water table
20 higher or lower in 2008 as compared to 1996?
21 A. It's lower.
22 Q. Thank you.
23 Now, if you could turn to Exhibit 867.
24 And 867 was submitted by Mr. Greg Taylor, who's a
25 public witness, who replaced his well just this

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1 year.
2 And were you here during his public
3 witness testimony?
4 A. I was.
5 MR. FEREDAY: Mr. Hearing Officer,
6 objection here. We believe that 867 was not
7 admitted into evidence.
8 MR. THORNTON: It was.
9 MR. FEREDAY: But if it was, then we --
10 MR. THORNTON: I've got that it was.
11 MR. FEREDAY: -- stand corrected. But I
12 thought it wasn't.
13 THE HEARING OFFICER: What do your records
14 show?
15 THE WITNESS: I have it was admitted.
16 MR. FEREDAY: It was admitted?
17 MR. THORNTON: It was.
18 THE HEARING OFFICER: It shows that it was.
19 MS. GIBSON: That's what I show.
20 MR. THORNTON: Yeah.
21 MR. FEREDAY: I stand corrected. Thank
22 you.
23 Q. (BY MR. THORNTON): So if you'd
24 turn -- and the pages in this document are not
25 numbered. But if you'd turn to a Department of

1 Water Resource letter dated March 26th of this
 2 year, 2009.
 3 A. Yes, sir.
 4 Q. And this is a letter from Mr. Dennis
 5 Owsley with the Department of Water Resource.
 6 And do you see where Mr. Owsley's
 7 letter to Mr. Taylor, second sentence says, "On
 8 March 24th, 2009, your irrigation well was dry?"
 9 A. Yes.
 10 Q. And I believe in some of your
 11 testimony this morning you had stated, did you
 12 not, that people were replacing wells that maybe
 13 didn't need to be just because the well drillers
 14 were recommending it?
 15 A. I think that's been known to happen.
 16 Q. You think it's been known to happen to
 17 the dozen or so wells that were identified by
 18 Mr. Smith?
 19 A. Well, I couldn't say. All I could say
 20 is that this well was filled in, that it would
 21 produce more water and have less drawdown if it
 22 was not filled in.
 23 Q. Was this well dry?
 24 A. There's no proof that it was.
 25 Q. So Mr. Owsley isn't competent enough

1 to tell us if the well is dry?
 2 A. I think that his data that he said he
 3 measured down to 125 feet is inconclusive. It
 4 shows that the tape was held up, because the well
 5 is not 125 feet deep. So it's not a conclusive
 6 measurement. The measurement after this later in
 7 the season by the driller said the water level was
 8 105 feet.
 9 Q. And the fact that Mr. Taylor's
 10 testimony saying that they did not have water
 11 pumped is not conclusive evidence or strong
 12 evidence for a dry well?
 13 A. No.
 14 Q. Okay. If I could have you turn back
 15 to Exhibit No. 16. And that's your hydrologic
 16 model. And if you would refer to page 32 and
 17 page 33.
 18 And was this report prepared by Hydro
 19 Logic for M3?
 20 A. Yes, it was a cooperative report
 21 between Hydro Logic, Inc., and Pacific Groundwater
 22 Group in Seattle, Washington.
 23 Q. Okay. And then on page 32 and then
 24 going over to the top of page 33 underneath a
 25 section titled "M3 model prediction of impacts" --

1 A. Page 33?
 2 Q. On page 3- -- well, on page 31 it
 3 starts a section titled "M3 model prediction of
 4 impacts."
 5 A. Okay.
 6 Q. And then that goes on for a couple of
 7 pages. So towards the bottom of page 32 and going
 8 to the top of page 33, it states that "Because of
 9 the model, the hydrologic model, the M3 model, it
 10 was not directly calibrated to the shallow
 11 aquifer. These drawdown predictions can only be
 12 considered an approximation." It goes on to say,
 13 "These predictions can only serve as guidelines
 14 until long-term monitoring is implemented." It
 15 goes on to say, "Direct monitoring of the shallow
 16 aquifer (currently in process) will likely be a
 17 much better indication of how the shallow aquifer
 18 responds to pumping from the Pierce Gulch Sand
 19 Aquifer."
 20 And then on page 33 underneath section
 21 "M3 model overview of results" it states --
 22 THE HEARING OFFICER: Okay. Let's
 23 separate.
 24 MR. THORNTON: Okay. All right.
 25 THE HEARING OFFICER: Because we're mixing

1 lots and lots of information.
 2 MR. THORNTON: Okay.
 3 THE HEARING OFFICER: I want a question,
 4 Mr. Thornton --
 5 MR. THORNTON: Okay. Thank you.
 6 THE HEARING OFFICER: -- not just a
 7 regurgitation of what's in there.
 8 What's your question?
 9 Q. (BY MR. THORNTON): Okay. The
 10 question is, what model is used to predict the
 11 impacts to the shallow groundwater aquifer that
 12 many of the protestants' wells, by your own
 13 admissions, are in?
 14 A. We didn't evaluate the shallow
 15 overlying aquifer in our model.
 16 Q. How is M3 going to assess potential
 17 impacts to the few thousands of wells that are in
 18 potentially those shallower aquifers?
 19 A. I don't think M3 intends to.
 20 Q. So you have not analyzed the potential
 21 impacts to shallow aquifers in the senior water
 22 rights?
 23 A. What we've done, sir -- what we've
 24 done, sir, is we've analyzed the impacts to the
 25 target aquifer, which is the Pierce Gulch Sand

1 Aquifer. We believe that the effects to the
2 Pierce Gulch Sand Aquifer are very minimal. We've
3 also said that the impacts to the overlying
4 aquifer would be less, therefore they're less than
5 significant. So we're not that concerned with the
6 effects beyond what we'll be monitoring in the
7 Pierce Gulch Sand Aquifer.

8 Q. Again, you have not modeled the
9 potential impacts to the shallow aquifers; is that
10 right?

11 A. That's correct.

12 Q. And then if we go on to page 33, the
13 section titled "M3 model overview of results," it
14 states, "However, because the M3 model was not
15 calibrated to aquifers other than the Pierce Gulch
16 Sand Aquifer, it cannot be used to accurately
17 predict aquifer response from pumping in any
18 aquifer besides the Pierce Gulch Sand Aquifer,
19 additional aquifer testing to generate calibration
20 data, followed by specific calibration for the
21 Willow Creek Aquifer, the shallow unnamed aquifer,
22 and aquifers in the Payette River Valley would be
23 necessary to use the M3 model for predictions in
24 these aquifers."

25 Do you agree with that statement --

1 A. Yes.

2 Q. -- being accurate?

3 A. Yes, I do agree with it.

4 Q. Okay. So if you would in Exhibit 50,
5 which is the IDWR's staff memo, turn to page 22
6 and figure 3.

7 A. Yes.

8 Q. So the drawdown on this depiction in
9 figure 3, does it not show, down at the Boise
10 River several miles to the south of the potential
11 location of M3 wells, show a drawdown of as much
12 as 20 feet?

13 A. It appears to, yes.

14 Q. And do your report's not identify that
15 artesian pressure is likely to be lost between
16 Eagle and Star due to those pumping?

17 MR. FEREDAY: Objection. This has been
18 asked and answered in previous testimony, and it
19 wasn't testified to today on direct.

20 THE HEARING OFFICER: Okay. Mr. Thornton,
21 what relationship does this question have to the
22 rebuttal testimony of Mr. Squires?

23 MR. THORNTON: The potential effects --
24 he's describing the Pierce Gulch Sand Aquifer's
25 robust. I would contend that when I see drawdowns

1 20 feet deep down to the Boise River several miles
2 south, that gets me wondering about the robustness
3 of this Pierce Gulch Sand Aquifer.

4 THE HEARING OFFICER: I think -- in
5 previous testimony, I think there were -- these
6 particular figures that were produced by the
7 Department were discounted by Mr. Squires. We're
8 looking back at them again, or at least by their
9 witnesses.

10 I'll overrule the objection now, but I
11 don't want a lot of exploration in this area,
12 Mr. Thornton.

13 MR. THORNTON: Okay.

14 Q. So what did the M3 model show as
15 drawdown near the Boise River?

16 A. Well, it's on the next page.

17 Q. Correct.

18 A. On page 23.

19 Q. Right. And that drawdown amount was
20 approximately?

21 A. 5 feet.

22 Q. So in your mind, that is -- will have
23 no effect on people's wells?

24 A. Well, I didn't say that it wouldn't
25 have any effect.

1 Q. Okay.

2 A. I said it would have 5 feet of
3 drawdown within the Pierce Gulch Sand Aquifer.

4 Q. Okay.

5 A. And I believe that those estimates are
6 very conservative. I don't -- they're presented
7 as conservative. I don't anticipate there will be
8 that much drawdown.

9 MR. THORNTON: That's all my questions.

10 Thank you, Mr. Hearing Officer.

11 THE HEARING OFFICER: Thank you,
12 Mr. Thornton.

13 Mr. Smith?

14 MR. ALAN SMITH: Could we take a short
15 break?

16 THE HEARING OFFICER: Yes. Ten minutes.
17 Let's go off the record.

18 (Recess.)

19 THE HEARING OFFICER: Okay. Let's go back
20 on the record.

21 Mr. Smith, we're back on the record.

22 Your turn to examine Mr. Squires.

23 MR. ALAN SMITH: Thank you.

24 ///

25 ///

1 CROSS-EXAMINATION
 2 BY MR. ALAN SMITH:
 3 Q. Mr. Squires, are you telling us that
 4 all these 30-year-old wells that have been
 5 functioning are now going dry or having to be
 6 replaced because of some other problem other than
 7 water levels?
 8 A. What I testified to, sir, is that I
 9 didn't see any conclusive evidence that declining
 10 water levels was the reason for their demise.
 11 Q. Are you --
 12 A. They needed to be replaced.
 13 Q. Are you --
 14 A. Sorry.
 15 THE HEARING OFFICER: Let's keep
 16 separation. Thanks.
 17 Q. (BY MR. ALAN SMITH): Go ahead.
 18 A. I was just going to say that I didn't
 19 see evidence that declining water levels was the
 20 cause for them having to be replaced, if they
 21 needed to be replaced.
 22 Q. Are you aware that the Travis Reche
 23 well ceased to produce water in their domestic
 24 well a short time after United Water put that
 25 larger pump in in 2005?

1 MR. FEREDAY: Objection. I believe this is
 2 beyond the scope, unless that is one of the wells
 3 that was in the questioning.
 4 MR. ALAN SMITH: It is. It is the 2005
 5 well that Jason Smith testified about, the first
 6 one that went beyond production.
 7 THE HEARING OFFICER: Okay. Can we refer
 8 to a document, Mr. Smith?
 9 MR. ALAN SMITH: Well, it would be on that
 10 map, but I don't know the exhibit number, and also
 11 on the bar graph. I think it was 4- --
 12 MS. GIBSON: 424.
 13 THE HEARING OFFICER: So you're --
 14 MR. ALAN SMITH: 424, I think.
 15 THE HEARING OFFICER: So you're referring
 16 to your exhibits?
 17 MR. ALAN SMITH: Correct.
 18 THE HEARING OFFICER: And not to the
 19 exhibits that were brought in during Mr. Squires'
 20 testimony?
 21 MR. ALAN SMITH: 2005A, the foundation for
 22 the -- the foundation for the bar graph that I
 23 think was 421.
 24 MS. GIBSON: 421.
 25 MR. ALAN SMITH: And also on the map, 424.

1 MR. FEREDAY: Well, we have the same
 2 objection. He did not testify about that well on
 3 rebuttal.
 4 MR. ALAN SMITH: The rebuttal testimony was
 5 about Jason Smith's testimony.
 6 THE HEARING OFFICER: Okay. Let's go off
 7 the record a minute.
 8 (Discussion.)
 9 THE HEARING OFFICER: Okay. All right.
 10 Now let's go back on the record and refer to that,
 11 and it's within the binder, I assume; is that
 12 correct? No, it's not.
 13 MR. LAWRENCE: It was submitted at the last
 14 hearing date as a loose exhibit.
 15 THE HEARING OFFICER: Well, I don't show
 16 that either, Debbie.
 17 MS. GIBSON: 72?
 18 THE HEARING OFFICER: There it is. I'm
 19 sorry. I do have it. Okay.
 20 And it's been referred to earlier in
 21 testimony?
 22 MR. LAWRENCE: Correct.
 23 THE HEARING OFFICER: Okay. All right.
 24 Referring to the spreadsheet No. 72.
 25 Mr. Smith.

1 Q. (BY MR. ALAN SMITH): All right. I'll
 2 repeat my question. Are you aware that the Travis
 3 Reche well ceased to produce water for domestic
 4 purposes a short time after United Water put in
 5 the larger capacity well in 2005?
 6 A. Do you mean the well that's listed
 7 here, or do you mean the well that preceded this
 8 well?
 9 Q. The well that's listed here, the
 10 replacement well.
 11 A. So the well -- this well was -- had --
 12 this well was drilled in 2005, and it had to be
 13 replaced shortly thereafter?
 14 Q. No. This was the replacement well.
 15 A. Okay. Well, there -- we were not
 16 aware, Jason did not provide, and we could not
 17 find a well driller's report for the
 18 replacement -- for the original well. So I have
 19 no information on the original well, how deep it
 20 was.
 21 And which United Water well are you
 22 referring to? Floating Feather?
 23 Q. The Floating Feather United Water
 24 well.
 25 A. Well, I wasn't aware of that timing.

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1 But I know there are a lot of shallow and deep
2 wells around the Floating Feather well, many of
3 which that we measured, and they were unaffected
4 by the Floating Feather well, including the Miller
5 and Vale well, which are essentially across the
6 street, at 100 feet, and measured those for five
7 years and could see no effect in those.
8 So I would find it surprising that
9 this well was caused to be drawn down by the
10 Floating Feather well and needed to be replaced.
11 Q. Okay. Let's go down four squares
12 there to the Travis Reche well.
13 Are you aware that the Harmon well was
14 replaced because water level in the domestic well
15 had dropped considerably and they didn't want to
16 wait until they were out of water?
17 A. I -- well, I wasn't aware of that, no.
18 MR. FEREDAY: We're going to have to object
19 here. There's no foundation for these statements.
20 We don't know where this is coming from.
21 MR. ALAN SMITH: This is on --
22 MR. FEREDAY: There's no foundation for his
23 statement that they had considerable water-level
24 decline and drilled to anticipate it being dry or
25 some such allegation.

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1 THE HEARING OFFICER: Mr. Smith, response?
2 MR. ALAN SMITH: The Harmon well is on
3 Eagle Road north of Beacon Light.
4 THE HEARING OFFICER: No, I have an
5 objection, a pending objection, Mr. Smith, I need
6 to rule on. If you heard the objection --
7 MR. ALAN SMITH: It was in the 20 wells
8 that Jason Smith testified to, and it's shown in
9 Exhibit 72.
10 THE HEARING OFFICER: Well, I recognize
11 that. I think the nature of Mr. Fereday's
12 objection -- and please correct me, Mr. Fereday,
13 if I mischaracterize it -- but I think the nature
14 of his objection is that you're making a statement
15 about something that happened. In other words,
16 you're actually testifying saying that certain
17 things happened and then asking Mr. Squires if
18 he's aware of it. Mr. Squires is saying no.
19 And it seems to me there ought to be
20 some foundation about Mr. Squires' knowledge
21 before you then make that statement. So it seems
22 to me that there's some foundation about the --
23 that needs to be laid with Mr. Squires about
24 whether he knows anything about it or not.
25 So I think that's the nature of the

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1 objection, is it not, Mr. Fereday?
2 MR. FEREDAY: That's correct.
3 THE HEARING OFFICER: Okay. So I'll
4 sustain the objection, because I think you're
5 using it, Mr. Smith, as a way of getting evidence
6 into the record, when Mr. Squires doesn't know
7 anything about the level at all. So I want some
8 foundation. So I'll sustain the objection to
9 that.
10 Q. (BY MR. ALAN SMITH): Mr. Squires, did
11 you inspect the Taylor well after Mr. Taylor was
12 told it was dry?
13 A. No, sir.
14 Q. And you're not aware of any wells that
15 went dry except for one?
16 A. I said that I was aware of one well
17 out in the southeast Boise area, the Arrington
18 well that was just a few hundred feet from a new
19 Micron well, and a water table aquifer that did,
20 in fact, go dry.
21 Q. Did you hear Mr. Sorge testify that
22 Gary Coonce, the well driller, told him his well
23 was dry?
24 A. Mr. Who?
25 Q. Mr. Sorge, Tom Sorge, one of the

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1 public witnesses.
2 A. I am not familiar with his well or --
3 Q. Did you hear him say that the well
4 driller, Gary Coonce, had told him his well went
5 dry?
6 A. I honestly can't recall that, but he
7 might have. I just don't recall it.
8 Q. You are aware of Mr. Owsley's letter
9 that told Mr. Taylor his well had no water in it?
10 A. I am aware of that, yes.
11 Q. Did you hear Mr. Lawton, another
12 public witness, testify that his well went dry and
13 was not producing water?
14 A. I did hear that testimony, yes.
15 Q. Would you take a look at Exhibit 50 on
16 page 20. If you'd look at paragraph 4 there, the
17 last part of it, "Groundwater level declines were
18 observed in the areas between northwest Boise and
19 Eagle, Petrich 2004, page 14."
20 THE HEARING OFFICER: Okay. Where are you
21 at again?
22 MR. ALAN SMITH: Exhibit 50, page 20, the
23 staff memorandum.
24 THE HEARING OFFICER: Okay. And you're
25 starting to read where?

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1 MR. ALAN SMITH: The third -- the third
2 paragraph down, third or fourth, the last part of
3 that last sentence quoted by the IDWR staff as
4 well as Mr. Petrich. "Groundwater level declines
5 were observed in the areas between northeast Boise
6 and Eagle as part of Petrich's 2004."
7 Q. Are you aware of that statement? Do
8 you disagree with that?
9 A. I'm aware of that statement. I can't
10 disagree or agree with it. I'm not familiar with
11 the information.
12 Q. Didn't Mr. Vincent and Mr. Owsley in
13 that memorandum, and also Mr. McVay in his
14 addendum to it, also state that water levels were
15 declining in that area?
16 A. They did state that.
17 Q. Are they all wrong except you?
18 A. I don't have an answer to that
19 question.
20 Q. Would you look at Exhibit 50,
21 page 23 -- page 22. I'm sorry. The first
22 paragraph there below the map states, "Impacts to
23 water levels of wells completed in the PGSA are
24 inevitable. Drawdowns should be expected to
25 reduce or eliminate discharge from solely artesian

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1 wells and may require pumps to be installed." And
2 it also goes on to state --
3 THE HEARING OFFICER: I don't find your
4 reference, Mr. Smith. I'm on page 22.
5 MR. ALAN SMITH: 23.
6 THE HEARING OFFICER: Okay.
7 MR. ALAN SMITH: I'm sorry. I had the
8 wrong page.
9 THE HEARING OFFICER: Okay. And then what
10 paragraph?
11 MR. ALAN SMITH: First paragraph below the
12 map.
13 THE HEARING OFFICER: Okay. And you're
14 starting --
15 Q. (BY MR. ALAN SMITH): Would you read
16 that statement for us?
17 MR. FEREDAY: And we would object to the
18 reading of the statement. It has been read and
19 testified to on several occasions. Asked and
20 answered of this witness. He did not testify
21 about this part of his report in rebuttal, and I
22 think it's a waste of time to go through it again.
23 MR. ALAN SMITH: I believe the witness did
24 state that the protestants could deepen their
25 wells.

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1 MR. FEREDAY: I'm referring to your
2 question about this statement in his report, which
3 has been asked about before of this witness.
4 THE HEARING OFFICER: Okay. Overruled at
5 this time.
6 Mr. Smith.
7 Q. (BY MR. ALAN SMITH): You may answer.
8 A. I'm sorry, Mr. Smith. Would you just
9 repeat the question. I kind of lost track there.
10 Q. I'm asking you about the statement
11 that the impacts to water levels in the wells is
12 inevitable and the pumps may have to be replaced
13 and that artesian wells may have to require pumps.
14 Do you disagree with that?
15 A. No, sir.
16 Q. Let's go to the Eagle Pines well.
17 THE HEARING OFFICER: And you want to refer
18 to Applicant's Exhibit 76, Mr. Smith?
19 Q. (BY MR. ALAN SMITH): I want to refer
20 you to Exhibit 45, page 38, the second paragraph,
21 about the third or fourth sentence down. That
22 sentence reads, "The well driller responsible for
23 the abandonment of the old well measured the water
24 level at 112 feet in May of 2001, two months into
25 the irrigation season." I believe you testified

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1 earlier that that measurement was taken in March.
2 So is your statement that it was two
3 months into the irrigation season incorrect?
4 A. Well, it appears that there may be a
5 typo. Either March or April, but either one -- or
6 May. If it happens to be May, then it's much
7 farther along in the irrigation season, so my
8 point is accentuated. Instead of 15 days into the
9 irrigation season, it's months into the irrigation
10 season. So my point is enhanced if that is a
11 typo.
12 I can probably figure that out, too,
13 by the way. Yeah, the well driller report of 105
14 was in March of 1955, and that's what we show. So
15 I think that this may be a typo.
16 MR. FEREDAY: I'm going to have to object
17 here. Mr. Smith has, I think, misled Mr. Squires.
18 It's the abandonment -- the abandonment --
19 THE WITNESS: Oh.
20 MR. FEREDAY: -- of the well that I think
21 was discussed here. And I think Mr. Smith has led
22 him into talking about the construction of the new
23 well. So that would be my objection.
24 And I think the abandonment, just for
25 clarification --

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1 THE WITNESS: That's true.
2 MR. FEREDAY: -- is in tab 2 of Exhibit 76.
3 MR. ALAN SMITH: On tab 2, the well
4 driller's report, on the abandoned well shows the
5 water level at 112 feet below ground.
6 THE HEARING OFFICER: All right. Let's go
7 off the record.
8 (Discussion.)
9 THE HEARING OFFICER: Let's go on the
10 record.
11 We're back recording again, Mr. Smith,
12 after our off-the-record discussion.
13 Now, are there questions that you
14 wanted to ask of Mr. Squires about Exhibit 45 and
15 the text there?
16 Q. (BY MR. ALAN SMITH): I just want to
17 ask you, Mr. Squires, you indicate that the
18 measurement was two months into the irrigation
19 season and the measurement was taken in March and
20 it wasn't filed with the Department of Water
21 Resources until May 29th.
22 MR. FEREDAY: Objection. He's testifying.
23 Q. (BY MR. ALAN SMITH): Is that --
24 Let me finish my question.
25 THE HEARING OFFICER: Okay. Overruled.

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1 Q. (BY MR. ALAN SMITH): Is that what led
2 you to believe that it was two months into the
3 irrigation season, the fact that it wasn't filed
4 until the end of May?
5 A. No, sir. If you could refer to tab 2.
6 The questionnaire is the first page, the new well
7 drilling report, which is the second page, and the
8 third page is the abandonment report for the
9 original well.
10 The abandonment happened after the new
11 well was constructed, and the two wells were very
12 close together. The abandonment report is dated
13 5/24/01. That's May. The water level recorded is
14 112. That's two months after the start of the
15 irrigation season.
16 Q. And it was also recorded at 112 in
17 March, was it not?
18 A. Yes.
19 Q. And that was dated by Mr. Johnson, the
20 well driller, 4/4/01?
21 A. It was -- it was signed by -- both
22 documents were signed by Mr. Johnson.
23 And I guess I could elaborate that
24 whether it's April 4th or May 24th, my intention
25 and my point are the same. This is an irrigation

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1 well. We know that the fluctuation in the Pierce
2 Gulch Sand Aquifer progresses from about mid-March
3 onward. And so it's not surprising to me that the
4 water level might be somewhat deeper than it was
5 measured in March, measured in -- or February, as
6 measured in May or April.
7 And to me a 7-foot difference is a
8 pretty small difference measured over the course
9 of 55 years. It shows that there hasn't been any
10 significant declines.
11 Q. Is it possible that the 112 shown on
12 the well abandonment and the 112 water level shown
13 on the well driller's report were used to fill out
14 both forms?
15 A. Certainly could. I've already
16 testified to my suspicion of well drillers'
17 reports, in general.
18 MR. ALAN SMITH: All right. That clears
19 that up somewhat.
20 Did you want to break for the day
21 or --
22 THE HEARING OFFICER: I'm good until about
23 eight o'clock.
24 MR. FEREDAY: Let's continue.
25 THE HEARING OFFICER: But if you need to

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1 go, Mr. Smith, I'm waiting for the queue from you.
2 MR. EDWARDS: I'm driving him to the
3 airport.
4 MR. ALAN SMITH: I've got to go pick up
5 some people, so...
6 THE HEARING OFFICER: All right. Okay.
7 Let's close for today. We'll start at 9:00
8 tomorrow.
9 Will everybody look at your calendars,
10 and particularly, what's the most important --
11 let's go off the record.
12 (Proceedings adjourned at 5:12 p.m.)
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REPORTER'S CERTIFICATE

I, JEFF LaMAR, CSR No. 640, Certified
Shorthand Reporter, certify:

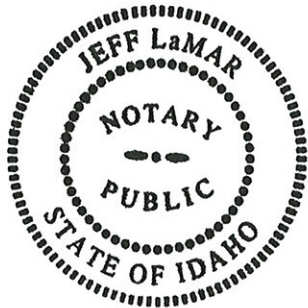
That the foregoing proceedings were taken
before me at the time and place therein set forth,
at which time the witness was put under oath by me.

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.



A handwritten signature of Jeff LaMar, written in black ink over a horizontal line.

JEFF LaMAR, CSR NO. 640

Notary Public

Eagle, Idaho 83616

My commission expires December 30, 2011

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