

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 VII  
(Pages 1470 through 1740)

BEFORE  
HEARING OFFICER: GARY SPACKMAN

Date: May 5, 2009 - 8:38 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

<p style="text-align: right;">Page 1471</p> <p>1 APPEARANCES:</p> <p>2</p> <p>3 For M3 Eagle LLC:</p> <p>4 GIVENS PURSLEY LLP</p> <p>5 BY MR. JEFFREY C. FEREDAY</p> <p>6 MR. MICHAEL P. LAWRENCE</p> <p>7 601 West Bannock Street</p> <p>8 P.O. Box 2720</p> <p>9 Boise, Idaho 83701-2720</p> <p>10 For North Ada County Groundwater Users</p> <p>11 Association:</p> <p>12 BY MR. JOHN THORNTON</p> <p>13 5264 North Sky High Lane</p> <p>14 Eagle, Idaho 83616</p> <p>15 For Eagle Pines Water Users Association and</p> <p>16 Individually:</p> <p>17 BY MR. ALAN SMITH</p> <p>18 3135 Osprey Road</p> <p>19 Eagle, Idaho 83616</p> <p>20 Appearing Individually:</p> <p>21 BY MR. NORMAN L. EDWARDS</p> <p>22 884 West Beacon Light Road</p> <p>23 Eagle, Idaho 83616</p> <p>24 ///</p> <p>25 ///</p>	<p style="text-align: right;">Page 1473</p> <p>1 INDEX</p> <p>2</p> <p>3 WITNESSES</p> <p>4 TESTIMONY OF RICHARD K. GLANZMAN PAGE</p> <p>5 Redirect Examination by Mr. Fereday 1475</p> <p>6 Recross Examination by Mr. Thornton 1483</p> <p>7 Recross Examination by Mr. Alan Smith 1492</p> <p>8 Examination by the Hearing Officer 1494</p> <p>9 Further Direct Examination by Mr. Fereday 1502</p> <p>10 Further Cross-Examination by Mr. Thornton 1506</p> <p>11 Further Cross-Examination by Mr. Alan Smith 1507</p> <p>12 Further Redirect Examination by Mr. Fereday 1699</p> <p>13 TESTIMONY OF MARK UTTING</p> <p>14 Direct Examination by Mr. Fereday 1509</p> <p>15 Cross-Examination by Mr. Thornton 1628</p> <p>16 Continued Cross-Examination by Mr. Thornton 1705</p> <p>17 Cross-Examination by Mr. Alan Smith 1731</p> <p>18</p> <p>19 EXHIBITS</p> <p>20 NO. MARKED ADMITTED</p> <p>21 285 1681 1689</p> <p>22 850 1648 1648</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 1472</p> <p>1 APPEARANCES (Continued):</p> <p>2</p> <p>3 Also Present:</p> <p>4 Jerry Peterson</p> <p>5 Jason Smith</p> <p>6 Nick Vandyke</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 1474</p> <p>1 THE HEARING OFFICER: All right. We're</p> <p>2 recording again. Today is May 5th, and the hour</p> <p>3 is approximately 8:40 a.m. in the morning.</p> <p>4 Welcome, everyone. This is a</p> <p>5 continuation of the M3 Eagle hearing, and we just</p> <p>6 finished cross-examination. We conversed before</p> <p>7 beginning recording at the end of the day</p> <p>8 yesterday. Some information was distributed</p> <p>9 regarding some limited statistical analysis of the</p> <p>10 geochemical data that was gathered and analyzed by</p> <p>11 Mr. Glanzman and was, again, given to the</p> <p>12 protestants. And there was some concern there was</p> <p>13 some desire to perhaps question Mr. Glanzman about</p> <p>14 that information.</p> <p>15 Mr. Thornton, you have indicated that</p> <p>16 you've looked at the data or the information and</p> <p>17 don't have any questions regarding what was given</p> <p>18 to you.</p> <p>19 MR. THORNTON: That is correct.</p> <p>20 THE HEARING OFFICER: Okay. So my</p> <p>21 understanding is cross-examination's complete.</p> <p>22 And we'll come back to you, Mr. Fereday, for</p> <p>23 redirect examination of Mr. Glanzman.</p> <p>24 MR. FEREDAY: Thank you.</p> <p>25 THE HEARING OFFICER: Thank you.</p>

<p style="text-align: right;">Page 1475</p> <p>1 RICHARD K. GLANZMAN, 2 having been called as a witness by M3 Eagle LLC 3 and previously sworn, testified as follows: 4 5 REDIRECT EXAMINATION 6 BY MR. FEREDAY: 7 Q. Mr. Glanzman, do you recall during 8 cross-examination when Mr. Thornton asked you 9 about connections determinable from your review 10 between the PGSA and an overlying, 11 undifferentiated aquifer? Do you recall 12 commenting about that? 13 A. I recall that. 14 Q. I think you indicated that you saw no 15 connection. 16 What kind of a connection were you 17 referring to there? 18 A. Specifically the irrigation built up 19 of the water level above -- in the alluvial 20 aquifer above the PGSA. 21 Q. So is it accurate to say that you were 22 not seeing the irrigation return-flow water, if 23 you will, getting into the PGSA at the location of 24 M3? 25 A. Yes.</p>	<p style="text-align: right;">Page 1477</p> <p>1 A. That is correct. 2 Q. And did you testify also that once 3 this is separated out into its various aquifer 4 groups that it becomes more simple? 5 A. As demonstrated with the remaining 6 trilinears. 7 Q. Thank you. 8 There was also a question to you, sir, 9 about the mineralogy in the aquifer and whether 10 that was changing. And you, I believe, indicated 11 that the mineralogy in the aquifer does not 12 change. I was unclear as to whether the 13 questioner was referring to the matrix -- the 14 structural matrix, the rocks or sands in the 15 aquifer, or to the mineralogy in the water itself. 16 Can you help illuminate what you meant 17 by your answer. 18 A. I understood mineralogy, and that is a 19 solid phase. And the solid phase in the aquifer 20 does not change. But it changes over millions of 21 years. It isn't going to change over a few 22 hundreds, certainly not with these conditions. 23 When we talk about the mineralogy of 24 the groundwater, that's a misnomer. It should be 25 total dissolved solids. We're going to be talking</p>
<p style="text-align: right;">Page 1476</p> <p>1 Q. Would it be accurate to say that you 2 did not see any geochemical connection between 3 that overlying aquifer and the PGSA? 4 A. No connection. 5 Q. With regard to page 6 of your 6 PowerPoint, there was a question, as I recall, 7 about the apparent complexity of this trilinear 8 diagram. 9 Do you recall the question about 10 complexity? 11 A. I do. And actually, it looked like a 12 very complex, when we add all of the data together 13 in one place. 14 Q. So just to -- just to review this -- 15 and I know we did go over it in direct, but it was 16 asked about on cross, so I wanted to make sure 17 that the Hearing Officer understands this. And 18 I'll wait for him to get to page 6 of that 19 Power -- 20 It's of the PowerPoint. 21 THE HEARING OFFICER: Right. I have it. 22 Q. (BY MR. FEREDAY): Are you saying, 23 sir, that this appears complex because this is a 24 complete composite containing all data from all 84 25 sample points?</p>	<p style="text-align: right;">Page 1478</p> <p>1 about the total mineral composition of the 2 dissolved ions in that water. 3 And that did change, and it changed 4 considerably in total dissolved solids. But the 5 major ion chemistry does not change. So it's 6 exposed to the same mineralogy and just increases 7 in that concentration, not major ions 8 proportionately. 9 Q. Do you recall the questions about 10 ancestral and geologically ancestral today -- or 11 yesterday on cross-examination? 12 A. Several times, yes. 13 Q. And I believe you suggested that 14 the -- your definition is that someone has 15 suggested that it could be as old as a thousand 16 years -- the water, that is -- in the aquifer. 17 Do you recall that? 18 A. That was for the geologically 19 ancestral. The ancestral I said just meant that 20 it wasn't water. 21 Q. Okay. But doesn't this definition 22 someone has suggested it could be as old as a 23 thousand years mean that, first of all, it's not 24 modern; would you agree with that? 25 A. Certainly.</p>

<p style="text-align: right;">Page 1479</p> <p>1 Q. And second of all, it could be as old 2 as a thousand? 3 A. The carbon in the water could be as 4 old as a thousand, yes. 5 Q. But the carbon date is something 6 that's separate from the date or age of the water; 7 is that -- 8 A. They're very separate, yes. 9 Q. With regard to the questions you 10 received on -- the question of stable isotope 11 studies, do you recall that you were questioned on 12 that? 13 A. Yes, I do. 14 Q. I'd like you to refer, please, to 15 page 23 of your PowerPoint. 16 A. Yes. 17 Q. I want to make sure that I understand 18 this, Mr. Glanzman, with regard to your response 19 to those questions. I think you responded that 20 there was not enough variation between the stable 21 isotopes that you studied and evaluated in these 22 various water sources to provide any meaningful 23 information as to the different -- a different 24 source for the PGSA; is that -- would that be 25 accurate, or could you help me understand that?</p>	<p style="text-align: right;">Page 1481</p> <p>1 Let's get it. Went out, and they -- HLI went out 2 and sampled three of the wells in the M3 area. 3 And we got that distribution, as shown on 23, 4 clearly indicating and supporting the other 5 weighted evidence that the groundwater in the PGSA 6 is from the Boise River. 7 Q. And is it accurate to say that this 8 isotope evidence also indicated that further 9 isotope studies were not warranted? 10 A. I believe so. 11 Q. Is the data that you analyzed in 12 putting together Exhibit 43 and your PowerPoint, I 13 believe Exhibit 71 here, the kind of data you find 14 acceptable for use in your profession? 15 A. I do. 16 Q. Do you have any comment on the quality 17 of the data or data gathering that was involved in 18 this project? 19 A. Data gathering was excellent, and the 20 water quality from the lab was much better than I 21 find typically in databases. Databases are the 22 bane of my existence. 23 Q. And I understand that you did some 24 statistical analysis as well. I think this came 25 up late yesterday.</p>
<p style="text-align: right;">Page 1480</p> <p>1 A. I think we'd want to go to 24 rather 2 than 23. 3 Q. Okay. 4 A. That's where I made a comparison of 5 the regional source aquifer distribution that had 6 a very narrow deuterium range of minus 133 to 7 minus 125 in deuterium, and minus 17.4 to minus 8 16.3 in the oxygen-18. That's an 8 per mil 9 deuterium contrast and a 1.1 per mil oxygen-18 10 contrast. That's not sufficient to really give 11 credible quantification of source for mixing. 12 Q. Did you do an isotope -- I think you 13 testified you did some of the stable isotope 14 evaluation in your work? 15 A. That is slide 23. 16 Q. And why did you do that? Were you 17 asked to do that, or was that your idea? 18 A. Initially, we were -- I was asked if 19 we wanted to do it, and I said no, I didn't think 20 it would be necessary, since we already had an 21 abundance of evidence -- a weight of evidence that 22 indicated that the water -- groundwater in the 23 PGSA was from the Boise River. 24 But in reflection, thought, Well, 25 that's another piece of evidence we don't have.</p>	<p style="text-align: right;">Page 1482</p> <p>1 Do you typically do statistical 2 analysis to evaluate your work in any way? 3 A. Always. 4 Q. Always? 5 A. Always. 6 Q. Why do you do that? 7 A. There's two things. And there was a 8 question about we're looking at average values. 9 Average values from a number of different sampling 10 points across the area of interest gives us a 11 better idea of what the bulk water, groundwater 12 chemistry is going to be if we produce water from 13 that aquifer. So that's the reason for the 14 averages being used and compared. 15 It's a -- I also use -- the statistics 16 give me the range to give me an idea of how things 17 are changing, also to tell me where I need to 18 look, what things are changing the greatest. I 19 needed to understand why. 20 In that sense, the statistics are both 21 giving me a value that I need to know from a 22 standpoint of the groundwater condition itself, 23 but it's also asking me questions that I need to 24 go answer. 25 Q. In this case did your statistical</p>

<p style="text-align: right;">Page 1483</p> <p>1 analysis support or undercut your conclusions in  2 Exhibit 43, your report?  3 A. Very supportive.  4 Q. Was your statistical analysis carried  5 out in a complete and professional manner?  6 A. I believe so.  7 MR. FEREDAY: I have no further questions.  8 THE HEARING OFFICER: Okay. Mr. Thornton,  9 recross?  10 MR. THORNTON: Yes.  11  12 RECROSS EXAMINATION  13 BY MR. THORNTON:  14 Q. Mr. Glanzman, I believe that you've  15 testified that the -- there's no irrigation water  16 connection with the Pierce Gulch Sand Aquifer?  17 A. There is no evidence.  18 Q. Okay. And I believe you stated that  19 the recharge area is just that, an area somewhere  20 upgradient, maybe of the Capitol Bridge area or  21 someplace; is that correct?  22 A. Somewhere off the area that we've  23 studied, I believe, and partially in the area  24 we've studied where the Boise River is coming  25 through.</p>	<p style="text-align: right;">Page 1485</p> <p>1 circumstances you've just outlined.  2 Q. So are you aware that there is  3 irrigation return to the Boise River upstream from  4 this recharge area?  5 A. I'm aware.  6 Q. Okay. If we could go to the  7 Exhibit 33, the Treasure Valley Hydrologic Report.  8 I'm not sure of the tab, but it's the one we  9 had -- I should have written it down yesterday.  10 It's a geochemistry and isotope study --  11 A. Yes, sir.  12 Q. -- portion.  13 MR. LAWRENCE: I believe that's 33G.  14 Q. (BY MR. THORNTON): Do you have that,  15 then?  16 A. Oh, yes.  17 Q. Okay. Good. Then on the executive  18 summary, so on Roman numeral III.  19 A. Yes, sir.  20 Q. And there's a paragraph in the center  21 that starts with "The results from the study show  22 distinctive relationships between groundwater  23 chemistry and the unique depositional environments  24 of the principal aquifers."  25 And the second bullet underneath that</p>
<p style="text-align: right;">Page 1484</p> <p>1 Q. Coming through where?  2 A. On the map that we have in our --  3 Q. Yeah, you refer to the --  4 A. The Goddard and HP is on one side of  5 the Boise River across --  6 Q. Okay. All right. Okay. So can you  7 explain to me why you can't find evidence of that  8 based on -- the question is based on irrigation  9 returns, storm drainage runoff from lawns, people  10 applying fertilizer on their lawns and draining  11 into the Boise River up above that and some  12 irrigation above that, why aren't you able to find  13 any source of irrigation connection?  14 A. The why of what the data is telling  15 me, I can only speculate upon. What I do know is  16 what the data is telling me.  17 Q. Okay.  18 A. And that is I see no evidence of  19 fertilizers. Nitrate is very low. The deuterium  20 is telling me there's been no evaporation. So it  21 hasn't been applied to a field for irrigation  22 purposes in any fashion.  23 The water chemistry is quite similar,  24 as we pointed out. It's a cluster in the PGSA.  25 You would not see that at any effect from the</p>	<p style="text-align: right;">Page 1486</p> <p>1 states that "Specific conductants, by inference  2 total dissolved solids, is greatest in shallow  3 aquifers and decreases with depth."  4 Do you agree with that finding?  5 A. I'll agree with that wholehearted.  6 Q. Okay.  7 A. That's what we were just talking  8 about.  9 Q. Okay. And then it says, "This finding  10 indicates that water in deeper aquifers did not  11 enter groundwater regimes through the carbon-rich  12 sediments found in the Treasure Valley soils."  13 A. That's supportive of what we just  14 discussed.  15 Q. And does not the Boise River overflow  16 the rich -- carbon-rich sediments in the Treasure  17 Valley soils up above the recharge area?  18 A. I do not know the frequency of it.  19 I'm sure it does occasionally.  20 Q. Okay. Then on the fifth bullet near  21 the bottom of the page talking about "Resident  22 times of the Treasure Valley groundwater generally  23 increase with depth and with distance along a  24 regional east to west trending flow path."  25 Do you agree with that?</p>

<p style="text-align: right;">Page 1487</p> <p>1 A. No, I don't believe I do.</p> <p>2 Q. Okay. And what's your evidence for</p> <p>3 that?</p> <p>4 A. Because when we were talking regarding</p> <p>5 my residence times of Treasure Valley</p> <p>6 groundwater -- we're not talking about carbon now.</p> <p>7 Q. Right.</p> <p>8 A. We're talking about groundwater. I</p> <p>9 don't think that's going to qualify.</p> <p>10 Q. Okay. And your basis for that is?</p> <p>11 A. How this report from 30 indicates</p> <p>12 anything less than 5,000 years, we don't know.</p> <p>13 Q. Okay. And then if you go to the Roman</p> <p>14 numeral iv, the next page, small Roman numeral iv,</p> <p>15 or lower case. In there it states, again, "The</p> <p>16 youngest waters entered the subsurface a few</p> <p>17 thousand years ago along the northeastern</p> <p>18 boundary." And then it goes on to say, "The</p> <p>19 oldest water entered the subsurface between 20- to</p> <p>20 40,000 years ago." I didn't hear a talk of 40,000</p> <p>21 years ago.</p> <p>22 Do you agree with these figures in</p> <p>23 here, the age of the water?</p> <p>24 A. I think the age of the water may be in</p> <p>25 that range because it's been greater than 5,000</p>	<p style="text-align: right;">Page 1489</p> <p>1 is highly probable to be thousands of years old.</p> <p>2 As I testified yesterday, the water --</p> <p>3 and Ed Squires has also testified to the effect</p> <p>4 that groundwater is moving fairly rapidly, for a</p> <p>5 groundwater, between the recharge area and the M3.</p> <p>6 So I'm basing that on both the water chemistry,</p> <p>7 which indicates this water is not hanging around,</p> <p>8 it's not -- it is not stalled, it is not being cut</p> <p>9 off. It is actually flowing through that system</p> <p>10 with a relatively constant average total dissolved</p> <p>11 solids.</p> <p>12 So I see no barriers to flow through</p> <p>13 that system. I see no chemical changes that would</p> <p>14 indicate that there is any slowing along that</p> <p>15 whole flow path. It's the same water moving right</p> <p>16 on through.</p> <p>17 So both water chemistry and the</p> <p>18 hydraulics are saying that this is a highly</p> <p>19 permeable aquifer that is moving to the west.</p> <p>20 Q. Okay. Then on the first bullet</p> <p>21 statement on that Roman numeral page iv, it says,</p> <p>22 "Contemporary seepage from rivers and/or</p> <p>23 irrigation diversions is not the primary source of</p> <p>24 recharge for most deep regional aquifers."</p> <p>25 Do you agree with that?</p>
<p style="text-align: right;">Page 1488</p> <p>1 years. But again, we're talking about the carbon.</p> <p>2 And having entered the subsurface 20- to 40,000</p> <p>3 years ago, I don't know about that --</p> <p>4 Q. Okay.</p> <p>5 A. -- whether that was the time it</p> <p>6 entered. But I do know that's probably a</p> <p>7 comparable age of groundwater in the deeper parts</p> <p>8 of the basin along a very long flow line.</p> <p>9 Q. Okay. And you testified yesterday the</p> <p>10 groundwater appears to be moving -- you used the</p> <p>11 term "rapidly," in the M3 area.</p> <p>12 How do you describe -- how do you use</p> <p>13 the term "rapidly" when I believe I just heard you</p> <p>14 say that the water farther out in the middle of</p> <p>15 the basin may be quite old? How do you say</p> <p>16 rapidly moves through, and then water is quite old</p> <p>17 in the center of the basin?</p> <p>18 A. Ed Squires has outlined the geology.</p> <p>19 And they get very clay rich as you go out, which</p> <p>20 means as you get further out in the valley and</p> <p>21 deeper into the valley, you're getting into those</p> <p>22 old lacustrine mudstones. And they're very, very</p> <p>23 thick.</p> <p>24 Water isn't going to move very fast</p> <p>25 through that. And so the water that's out there</p>	<p style="text-align: right;">Page 1490</p> <p>1 A. I agree with that.</p> <p>2 Q. And then what did you just state the</p> <p>3 source of recharge was for the Pierce Gulch?</p> <p>4 A. The Boise River.</p> <p>5 Q. And could you explain to me what</p> <p>6 appears, at least in my view, to be a difference</p> <p>7 in that statement.</p> <p>8 A. Contemporary seepage from rivers</p> <p>9 and/or irrigation diversions.</p> <p>10 Q. Okay.</p> <p>11 A. It's the "or/and." I agree with the</p> <p>12 rivers. I do not agree with the irrigation.</p> <p>13 Q. Okay. And so you don't agree with</p> <p>14 this statement where "Contemporary seepage from</p> <p>15 rivers is not the primary source"; is that</p> <p>16 correct?</p> <p>17 A. That's correct.</p> <p>18 MR. THORNTON: Okay. All the questions.</p> <p>19 THE HEARING OFFICER: Okay. Mr. Smith?</p> <p>20 MR. ALAN SMITH: I just have a couple here.</p> <p>21 THE HEARING OFFICER: Before you do, let me</p> <p>22 ask a question here, not of you, but Mr. Fereday.</p> <p>23 I see Mr. Whitney has walked in today.</p> <p>24 MR. FEREDAY: Yes, he has.</p> <p>25 THE HEARING OFFICER: He may have been</p>

<p style="text-align: right;">Page 1491</p> <p>1 subject to a subpoena that was issued to him, and  2 I don't want him to sit here if he's not being  3 called.  4 Will you reiterate, or perhaps  5 something has changed?  6 MR. FEREDAY: Yes, I will reiterate on the  7 record and make an apology to Mr. Whitney.  8 Rob, we had thought we would be  9 calling you today, but I neglected to call you  10 last week to let you know that that's not going to  11 be necessary.  12 However, as I said yesterday, we  13 anticipate that after the protestants' case, we  14 may still call Mr. Whitney with respect to well  15 construction and related issues. But that is at  16 an indeterminate time in the future. So I don't  17 know when that will be. But if we need  18 Mr. Whitney, we certainly would like to keep him  19 available. But again, I apologize for not  20 contacting him and letting him know that he need  21 not be here today.  22 THE HEARING OFFICER: Okay. Thanks.  23 Okay. Mr. Smith?  24 MR. ALAN SMITH: Yes, sir. We would like  25 to at this time object to Mr. Whitney being called</p>	<p style="text-align: right;">Page 1493</p> <p>1 the objection. Let's let him answer the question.  2 THE WITNESS: The answer to the question is  3 the very same thing as he has indicated. Canals,  4 if they're carrying Boise River water that is  5 dominated and overrides any signature from the  6 irrigation, then that's true, then there is some  7 recharge from that that would be -- because it  8 would be Boise River water. I am still going back  9 to what I have been continually testifying: The  10 geochemical signature is the Boise River.  11 Q. (BY MR. ALAN SMITH): But you don't  12 find any indication of any irrigation runoff going  13 into the recharge?  14 A. No, sir, there is none. In every  15 different way that I've looked at it, there is  16 none.  17 Q. Let me ask you this: If the PGSA  18 water is moving so rapidly, why aren't the  19 geochemical analysis detecting any irrigation  20 water?  21 A. My understanding is we've got a  22 hundred years, perhaps, or 150 years, that it  23 takes for water to get to M3. It may be on the  24 way. I have no idea, sir.  25 MR. ALAN SMITH: That's all I have.</p>
<p style="text-align: right;">Page 1492</p> <p>1 as an expert witness. He was not on their expert  2 witness list. I have it right here. I believe he  3 was listed on the interrogatories as a possible  4 witness, but he's not on the expert witness list.  5 THE HEARING OFFICER: Okay. Well, let's  6 hold that particular objection, because he's not  7 being called right now, and I'll allow you to  8 bring that up if he is called in the future,  9 Mr. Smith. That may give the applicants an  10 opportunity to prepare some response as well.  11 Okay. Do you have questions of  12 Mr. Glanzman?  13 MR. ALAN SMITH: I just have a couple.  14 THE HEARING OFFICER: Thank you.  15  16 RECROSS EXAMINATION  17 BY MR. ALAN SMITH:  18 Q. Mr. Glanzman, as I understand your  19 testimony, you don't find any evidence of any  20 irrigation leakage or seepage from canals at all?  21 MR. FEREDAY: Objection. I don't think  22 that was his testimony. He talked about  23 irrigation after it was applied to the land, not  24 irrigation seepage from canals.  25 THE HEARING OFFICER: Okay. I'll overrule</p>	<p style="text-align: right;">Page 1494</p> <p>1 THE HEARING OFFICER: Okay. Mr. Glanzman,  2 I have a few questions.  3  4 EXAMINATION  5 BY THE HEARING OFFICER:  6 Q. And I'd like to start with Exhibit 71,  7 if I could. That's your PowerPoint presentation.  8 And just as a preface, I want to try to understand  9 how you approached sampling and the analysis. And  10 I guess I would turn to page 5 first.  11 A. Yes, sir.  12 Q. In this slide is the first  13 presentation of data or information in the  14 PowerPoint presentation?  15 A. Yes, it is.  16 Q. Okay. And I see in the left-hand  17 column five separate areas, groundwater areas, for  18 which you analyzed samples.  19 A. Yes, sir.  20 Q. Okay. And my question for you is:  21 How did you come up with these particular  22 categories in the left-hand side?  23 A. I did not go through the physical  24 conditions. Let me -- maybe even more so, it  25 began with how did I collect the samples and have</p>

<p style="text-align: right;">Page 1495</p> <p>1 them analyzed and now separate them in. They're  2 all connected. And those were done by Ed Squires  3 at HLI. Those were physical.  4 Q. So you were told what areas samples  5 were to be categorized in?  6 A. Oh, no. I apologize. That isn't what  7 it is. That -- these various units were  8 identified as physical conditions from which those  9 water analyses were derived. And all I did is  10 say, "Okay. Well, okay, is this PGSA?" So I took  11 all the data that goes into the PGSA and start  12 analyzing that; all the waters that were from the  13 Terteling Springs, start analyzing that as a  14 separate unit.  15 And did -- now we're looking at it  16 saying, "Does that make sense? Does the water  17 chemistry say these are discrete units as well as  18 the physical condition?"  19 Q. Okay.  20 A. I'm sorry.  21 Q. So you were told where the boundaries  22 of the PGSA were?  23 A. I was told for each analysis if it was  24 in the upper or lower PGSA, or we just didn't know  25 and it was unidentified, or the bulk of the PGSA.</p>	<p style="text-align: right;">Page 1497</p> <p>1 larger boundaries of the PGSA.  2 A. Yes, sir.  3 Q. Why couldn't a sample in the TSF have  4 been included within the PGSA?  5 A. Based only on the total dissolved  6 solids, you have a valid question. But we went  7 into it later into the trilinear diagrams.  8 Q. Right.  9 A. And they have very different major ion  10 chemistry. Those are not the same water.  11 Q. Okay. And so let's look at some of  12 those Piper diagrams. And I guess let's turn to  13 page 6. And you described this as a very complex  14 diagram, as I recall.  15 A. There's a wide scattering of data  16 within that trilinear, yes, sir.  17 Q. And there is a very tight grouping in  18 the diagram in and around the leader line labeled  19 "Boise River"; correct?  20 A. It envelopes the Boise River, yes.  21 Q. Okay. And a number of those, as I  22 look at the key or the legend, are "Pierce Gulch  23 Undefined." It says square.  24 A. Yes, sir.  25 Q. But then I see intermingled in there</p>
<p style="text-align: right;">Page 1496</p> <p>1 Q. And then the wells that were sampled  2 within the TSF, Terteling Springs formation, you  3 were told which wells were within the TSF; right?  4 A. Which chemical analysis for those  5 wells were actually in that aquifer, yes.  6 Q. Okay. So your analysis didn't  7 determine which of these units that particular  8 well or sample was revealing; correct? I mean  9 your analysis didn't -- wasn't the initiation of  10 where that water was located?  11 A. No, absolutely not.  12 Q. And Mr. Squires told you where those  13 samples were located?  14 A. And what unit and where, yes.  15 Q. Okay. So you assumed initially that  16 those samples were located within each of those  17 units?  18 A. Yes, sir.  19 Q. Okay. And so I look at this  20 particular summary -- and I guess I go back to  21 Mr. Thornton's question. I see a range in the  22 PGSA of 82 to 404 in the TDS.  23 A. Yes, sir.  24 Q. And I see a range of -- in the TSF of  25 TDS of samples that fall within that -- those</p>	<p style="text-align: right;">Page 1498</p> <p>1 others. For instance, there's an asterisk that's  2 fairly close, "Willow Creek Aquifer." It's not  3 far from the others.  4 Do you see the one that I'm pointing  5 to?  6 A. Yes, I understand.  7 Q. And there are others mixed in there as  8 well.  9 Why would those not be included within  10 the Pierce Gulch Aquifer, as opposed to the other  11 aquifers that were identified?  12 A. First is the physical condition where  13 it is, both geologically and locationwise, puts it  14 in the Willow Creek Aquifer. Second of all, it  15 does lie outside the general boundaries and  16 clustering of the Boise River -- or excuse me, of  17 the PGSA.  18 First, the physical condition says  19 that that is what that is. The total dissolved  20 solids says that it can't be PGSA water. It's way  21 too dilute. Couldn't move that way. So other  22 pieces of evidence are indicating that that is not  23 PGSA.  24 Q. But there is an assumption on your  25 part that it is PGSA before you do the analysis;</p>

<p style="text-align: right;">Page 1499</p> <p>1 correct? You've been told that it is within the  2 PGSA, so there's an assumption on your part that  3 it --  4 A. I'm sorry. Are we talking about the  5 Willow Creek?  6 Q. I'm sorry. I have not asked that  7 question.  8 There is an assumption that the  9 squares are within -- the square indicators are  10 within the PGSA; right?  11 A. Identified as the aquifer of source,  12 yes, sir.  13 Q. Yes. And there's also an assumption  14 that the asterisk is within the Willow Creek  15 Aquifer; right?  16 A. That is correct.  17 Q. And if you move -- if you move through  18 that cluster that almost turns black where the  19 leader line goes to the Boise River, on the upper  20 side of that you will see others near that  21 grouping. I know there's at least a couple, it  22 appears, are Spring Valley Ranch indicators.  23 A. That is correct.  24 Q. Okay. And but there's an assumption  25 that those are Spring Valley Ranch wells, not PGSA</p>	<p style="text-align: right;">Page 1501</p> <p>1 mineralogy that we have, it is not important.  2 Q. And so the -- the mineralogy in the  3 PGSA is not really an indicator of time of  4 residence within the aquifer?  5 A. The residence time, as we understand  6 it, is so short anyway, from the standpoint of  7 geologic considerations, thousands of years, that  8 the mineralogy is relatively inert and it pretty  9 much stays the same.  10 Q. And I understood you to say that the  11 mineralogy within a material of the PGSA is rather  12 nonreactive or inert anyway.  13 Was that not your response?  14 A. I really don't know what the  15 mineralogy is. But from the standpoint of its  16 transport over a 15 mile lateral interval, I don't  17 see any additional significance of the mineralogy  18 being dissolved.  19 From that context, I would say yeah,  20 that if the groundwater were trapped in some way,  21 I'm sure that the mineralogy would be more  22 impressive and change that water chemistry if it  23 were impounded in any way by any fault, confined,  24 compartmentalized, it would have an indication  25 from that aquifer mineralogy.</p>
<p style="text-align: right;">Page 1500</p> <p>1 from the outset; right?  2 A. No. From the outset, we know those  3 are from the Spring Valley Ranch.  4 Q. Well, from the outset why? Because  5 Mr. Squires told you they were?  6 A. That's the well location from which  7 this water analysis came.  8 Q. Okay. All right. I have a couple of  9 other questions. They have to do with exposure to  10 mineralogy. And I understood you to say,  11 Mr. Glanzman, that time or time of residence is  12 not as important as the mineralogy itself.  13 A. Yes, sir, that's true.  14 Q. Okay. So time of residence within the  15 aquifer material is not necessarily -- does not  16 necessarily change the chemistry of the water;  17 correct?  18 A. It does in the context that the  19 mineralogy as -- certain minerals just take longer  20 to dissolve than others. So the longer it is in  21 contact with that aquifer, the more they will  22 bring their composition into the dissolved phase.  23 So the time is important, but in the  24 context of the PGSA that we're talking about, the  25 time is so minimal -- from the standpoint of the</p>	<p style="text-align: right;">Page 1502</p> <p>1 Q. But again, I understood you to say  2 that time of residence was not nearly as important  3 as the mineralogy itself.  4 A. That's right.  5 THE HEARING OFFICER: All right. I don't  6 have any further questions.  7 Mr. Fereday, more?  8 MR. FEREDAY: Yes.  9  10 FURTHER DIRECT EXAMINATION  11 BY MR. FEREDAY:  12 Q. Mr. Glanzman, the Hearing Officer just  13 asked you about the information that you got from  14 Hydro Logic with regard to the locations of these  15 well samples.  16 Do you recall that?  17 A. I do.  18 Q. Isn't it a fact that what you  19 initially received from Hydro Logic were these 84  20 samples, or the information about these 84  21 samples?  22 A. There were various pieces that came to  23 me, yes.  24 Q. And didn't you look and analyze these  25 samples before you found out where they were from,</p>

<p style="text-align: right;">Page 1503</p> <p>1 in terms of being from the Willow Creek or the 2 PGSA? 3 A. Yes. 4 Q. And did you see trends or similarities 5 between certain groups of these before you even 6 knew where they came from? 7 MR. ALAN SMITH: Objection. Leading. 8 THE HEARING OFFICER: Overruled. 9 THE WITNESS: When I first get data, I plot 10 them up on these trilinears, I see things 11 happening. And I have a well name. I may have 12 an -- I certainly may have the depth on it. I 13 have a location. So I know that information, even 14 if I don't know what aquifer it's from. And I 15 will call -- and it's an iterative process, my 16 questioning. 17 I have this series of wells here, what 18 aquifer is that in? And Ed and I will go back and 19 forth on that procedure, his letting me know what 20 it is. 21 Q. With regard to your questioning of 22 him, were you asking him what -- what location 23 certain samples came from based on what you were 24 seeing on the trilinear diagram? 25 A. Absolutely. Absolutely.</p>	<p style="text-align: right;">Page 1505</p> <p>1 is from the Pierce Gulch Sand Aquifer, and I want 2 you to plot them on a trilinear"? 3 A. Absolutely not. They sent me the 4 data, and they said, "This is from the M3 area. 5 We got a pump test. This is the analyses from the 6 pump test." That's the kind of information I 7 would be receiving. 8 Q. So would it be fair to say that when 9 you received these samples you were blind to where 10 they might have come from, other than you knew 11 they were in the north Ada County area somewhere; 12 would that be accurate? 13 A. That is accurate. I didn't have a map 14 either to have the additional points. 15 Q. Okay. With regard to the question 16 about irrigation water, do I understand your 17 statement to be -- your response to Mr. Thornton 18 to be that you see water in an irrigation canal 19 such as the New York Canal to be the same as Boise 20 River water? 21 A. No, I didn't say that. I said that I 22 cannot see anything in the water chemistry in all 23 the parameters that we've got that there is an 24 irrigation signature to the PGSA water. Whether 25 it's in a canal, whether it's applied, I don't</p>
<p style="text-align: right;">Page 1504</p> <p>1 Q. And when you questioned him about the 2 locations of these various sample -- samples, did 3 his responses line up with the type of clustering 4 you were seeing? 5 A. Absolutely. What we did is -- 6 finally, I sent him a list and said, "Okay. Tell 7 me what aquifers each one of these is from, and 8 let's see if we can differentiate upper and 9 lower." 10 And Ed went ahead and filled those out 11 for me, and then that is what I used as a base for 12 what you see in front of you today. 13 Q. But you had already done trylineals on 14 those, hadn't you? 15 A. Oh, absolutely. And I had seen some 16 trends that I had a curiosity about. In other 17 words, I'm trying to interpret all of that complex 18 data in that first trilinear, and say "I see this 19 series that looks like a trend here. What is that 20 from?" So it's an iterative process. 21 Finally, it's just "Here's the list of 22 things I don't know. Could you tell me what those 23 are in the physical sense?" 24 Q. Did anyone at Hydro Logic or anywhere 25 else tell you at the get-go "This group of samples</p>	<p style="text-align: right;">Page 1506</p> <p>1 know that. All I know is that the water chemistry 2 that we see is Boise River water, wherever that 3 recharge. 4 MR. FEREDAY: No further questions. 5 THE HEARING OFFICER: Okay. Mr. Thornton, 6 further questions? 7 8 FURTHER CROSS-EXAMINATION 9 BY MR. THORNTON: 10 Q. Mr. Glanzman, had you ever analyzed 11 the data -- we have 84 chemical analyses that were 12 completed. Did you ever analyze those in a 13 full -- in a statistical analysis where you throw 14 all the data together, regardless of what well it 15 came from, to look at how they scattered and how 16 they grouped up? 17 A. An intimate part of the interpretation 18 of the data, yes. I've got a stack of analyses 19 that these depict. 20 Q. And as the result of that, what is 21 depicted on -- an example -- on page 6 of 22 Exhibit No. 71? 23 A. That's the trilinear. 24 Q. Okay. And did you do another analysis 25 other than this to -- regardless of knowing where</p>

<p style="text-align: right;">Page 1507</p> <p>1 that data came from to group similar results, to  2 cut down the noise, so to speak?  3 A. Oh, absolutely. I go to factor  4 analysis as part of my primary means of doing  5 that.  6 Q. And that's not displayed on this  7 Exhibit 71; correct?  8 A. No, this is just a trilinear diagram.  9 Q. Right. Okay. And that is potential  10 information that could be looked at in your full  11 Exhibit No. 43 of your report; correct?  12 A. Oh, no. That didn't go in there.  13 Q. Okay. And where is that information?  14 Is that information available?  15 A. I have it at home.  16 MR. THORNTON: Okay. No further questions.  17 THE HEARING OFFICER: Mr. Smith?  18 MR. ALAN SMITH: Thank you, sir.  19  20 FURTHER CROSS-EXAMINATION  21 BY MR. ALAN SMITH:  22 Q. Mr. Glanzman, were there any water  23 samples taken from the western edge of the PGSA?  24 A. You've seen the map that has the  25 distribution of samples from the PGSA. That is</p>	<p style="text-align: right;">Page 1509</p> <p>1 break before we --  2 THE HEARING OFFICER: Yeah, let's break.  3 Let's take ten minutes.  4 (Recess.)  5 THE HEARING OFFICER: Mr. Utting, if you'd  6 stand please.  7  8 MARK UTTING,  9 having been called as a witness by M3 Eagle LLC,  10 was duly sworn and testified as follows:  11  12 THE HEARING OFFICER: Thank you. Please be  13 seated.  14 Mr. Fereday, you may examine.  15  16 DIRECT EXAMINATION  17 BY MR. FEREDAY:  18 Q. Please state your name and give your  19 business address.  20 A. My name is Mark Utting, U-t-t-i-n-g.  21 Business address is 1002 West Franklin, Boise.  22 Q. You work with Hydro Logic, do you?  23 A. Yes, I do.  24 Q. Please describe your background, your  25 education, and your employment experience.</p>
<p style="text-align: right;">Page 1508</p> <p>1 the distribution. West, I'm not sure I know.  2 Q. As far out as Star?  3 THE HEARING OFFICER: I thought we had an  4 exchange about this yesterday, Mr. Smith.  5 MR. FEREDAY: We did.  6 THE HEARING OFFICER: And I think we  7 resolved that there were none to the west.  8 MR. ALAN SMITH: Okay. Very well.  9 Q. Let me ask you this, then: Would  10 there be a difference in the deeper water that's  11 been there for a much longer time than the eastern  12 edge of the PGSA where the water has only been  13 there a short time, a hundred years or so?  14 A. You're asking me to speculate if  15 further down the groundwater flow path in the PGSA  16 the groundwater may change a little bit, water  17 chemistry. That's possible, certainly.  18 MR. ALAN SMITH: I believe that's all I  19 have.  20 THE HEARING OFFICER: Okay. Mr. Edwards?  21 MR. EDWARDS: No questions.  22 THE HEARING OFFICER: Okay. I think we're  23 done. Thank you, Mr. Glanzman.  24 THE WITNESS: Thank you.  25 MR. FEREDAY: Do you want to take a short</p>	<p style="text-align: right;">Page 1510</p> <p>1 A. Okay. I have a bachelor's in geology  2 from the University of Washington, 1974. I worked  3 the next couple years in various geologic jobs,  4 then I went to the University of British Columbia  5 where I received a master's in hydrogeology. I  6 studied under Al Freeze, who wrote "Freeze and  7 Cherry," a commonly-accepted textbook in  8 groundwater.  9 I started in February of 1979 in  10 groundwater consulting at a firm called Hart  11 Crowser in Seattle, Washington. In 1987 I  12 co-founded/started Pacific Groundwater Group,  13 which is a groundwater and environmental specialty  14 consulting firm, where I was principal and  15 rotating president for 13 years.  16 I have done numerous groundwater  17 studies throughout the western United States,  18 Mexico, the Middle East, and I've done studies  19 from a distance of projects in Asia.  20 Q. Exhibit 32B contains your resumé.  21 Is this still an accurate resumé,  22 Mr. Utting?  23 A. Give me a moment. I'll find it.  24 Is this your copy?  25 THE HEARING OFFICER: Yeah, it is. You</p>

<p style="text-align: right;">Page 1511</p> <p>1 should have a book, but you can use mine.</p> <p>2 THE WITNESS: Here we go. Thank you.</p> <p>3 Yes, that is.</p> <p>4 Q. (BY MR. FEREDAY): How many years have</p> <p>5 you been associated with Hydro Logic?</p> <p>6 A. I've been associated with Hydro Logic</p> <p>7 for approximately two-and-a-half years.</p> <p>8 Q. Do you have experience constructing</p> <p>9 and using groundwater models?</p> <p>10 A. I have, indeed. I have created</p> <p>11 numerical models using the USGS MODFLOW. I've</p> <p>12 created numerous analytical models. I've analyzed</p> <p>13 artificial recharge products. I've done</p> <p>14 groundwater basin analysis using these models and</p> <p>15 other aspects of groundwater development.</p> <p>16 Q. Could you give us an overview of your</p> <p>17 work for the M3 Eagle project that you've done</p> <p>18 with Hydro Logic.</p> <p>19 A. Well, when I started with Hydro Logic</p> <p>20 in September of 2006, my mandate was to try to</p> <p>21 prove Mr. Squires wrong. He had some concepts on</p> <p>22 groundwater flow, and I was to challenge and</p> <p>23 discuss and try to find flaws. And so during the</p> <p>24 course of that time, I contoured groundwater flow</p> <p>25 data, aquifer position, I conducted numerous</p>	<p style="text-align: right;">Page 1513</p> <p>1 main reason for reviewing, revising, and</p> <p>2 re-analyzing was the fact that we had a new</p> <p>3 understanding of the Pierce Gulch Sand Aquifer.</p> <p>4 We now know that it's a regionally extensive</p> <p>5 aquifer, it dips toward southeast, it's present</p> <p>6 over numerous areas, it has enduring properties.</p> <p>7 And so knowing the new</p> <p>8 three-dimensional understanding of the aquifer, we</p> <p>9 also recognized that the analyses for</p> <p>10 transmissivity should probably be different to</p> <p>11 incorporate that. We also recognize that it's</p> <p>12 unconfined toward the northeastern areas and more</p> <p>13 confined toward the more southwestern areas.</p> <p>14 And therefore, with this new</p> <p>15 understanding we would analyze the data with that</p> <p>16 in mind, and also realizing that many of the</p> <p>17 methods that have been used were incorrect because</p> <p>18 they did not have that understanding.</p> <p>19 Q. Was there an understanding in those</p> <p>20 earlier aquifer tests of potential spatial</p> <p>21 distribution of transmissivities in the aquifer?</p> <p>22 A. No. It was really seen as that there</p> <p>23 were these -- a deep confined aquifer, an</p> <p>24 intermediate confined aquifer, a shallow</p> <p>25 unconfined, each having different properties.</p>
<p style="text-align: right;">Page 1512</p> <p>1 pumping test analyses, I managed and directed</p> <p>2 development of the numerical model, I created</p> <p>3 analytical models, I reviewed all the data and</p> <p>4 synthesized the various pumping sets of data, of</p> <p>5 common chemistry, to pull the pieces together.</p> <p>6 Q. Did you have contact with the Idaho</p> <p>7 Department of Water Resources staff during this</p> <p>8 period?</p> <p>9 A. Yes. We met both in the field and</p> <p>10 when we toured the site and discussed various</p> <p>11 aspects of the project, also with staff as part of</p> <p>12 the North Ada County Technical Advisory Group.</p> <p>13 Q. Okay. I'd like you to refer to</p> <p>14 Exhibit 12, which is now familiar to this</p> <p>15 proceeding, entitled "Reanalysis of 16 Aquifer</p> <p>16 Tests." I notice that you are the principal</p> <p>17 author on this.</p> <p>18 A. That is correct.</p> <p>19 Q. Why reanalyze previous aquifer tests?</p> <p>20 And in that connection, perhaps you can expand to</p> <p>21 tell us what this is -- what this document is all</p> <p>22 about.</p> <p>23 A. That's a good point. These tests --</p> <p>24 many of these tests have been conducted since the</p> <p>25 early '90s, done by a variety of people. But the</p>	<p style="text-align: right;">Page 1514</p> <p>1 There was nothing really tying that all together.</p> <p>2 Q. Did some of the earlier analyses</p> <p>3 evaluate different depths, say moving toward Star,</p> <p>4 as being different aquifers, when in fact they</p> <p>5 were in the PGSA all along?</p> <p>6 A. Yes. In fact, I think that came from</p> <p>7 the Treasure Valley Hydrologic Project. So it was</p> <p>8 envisioned that Star, which has a bottom of the</p> <p>9 aquifer -- Star 3, as I recall, the bottom is</p> <p>10 around 700 feet, was viewed as a different aquifer</p> <p>11 than, say, the Eagle field well, or even the</p> <p>12 Lexington Hills well, which has a bottom of the</p> <p>13 aquifer, as I recall, somewhere around 325 feet.</p> <p>14 So they were seen as different systems. But in</p> <p>15 fact, we now know it is all one system.</p> <p>16 Q. You mentioned that the analytical</p> <p>17 methods used in these previous aquifer tests were</p> <p>18 not all correctly applied, or something to that</p> <p>19 effect.</p> <p>20 Could you elaborate on that, please.</p> <p>21 A. Yeah, there were several aspects. One</p> <p>22 of them is that many times they use the</p> <p>23 Cooper-Jacob method, which is a good method when</p> <p>24 applied correctly, but oftentimes the observation</p> <p>25 wells were too far away for the method to be</p>

<p style="text-align: right;">Page 1515</p> <p>1 correctly applied.</p> <p>2       There were situations where --</p> <p>3 especially with the Lexington Hills test, where</p> <p>4 the drawdown curve would flatten off, which then</p> <p>5 indicated that it was an unconfined system,</p> <p>6 something we call delayed yield, and that they</p> <p>7 incorrectly did not recognize that.</p> <p>8       Barometric corrections were mentioned</p> <p>9 as important, but not applied. Water-level trend</p> <p>10 corrections were noted as having an effect on the</p> <p>11 data, but not applied.</p> <p>12       Q. What are water-level trend data, and</p> <p>13 how do you use them in an aquifer test?</p> <p>14       A. When we look at our long-term</p> <p>15 monitoring data we take on a continuous basis, we</p> <p>16 realize that the water levels vary. And</p> <p>17 Mr. Squires testified to this earlier. They vary.</p> <p>18 They are higher in the winter during December,</p> <p>19 January, February, and they're lower at the end of</p> <p>20 the irrigation season as a result of pumping.</p> <p>21 Water levels go down, pumping ceases, the recharge</p> <p>22 compensates, the water levels go back up.</p> <p>23       So even if you weren't pumping, the</p> <p>24 water levels would be changing. And therefore,</p> <p>25 correcting for that change allows you to see the</p>	<p style="text-align: right;">Page 1517</p> <p>1       We recognize -- and this is a major</p> <p>2 contribution, is the confined nature to the west,</p> <p>3 the less confined and unconfined nature to the</p> <p>4 northeast, and the fact that it's a single</p> <p>5 continuous aquifer.</p> <p>6       Q. Okay. What about transmissivities in</p> <p>7 the aquifer? I think you mentioned that. What</p> <p>8 did you find there?</p> <p>9       A. Well, we found that the average, the</p> <p>10 mean, is a 210,000 gallons per day, per foot,</p> <p>11 which is higher than previously believed. It</p> <p>12 indicates that it's a very transmissive aquifer</p> <p>13 that water can flow, through the system quickly.</p> <p>14       Q. I'd like you to refer to Exhibit 12,</p> <p>15 page 238, please -- or 237. I note that that</p> <p>16 section is entitled "Summary of Regional Aquifer</p> <p>17 Characteristics."</p> <p>18       And I would just like to ask you,</p> <p>19 Mr. Utting, whether this is still what you</p> <p>20 consider to be an accurate summation of the</p> <p>21 regional aquifer characteristics, as determined in</p> <p>22 this study?</p> <p>23       A. Yes. The only slight exception I</p> <p>24 would make is we have conducted the SVR-7 aquifer</p> <p>25 test, which actually indicated a higher value than</p>
<p style="text-align: right;">Page 1516</p> <p>1 real properties of the aquifer and the effects of</p> <p>2 pumping.</p> <p>3       Q. Did the earlier aquifer tests that</p> <p>4 were analyzed in Exhibit 12 rely on the Theis</p> <p>5 equation, did they rely on some other evaluation</p> <p>6 package, or something like that?</p> <p>7       A. Yeah, basic --</p> <p>8       Q. How did they approach this?</p> <p>9       A. Typically, the Theis equation, which</p> <p>10 is really the grandfather of all well analysis</p> <p>11 equations, everything has evolved from that, and</p> <p>12 then the simplified version of Cooper-Jacob were</p> <p>13 used, but more sophisticated methods that</p> <p>14 recognize water table behavior or variations in</p> <p>15 aquifer property were not applied.</p> <p>16       Q. So what were the contributions of the</p> <p>17 16 aquifer test reanalysis?</p> <p>18       A. Well, I think the main contribution, a</p> <p>19 big contribution anyway, is recognizing the</p> <p>20 extensive, continuous nature of the Pierce Gulch</p> <p>21 Sand Aquifer, that it has a transmissivity that's</p> <p>22 greater than recognized before. Many of the</p> <p>23 analyses assumed a 100-foot thick aquifer, when in</p> <p>24 fact we know it's 270, and in some places</p> <p>25 effectively 500 feet thick.</p>	<p style="text-align: right;">Page 1518</p> <p>1 this mean. And we would therefore increase it</p> <p>2 slightly higher.</p> <p>3       Q. And where are you referring, sir?</p> <p>4       A. Well, we talk about the conclusions of</p> <p>5 the transmissivity averaging 210,000.</p> <p>6       Q. Which page are you referring to?</p> <p>7       A. This would be on page 238, conclusion</p> <p>8 No. 4. And we have an average mean here in that</p> <p>9 sense. "The average mean of all meaningful</p> <p>10 transmissivity values for the Pierce Gulch Sand</p> <p>11 Aquifer listed in table 3 is 210,000 gallons per</p> <p>12 day, per foot, rounded to two significant</p> <p>13 figures."</p> <p>14       Q. Do you believe that is still correct,</p> <p>15 or how would you --</p> <p>16       A. I would suspect it's going to be</p> <p>17 slightly higher now, because we have one more</p> <p>18 value to add to that since this report was done.</p> <p>19       Q. And what value would that be?</p> <p>20       A. That would be the 410,000 gallons per</p> <p>21 day, per foot that we included as the average</p> <p>22 transmissivity from the SVR-7 test, which I can</p> <p>23 discuss later, if you want.</p> <p>24       THE HEARING OFFICER: Okay. Let me jump</p> <p>25 in.</p>

<p style="text-align: right;">Page 1519</p> <p>1 MR. FEREDAY: Okay.</p> <p>2 THE HEARING OFFICER: Could I ask that this</p> <p>3 examination be just a little more deliberate,</p> <p>4 so --</p> <p>5 MR. FEREDAY: A little slower?</p> <p>6 THE HEARING OFFICER: Yeah.</p> <p>7 THE WITNESS: I'm sorry.</p> <p>8 THE HEARING OFFICER: Mr. Utting, you're</p> <p>9 almost cutting Mr. Fereday off and jumping to the</p> <p>10 answer. Count to one or two, and then respond, if</p> <p>11 you would.</p> <p>12 THE WITNESS: Thank you for reminding me.</p> <p>13 I appreciate it.</p> <p>14 THE HEARING OFFICER: Thanks.</p> <p>15 Q. (BY MR. FEREDAY): You have mentioned,</p> <p>16 Mr. Utting, the Treasure Valley Hydrologic</p> <p>17 Project.</p> <p>18 Did the 16 aquifer test report,</p> <p>19 Exhibit 12, shed any light on what the Treasure</p> <p>20 Valley Hydrologic Project had previously</p> <p>21 determined or speculated about the aquifers in</p> <p>22 this area?</p> <p>23 A. Yes. I believe that they were in</p> <p>24 error in their description of the three layered</p> <p>25 aquifers of the deeper confined, intermediate</p>	<p style="text-align: right;">Page 1521</p> <p>1 Do you agree with that?</p> <p>2 A. I agree that that is incorrect.</p> <p>3 Q. When you indicated that overlying</p> <p>4 aquifer units may be connected to the PGSA, what</p> <p>5 do you mean by "connected"?</p> <p>6 A. I mean that especially in the eastern</p> <p>7 areas where the PGSA comes up closer to the ground</p> <p>8 surface, and in fact under the M3 site where it</p> <p>9 comes up to the ground surface, there is not a</p> <p>10 thick layer of silt and clay separating the PGSA</p> <p>11 from overlying zones. And there is some degree of</p> <p>12 hydraulic connection such that when you pump a</p> <p>13 well in the PGSA, there is potential for some flow</p> <p>14 of water between the zones.</p> <p>15 Q. In addition to re-analyzing these</p> <p>16 previous aquifer tests, 16 in all, you oversaw two</p> <p>17 major aquifer tests of your own, did you not?</p> <p>18 A. That is correct.</p> <p>19 Q. And isn't it also true that the Kling</p> <p>20 test, the first of these two, was part of what you</p> <p>21 analyzed in the 16 aquifer test document?</p> <p>22 A. That is correct.</p> <p>23 Q. Could you describe what you did with</p> <p>24 regard to the Kling irrigation well aquifer test.</p> <p>25 A. The Kling test was an opportunistic</p>
<p style="text-align: right;">Page 1520</p> <p>1 confined, shallow unconfined aquifer. That is in</p> <p>2 fact correct -- incorrect.</p> <p>3 We have now the knowledge that what is</p> <p>4 deeper in the Star area is now shallower in the</p> <p>5 Lexington Hills or in the M3 area; and therefore,</p> <p>6 their model is incorrect. It's one extensive</p> <p>7 Pierce Gulch Sand Aquifer, overlaying in some</p> <p>8 areas by unnamed alluvial aquifers that are in</p> <p>9 hydraulic communication in areas, and other areas</p> <p>10 separated, by low permeability silt and clay</p> <p>11 areas.</p> <p>12 Q. Could you repeat that last statement.</p> <p>13 A. They are connected in some areas --</p> <p>14 hydraulically connected, like in the northeast</p> <p>15 areas, but separated in the southwest areas by low</p> <p>16 permeability silt and clay areas.</p> <p>17 Q. Okay. Did you hear Dr. Wood's</p> <p>18 testimony with regard to the Treasure Valley</p> <p>19 Hydrologic Project selection of a model boundary?</p> <p>20 A. Yes, I did.</p> <p>21 Q. I believe Dr. Wood indicated that the</p> <p>22 TVHP selected a model boundary somewhere around</p> <p>23 the -- I believe the hydrologic surface water</p> <p>24 divide between the Payette and the Boise Rivers,</p> <p>25 and he suggested that that was not correct.</p>	<p style="text-align: right;">Page 1522</p> <p>1 test of the existing irrigation well which was on</p> <p>2 the property, which had been installed for</p> <p>3 supplemental use. We had the opportunity to</p> <p>4 pump-test that well and measure water levels in 15</p> <p>5 different discrete data point locations, a total</p> <p>6 of seven wells all together. And we had</p> <p>7 opportunity to pump it for a couple days.</p> <p>8 There was a limitation imposed</p> <p>9 proceeded on us by the -- the Farmers Union Ditch</p> <p>10 Company for the use of their ditch. But we knew</p> <p>11 that we could have two days of a carefully</p> <p>12 controlled aquifer test.</p> <p>13 So we pumped the well for a little</p> <p>14 over two days. And we pumped it at a very</p> <p>15 constant 900 gallons per minute, and we measured</p> <p>16 drawdown both by hand and electronically in that</p> <p>17 well and in 14 other wells.</p> <p>18 Q. Were those 14 other wells completed in</p> <p>19 the PGSA?</p> <p>20 A. They were all completed in the PGSA</p> <p>21 with the exception of a few shallow zones that</p> <p>22 were in the overlying alluvial aquifer, unnamed</p> <p>23 alluvial aquifer.</p> <p>24 Q. And these are the same monitoring</p> <p>25 wells, I take it, that Mr. Squires previously</p>

<p style="text-align: right;">Page 1523</p> <p>1 described briefly in his testimony; is that right?</p> <p>2 A. That is correct.</p> <p>3 Q. And how long was the Kling test?</p> <p>4 A. We pumped for 50 hours, 3,000 minutes.</p> <p>5 Q. And why did you end at 50 hours?</p> <p>6 A. Well, we had a limitation on the use</p> <p>7 of the ditch.</p> <p>8 Q. And that limitation was what?</p> <p>9 A. Well, they were reluctant to let us</p> <p>10 use it. They were --</p> <p>11 Q. Use it for what?</p> <p>12 A. Oh, sorry. To discharge our water</p> <p>13 into a storage pond, that then discharged into the</p> <p>14 irrigation ditch. We had to get rid of the water.</p> <p>15 We had to get rid of it in such a way that it</p> <p>16 flowed away from the well site and did not cause</p> <p>17 damage.</p> <p>18 Q. I'd like you to refer to Exhibit 12,</p> <p>19 figure 80, please. And once again, figure 12 is</p> <p>20 the 16 aquifer test study.</p> <p>21 A. You mean Exhibit 12?</p> <p>22 Q. Exhibit 12, figure 80.</p> <p>23 A. Figure 80.</p> <p>24 Q. That's page 219.</p> <p>25 A. Thank you.</p>	<p style="text-align: right;">Page 1525</p> <p>1 work as a well without the well screen being</p> <p>2 plugged. It also seemed to have other</p> <p>3 construction flaws, such as the screen was</p> <p>4 actually higher than it should have been.</p> <p>5 But in spite of that, we were able to</p> <p>6 pump municipal quantities of water, so we were</p> <p>7 getting 900 gallons per minute. Water quality</p> <p>8 analyses indicated municipal quality of water.</p> <p>9 We came up with a transmissivity of</p> <p>10 that zone of about 39,000 gallons per day, per</p> <p>11 foot. And we saw no indication of any hydraulic</p> <p>12 barriers.</p> <p>13 Q. Was that transmissivity a little bit</p> <p>14 lower or was it higher than other transmissivities</p> <p>15 you've measured in the PGSA?</p> <p>16 A. Yes. That -- that value of</p> <p>17 transmissivity was lower than our average by quite</p> <p>18 a bit. But it's also consistent with the</p> <p>19 depositional model of having the more permeable</p> <p>20 materials closer to the source, which would be the</p> <p>21 Willow -- excuse me, the Terteling Springs</p> <p>22 formation sand deltas that were then reworked to</p> <p>23 form the Pierce Gulch sands. And the</p> <p>24 understanding from that process is that as you get</p> <p>25 further away, things will be lower in</p>
<p style="text-align: right;">Page 1524</p> <p>1 Yes.</p> <p>2 Q. Could you describe what this is,</p> <p>3 please.</p> <p>4 A. This is a map of the M3 property. It</p> <p>5 shows the outlines of the property. It shows the</p> <p>6 well that was pumped, the Kling irrigation well,</p> <p>7 as a red diamond. It shows the observation well</p> <p>8 locations as green diamonds. It shows the</p> <p>9 distances between the pumping well and the</p> <p>10 observation wells, and lists the names of the</p> <p>11 observation wells.</p> <p>12 Q. What was the water-level monitoring</p> <p>13 schedule that you carried out for this test,</p> <p>14 Mr. Utting?</p> <p>15 A. We had electronic data loggers that</p> <p>16 were measuring every minute. And we started</p> <p>17 before the test for a couple days, we pumped, and</p> <p>18 then we had up to nine days afterwards of recovery</p> <p>19 water-level information.</p> <p>20 Q. What did the Kling pumping test show?</p> <p>21 A. It showed a very -- well, a couple</p> <p>22 things. It was very productive. The well, even</p> <p>23 though it was a poorly constructed irrigation</p> <p>24 well -- I have to add that it was quite plugged.</p> <p>25 We had to do a lot of work to get it to actually</p>	<p style="text-align: right;">Page 1526</p> <p>1 permeability, and therefore lower in</p> <p>2 transmissivity.</p> <p>3 Q. Which wells responded to the Kling</p> <p>4 pump test?</p> <p>5 A. The only well that responded beyond</p> <p>6 the pumping well would have been the set of four</p> <p>7 wells completed at test well 1. When I say a set</p> <p>8 of four wells, we had discrete zones of completion</p> <p>9 within the one borehole so that we could look at</p> <p>10 the various response within the different portions</p> <p>11 of the Pierce Gulch Sand Aquifer. None of the</p> <p>12 other wells monitored during the test showed a</p> <p>13 response to pumping during that 50 hours.</p> <p>14 Q. Would you expect the Kling well</p> <p>15 pumping to have shown up in, say, the SVR-7 well?</p> <p>16 A. No, SVR-7 and the other wells were too</p> <p>17 far away from the pumping well. When you pump a</p> <p>18 well, it takes time for the cone of depression to</p> <p>19 move outward. We know that further wells respond</p> <p>20 later.</p> <p>21 We took the values of transmissivity</p> <p>22 and storativity that we calculated from the test</p> <p>23 and did a prediction of what we should have seen</p> <p>24 at those wells. And none of those other wells</p> <p>25 should have responded, using those values, within</p>

<p style="text-align: right;">Page 1527</p> <p>1 the time period of the test. So therefore, that  2 was consistent with the analysis, a verification  3 of the analysis.  4 Q. Did your prediction predict that test  5 well I would respond?  6 A. Yes. And it responded in the range  7 that we expected it should have.  8 Q. Did you hear Mr. Vincent's testimony  9 that perhaps there could be some sort of boundary  10 or blockage in the aquifer in that panhandle area  11 near the Kling well?  12 A. Yes, I did.  13 Q. What is your view about the boundary?  14 And I recognize you've already mentioned this, but  15 could you clarify it in response to what you heard  16 Mr. Vincent say.  17 A. Well, there was some concern because  18 Dr. Wood, in his testimony and in presenting a  19 material to us, indicated that there was  20 magnetometer data that -- within the deep-seated  21 bedrock that there was indication of a fault.  22 So our policy on this project has to  23 be very transparent and look at all the  24 possibilities, consider everything. So we looked  25 to see if there was a hydraulic indication of a</p>	<p style="text-align: right;">Page 1529</p> <p>1 record. Thanks.  2 MR. FEREDAY: Thank you, Mr. Hearing  3 Officer.  4 Q. Could you explain the Cooper-Jacob  5 method?  6 A. Yes. When you pump an aquifer, at  7 least during the initial portions of pumping, it  8 behaves such that the cone of depression is moving  9 outward. And if it moves outward through a  10 uniform aquifer, you get, after a short time, a  11 straight-line plot on a semi-log graph such as  12 this one.  13 When you have a straight line, that  14 straight line can be used to calculate the aquifer  15 transmissivity. When you see that line changing,  16 say becoming steeper, that would indicate a  17 no-flow boundary.  18 Q. On the other hand, if it turns the  19 other way and --  20 A. Then --  21 Q. -- begins to flatten out or becomes  22 less steep, what does that indicate?  23 A. That would indicate what we call a  24 positive or a recharge boundary.  25 Q. On this Cooper-Jacobs plot, figure 81,</p>
<p style="text-align: right;">Page 1528</p> <p>1 fault. And we did not see it.  2 Q. I'd like you to refer to figure 81,  3 please, on page 220 of Exhibit 12.  4 Do you see that?  5 A. Yes.  6 Q. Could you tell us what this shows?  7 A. This is the drawdown plot in the  8 pumping well during the test. And it shows the  9 difference in water level from the initial static  10 water level. And it's on what's called a semi-log  11 plot, such that time is shown logarithmically,  12 over on the vertical axis it's shown in a linear  13 scale.  14 Q. What type of a plot is this? What  15 technique did you use to make --  16 A. This would be --  17 Q. -- this plot?  18 A. -- a plot used for a Cooper-Jacob  19 analysis.  20 THE HEARING OFFICER: Okay. Once again, I  21 want to remind you, Mr. Utting, count to one or  22 two after Mr. Fereday asks his question because he  23 almost doesn't have the words out or doesn't and  24 you're responding. And I appreciate you're  25 anxious to get it out. But it messes up our</p>	<p style="text-align: right;">Page 1530</p> <p>1 we have two lines, a very steep line, essentially  2 45 degrees down to the right, then a much  3 shallower line down to the right.  4 What causes these two lines?  5 A. The first portion that you refer to as  6 a line, which would be occurring in the first two,  7 three, four, five -- six to eight minutes would be  8 the effect of the pump removing water from both  9 the well casing and the aquifer. We call that  10 well bore storage effects, such that the drawdown  11 doesn't go down as fast as it would otherwise.  12 When those borehole effects have  13 ceased to be significant, we get the remainder of  14 this graph, which is pretty much a straight line,  15 which shows the behavior of the aquifer.  16 At the very end, we might be able to  17 say the data are rising slightly off that  18 straight-line plot, which could indicate positive  19 boundary and would be consistent with the cone of  20 depression intersecting a higher transmissivity  21 zone within the aquifer, which is what we found is  22 the case in the SVR-7 pumping test, which we'll  23 talk about later.  24 Q. Yeah, we'll get to the SVR-7 test in a  25 minute.</p>

<p style="text-align: right;">Page 1531</p> <p>1 So what is your conclusion, 2 Mr. Utting, with regard to the potential existence 3 of boundaries in the vicinity of the Kling 4 irrigation well, based on this pump test? 5 A. This pump test indicates no definitive 6 boundaries in the vicinity of the Kling irrigation 7 well within the Pierce Gulch Sand Aquifer. 8 Q. I'd like you to refer to the text on 9 page 204 of Exhibit 12, if you would, please. 10 Paragraph 2. 11 A. 204? Paragraph 2, meaning the one 12 immediately after drawdown after -- are removed or 13 the one following that, complete paragraph? 14 Q. The second full paragraph, I believe. 15 Does that address this question of 16 boundaries? And perhaps it doesn't. And if not, 17 perhaps you could show me where it does on that 18 page. 19 A. Actually, it would be the first full 20 paragraph on that page. 21 Q. Thank you. 22 A. And that -- 23 Q. Is your testimony consistent with what 24 was stated back when this report was done? 25 A. Yes, it is.</p>	<p style="text-align: right;">Page 1533</p> <p>1 presented by Dr. Wood and Ed Squires on the 2 depositional history of the Pierce Gulch Sand 3 Aquifer. 4 Q. Was the Kling pumping test and data 5 analysis performed in a scientifically sound way, 6 Mr. Utting? 7 A. Yes, it was. It was the first pumping 8 test that I saw of all the 16 of the Treasure 9 Valley that had such precision on data 10 measurement, that corrected for barometric 11 efficiency, that was done at the time of year 12 where water-level trends were not significant, and 13 that used a thorough set of analyses to consider 14 any of the possibilities of hydraulic boundary 15 effects. 16 Q. What did the Kling well test show us 17 as to the quantities of water that might be 18 available under the M3 property? 19 A. Well, it verified that the Pierce 20 Gulch Sand Aquifer is highly productive in the 21 panhandle area, and that municipal quantities of 22 water with municipal quality standards being met 23 are entirely feasible. 24 Q. At the end of the Kling test, in your 25 analysis of it, what was your view as to whether</p>
<p style="text-align: right;">Page 1532</p> <p>1 Q. Could you refer to figure 80, the map. 2 I believe it's on page 219. 3 A. I have it in front of me. 4 Q. Okay. And could you show us, 5 Mr. Utting, on that map where that deep fault was 6 located by the magnetometer study. 7 A. We have a dashed red line here through 8 what we've referred to as the panhandle. 9 Q. Yes. 10 A. And this would be the location of the 11 fault described by Dr. Wood in the bedrock. 12 Q. With regard to the potential positive 13 boundary from the Cooper-Jacob's plot on figure 81 14 out to the far extreme of that line, how does that 15 relate to your conceptual model of the Pierce 16 Gulch Sand Aquifer? 17 A. It's totally consistent in that the 18 slight rise -- I'll try not to blind you with the 19 pointer here -- near the end here where the water 20 levels rise slightly above the projection could be 21 the beginning of a flattening of that drawdown 22 curve that would be indicative of the cone of 23 depression moving toward this higher 24 transmissivity zone, which is totally consistent 25 with my understanding and the understanding</p>	<p style="text-align: right;">Page 1534</p> <p>1 Mr. Squires was on the right track in his concept 2 of the aquifer? 3 A. My belief at that point was he was 4 entirely on track and that the conceptual model 5 that was being developed was entirely correct. 6 Q. Let's move now to the SVR-7 aquifer 7 test, please. And could you describe your role in 8 that test and what it was. 9 A. My role in the test was to participate 10 in the startup of the test, was to work with staff 11 in reducing the raw data and -- to Excel 12 spreadsheet format. I was then able to correct 13 for both barometric effects, calculate water-level 14 trend effects, take those data and calculate 15 drawdowns, calculate the hydraulic parameters of 16 the aquifer, look at boundary effects, and write 17 up the report. 18 Q. What exactly was done in the test? 19 How long was it, and what did it involve? 20 A. This was a nine-day test. And we used 21 what had been constructed as a temporary test 22 well, which was well SVR-7. And it was a well 23 that we developed so that it could produce water. 24 And it was pumped at 917 gallons per minute at a 25 very precise controlled rate for nine days.</p>

<p style="text-align: right;">Page 1535</p> <p>1 We measured water levels in 26 2 different wells. Two of those were dry, because 3 one of the issues was the potential for 4 recirculation of water during pumping. And by 5 measuring those dry wells completed in the gulch, 6 it helped verify that didn't occur. 7 We measured water levels before, 8 during, and after, and those wells also continued 9 as part of our monitoring program. So we have 10 data from beginning of March through the end of 11 May for these wells in '08. 12 Q. That's March of 2008? 13 A. 2008. 14 Q. Could you refer to Exhibit 44, please. 15 Could you describe to the Hearing Officer what 16 Exhibit 44 is, please. 17 A. Exhibit 44 is the Hydro Logic report, 18 "A Nine-day Constant Rate Discharge Aquifer Test 19 of the SVR No. 7 Test Well, Big Gulch, North Ada 20 County, Idaho." 21 Q. And did you author this study? 22 A. I wrote the first draft, and then 23 worked with Mr. Squires through an editing process 24 to prepare this document. I produced a number of 25 the figures. Hydro Logic staff produced some of</p>	<p style="text-align: right;">Page 1537</p> <p>1 Sand Aquifer had the same high quality that was 2 contained from other wells, such as United Water 3 of Idaho, City of Eagle, Star. 4 Q. Didn't you get some of this same 5 information already from the previous Kling test? 6 A. Well, we had some of the information. 7 We were able to see what occurred in terms of 8 pumping response, water quality, and productivity 9 from the panhandle region. But because it takes 10 time for a cone of depression to move outward and 11 because of the limited time that we could pump the 12 Kling well, we wanted to do a longer term test 13 monitoring more wells -- in fact, it was one of 14 the recommendations that we made in the 16 aquifer 15 tests, that we do a long-term test in the upland 16 area. 17 Q. In Exhibit 44, your report on the 18 SVR-7 aquifer test, was it reviewed by other 19 researchers and other hydrogeologists, other than 20 Mr. Squires? 21 A. Yes. Dr. Jim Osiensky from the 22 University of Idaho reviewed my work on this, 23 reviewed all our work, also reviewed work on the 24 16 aquifer tests. So he was an essential reviewer 25 professional.</p>
<p style="text-align: right;">Page 1536</p> <p>1 the figures. But I had a major role. 2 Q. Let's look at figure 2 in Exhibit 44. 3 I believe it's right after page 72. 4 A. I'm there. 5 Q. Is that an accurate description of the 6 locations of the various wells that were used as 7 monitoring wells during the SVR-7 test, as well as 8 the SVR-7 well itself? 9 A. Yes, that is correct. 10 Q. Why was this aquifer test done, 11 Mr. Utting? 12 A. Well, I think the main reason was we 13 knew that the panhandle area of the Pierce Gulch 14 Sand Aquifer was productive. And we knew that 15 areas to the south of the M3 property of the 16 Pierce Gulch Sand Aquifer were productive, but we 17 wanted to verify both quantity of water and 18 quality of water from the Pierce Gulch sand 19 beneath the more central portions of the property; 20 and lastly, to obtain more data on aquifer 21 properties. 22 Q. Did you also want to determine aquifer 23 water quality data? 24 A. Yes. We wanted to verify that the 25 water that would be pumped from the Pierce Gulch</p>	<p style="text-align: right;">Page 1538</p> <p>1 I also discussed matters with the 2 developer of Aqtesolv, an application of the 3 software and some of the aspects there. I also 4 asked a few questions and got some good feedback 5 from Dr. Butler, the Kansas Geological Survey. So 6 others were involved reviewing our work and 7 getting it done. 8 Q. Was Dr. Wood also involved in 9 reviewing the SVR-7 aquifer test report? 10 A. He had a role to play in the geologic 11 portion. I don't recall if he reviewed and gave 12 input on the hydraulic portion. 13 Q. Did Dr. Osiensky indicate to you that 14 this report was competent or had any problems? Or 15 what did he indicate to you? 16 MR. ALAN SMITH: Objection. Hearsay. 17 THE HEARING OFFICER: Not yet. 18 THE WITNESS: Dr. Osiensky told me that it 19 was -- 20 MR. ALAN SMITH: Objection. Hearsay. 21 THE HEARING OFFICER: Well, technically, 22 this is, I guess. But let's -- 23 MR. FEREDAY: Mr. Hearing Officer, if I 24 could respond. 25 THE HEARING OFFICER: Yeah.</p>

<p style="text-align: right;">Page 1539</p> <p>1 MR. FEREDAY: I believe this is the type of  2 input in terms of peer review that is normally  3 used by scientists in this field, and I think it  4 would be appropriate. If necessary, we can bring  5 Dr. Osiensky here, I suppose. But I think it's an  6 appropriate area of inquiry.  7 MR. ALAN SMITH: It's still hearsay, Judge.  8 We object.  9 THE HEARING OFFICER: Mr. Smith, I'm  10 impressed by your recognition of certain  11 evidentiary matters. And you've done this several  12 times now, and you're astute in your observations.  13 One of the -- one of the hallmarks of  14 an administrative hearing, however, is that the  15 rules of evidence are relaxed. And this is  16 particularly true, in my opinion, with hearsay. I  17 regularly allow hearsay into the record, provided  18 that I think it's reliable and comes from a source  19 that I think is believable.  20 My sense is, Mr. Smith, in my long-ago  21 study of hearsay is that it was developed  22 primarily to protect juries and not necessarily  23 the administrative hearing officer.  24 So I'll allow at least some  25 questioning, and we'll see where it goes. So</p>	<p style="text-align: right;">Page 1541</p> <p>1 other words, the increase in drawdown -- was  2 getting smaller and smaller, yet we were having to  3 deal with barometric effects and water-level  4 trends that were relatively large.  5 So pumping longer would not have given  6 us any additional information. We did, however,  7 extend it for two days beyond that seven days,  8 just to verify that that was in fact the case. So  9 pumping longer would not have given us any  10 additional data for analysis.  11 Q. Did the tests reach, in your opinion,  12 a steady-state condition?  13 A. Steady state in terms of the changes  14 being so small. From a practical point, yes.  15 Q. Do you understand that the Department  16 of Water Resources staff has suggested that an  17 even longer aquifer test on the M3 property might  18 be appropriate?  19 A. I have heard that suggestion, yes.  20 Q. What is your comment with regard to  21 that?  22 A. My comment with regard to that is that  23 longer would not give us any additional data,  24 especially when you're running a test when the  25 irrigation season is just beginning and</p>
<p style="text-align: right;">Page 1540</p> <p>1 overruled at this point. Anyway, I do appreciate  2 your recognition of hearsay, and I don't want to  3 squelch it. Okay. Thanks.  4 Now, the question again, maybe, I --  5 Q. (BY MR. FEREDAY): Did Dr. Osiensky --  6 what was the nature of Dr. Osiensky's feedback,  7 Mr. Utting?  8 A. His feedback was positive on the  9 methods of analysis and the results. He suggested  10 some wording changes, which we incorporated. But  11 all in all, it was a very positive review.  12 THE HEARING OFFICER: Now, just an  13 interjection, Mr. Smith. What Mr. Utting just  14 said, in my opinion, is not hearsay.  15 MR. ALAN SMITH: Very well.  16 THE HEARING OFFICER: So let's go on.  17 Q. (BY MR. FEREDAY): Was the SVR-7  18 aquifer test of a long enough duration to provide  19 scientifically sound conclusions, Mr. Utting?  20 A. Yes, it was. We monitor all the data  21 that's being collected in the field as we proceed.  22 So we're plotting up the data as we go along so  23 that we know what we're getting.  24 About seven days into the test, we  25 realized that the responses we were getting -- in</p>	<p style="text-align: right;">Page 1542</p> <p>1 water-level drawdowns are going down.  2 We got the values we needed for  3 transmissivity, storativity. We saw the effects  4 of the unconfined zone toward the northeast. We  5 obtained all the data that we needed. Pumping it  6 longer, doing a longer test would not give us any  7 additional information.  8 Q. How expensive are these aquifer tests?  9 And I understand that Mr. Squires has already  10 commented from his point of view on this. But  11 perhaps you could give us your views on the  12 expense involved in an aquifer test.  13 A. We are talking many thousands of  14 dollars a day. The cost for the diesel fuel alone  15 was a thousand dollars a day. We also had to rent  16 a huge motor generator to run the specialty pump  17 that was in the well. That cost was huge.  18 We had to maintain on-site staff, both  19 to operate the pump and generator assembly, as  20 well as field staff who work around the clock to  21 obtain data. So we're talking about many  22 thousands of dollars a day.  23 And if you'll recall, a lot of times  24 we plot these with logarithm to time. So we get  25 one week's worth of data, you'd have to go another</p>

<p style="text-align: right;">Page 1543</p> <p>1 month to get sort of the next little increment, 2 and therefore it's just prohibitive to go longer, 3 especially when there would be no additional 4 benefit. 5 Q. You mentioned that this test was done 6 in March of 2008. 7 Why was it done in March, rather than, 8 say, in February or January? 9 A. Well, we would have loved to have done 10 it in the cold of winter. There are many 11 advantages. The advantages being the water level 12 remaining stable, frozen ground for transit to get 13 to wells. 14 But we filed -- Hydro Logic filed a 15 prospectus with the Department of Water Resources 16 in October to do a major aquifer test. We had 17 proposed at that time, and M3 and willing to fund, 18 a large-diameter production well near the M3 test 19 well 4 site. 20 The purpose of the prospectus was to 21 get comments and an understanding from Water 22 Resources that the procedure was, in fact, the 23 correct one. 24 Unfortunately, we did not hear back 25 from Water Resources until late January, as I</p>	<p style="text-align: right;">Page 1545</p> <p>1 we have been measuring in M3 Eagle test well 2 No. 1, which was the first purposefully 3 constructed monitoring well that Hydro Logic put 4 on the M3 property. It shows water levels that we 5 have been measuring since November of 2006. It 6 also shows the water levels that we've been 7 measuring in M3 Eagle test well No. 4 and that 8 those water levels start in early March. And 9 that's because that's when that well was 10 completed. 11 Q. With regard to the figure -- I believe 12 it's figure 3 of Exhibit 44, the map -- 13 A. Yes. 14 Q. Figure 2. Excuse me. Could you just 15 point out to the Hearing Officer where test well 1 16 and test well 4 are. 17 A. Test well 1 is down here in the 18 panhandle (indicating). Test well 4 is at this 19 location (indicating). It's about halfway between 20 test well 1 and the pumping well SVR-7. 21 Q. So these are on opposite sides of that 22 inferred deep fault; is that correct? 23 A. That is correct. 24 Q. Now, with regard to the orange line on 25 figure 5, test well 1 and its hydrograph, could</p>
<p style="text-align: right;">Page 1544</p> <p>1 recall. And by that time it was far too late to 2 then drill a well, develop a well, and get going 3 on an aquifer test. We would have had to have 4 waited at least a year to do that. 5 So we recognized we had this one well 6 that, with the proper development and the proper 7 pump, could produce municipal quantities of water. 8 And that would be SVR-7. And so the 9 large-diameter casing that had been sealed in for 10 the production well that was going to be -- this 11 large-diameter production well, we converted that 12 to an observation well so that we could see 13 water-level drawdowns. And we proceeded to 14 develop SVR No. 7 so we could use it as a pumping 15 well, secured the necessary equipment to make the 16 test happen. And that was a rush to get it in to 17 start by March 10th when we did start pumping. 18 Q. Thank you. 19 I'd like you to refer to Exhibit 45, 20 please. And figure 5 of that exhibit is what I'm 21 going to inquire about. 22 A. I'm at figure 5. 23 Q. Could you describe what figure 5 24 shows. 25 A. Figure 5 shows the water levels that</p>	<p style="text-align: right;">Page 1546</p> <p>1 you tell us what is going on with what appears to 2 be a seasonal down and up trend on that well. 3 Could you describe what that is. 4 A. We see on this figure water levels 5 that are much higher during December, January, 6 February, and March, and then declining to much 7 lower water levels that we see July, August, and 8 September. 9 These water-level changes occur 10 because of seasonal pumping from the Pierce Gulch 11 Sand Aquifer. People are pumping harder in the 12 summer for a variety of reasons, irrigation would 13 be a main one. So water levels do go down. 14 When pumping stops at the end of the 15 irrigation season, people use less water. Water 16 levels rise back up during the winter months. 17 Q. So just to make sure I'm clear on 18 this, I see January 2007, the orange line is up 19 to, oh, let's say -- almost up to the 90 mark at 20 the top. And then in January of 2008 it's up even 21 higher. 22 Does that indicate an even higher 23 ground water level? 24 A. Yes, it does. 25 Q. And the figures on the left, I take</p>

<p style="text-align: right;">Page 1547</p> <p>1 it, are depth to water below ground; is that 2 correct? 3 A. That is correct. 4 Q. And the overall amplitude appears to 5 be about -- what? -- 15 feet? Would that be 6 accurate from, let's say, January/February down 7 through July/August? 8 A. That is correct. 9 Q. With regard to test well 4, is it 10 graphed on the same vertical scale? 11 A. No. There's a different vertical 12 scale. And you can see that on the right side of 13 the diagram where the depth to water below ground 14 level is shown on this scale. 15 Q. With regard to the March/April/May 16 period, and looking at the left side of figure 5, 17 I note that there's a rather steep decline 18 beginning in March -- mid-March, perhaps, and 19 running down very rapidly through early April and 20 then up a little bit and then continuing down 21 rapidly in May to June. 22 Is that an accurate description of 23 what we're seeing here? 24 A. Yes, it is. 25 Q. So when you testified that you would</p>	<p style="text-align: right;">Page 1549</p> <p>1 original investigation done by SunCor. And so it 2 was done fairly on the cheap. 3 So instead of a grated filter pack, 4 it's crushed rock. And in fact, it never was 5 developed. Mr. Squires consulted with the driller 6 who put the well in, confirmed it wasn't 7 developed, because I had noted during the SVR-6 -- 8 excuse me, the 16 aquifer tests, that the well 9 water levels during pumping were actually rising 10 through portions and not falling, indicating that 11 it was developing. And therefore, to be a useful 12 well, we had to develop it. 13 Q. What is meant by "developing"? Excuse 14 me. 15 A. That's a good question. When you 16 drill a well, there is damage done to the 17 formation, to the aquifer materials outside the 18 well, both through the drilling process and 19 through drilling fluids, which may penetrate into 20 those materials. 21 Developing is the process of removing 22 the drilling fluids, removing the fines in the 23 vicinity, fine-grained material in the vicinity of 24 the well screen such that you don't have an 25 impediment to flow at the well bore that you can</p>
<p style="text-align: right;">Page 1548</p> <p>1 have preferred to do this test in January and 2 February, can you tell us why, based on what you 3 see on this graph, you testified in that way? 4 A. When we do a pumping test, we want to 5 see how water levels change relative to nonpumping 6 conditions. The best way to do that is when the 7 water levels within the aquifer remain steady. 8 During the period December, January, 9 February we had the most constant water levels 10 within the aquifer. That is the best time to do 11 the test because during that time you don't have 12 to correct the changes that we're estimating. And 13 therefore, there is less potential for introducing 14 an inaccuracy. There's less -- it's more 15 accurate. 16 Q. We may come back to this figure 5 in a 17 minute, but before we do, could you tell us what 18 you had to do to the SVR-7 well to prepare it for 19 pumping. And perhaps you could also describe what 20 that well looks like, how big it is, and so forth. 21 A. It's an 8-inch diameter well. It has 22 a louvered well screen, which means there are 23 basically gaps within the casing that are not the 24 triangular wire wrap which is typical for a 25 high-quality well. It was put in as part of the</p>	<p style="text-align: right;">Page 1550</p> <p>1 draw water into the well as unrestricted as 2 possible. So we did that development process. 3 We also recognized that an 8-inch 4 well, at least from my experience before this, if 5 you can get 500 gallons a minute, 550 out of an 6 8-inch well, you're doing really well. 7 Mr. Squires, however, has many good 8 experiences with various types of pumps and was 9 able to find a special what he calls an "oil patch 10 pump," one that is meant to pump high quantities 11 of water from small diameters. 12 So he was able to construct an 13 assembly with this specialized pump that would do 14 municipal quantities of water from a domestic size 15 well. So we were able to get this 917 gallons per 16 minute at a steady rate out of a well that really 17 wasn't constructed for that at all, but was 18 capable of it. 19 Q. How many wells did you monitor during 20 the SVR-7 test? 21 A. We had 26 individual wells, some of 22 them were multiple completions, well nests, where 23 you have small-diameter tube wells completed in 24 the same borehole. Of those 26, two were 25 completed in a dry, unsaturated sand zone that had</p>

<p style="text-align: right;">Page 1551</p> <p>1 there been water there, it would have been these</p> <p>2 overlying, undifferentiated alluvial aquifers that</p> <p>3 Mr. Squires has referred to earlier, that I've</p> <p>4 referred to earlier.</p> <p>5 So we also had 24 that had water in</p> <p>6 them. And we measured those with electronic data</p> <p>7 loggers and by hand.</p> <p>8 Q. Did you account for barometric effects</p> <p>9 or other effects that could affect water-level</p> <p>10 readings during this test?</p> <p>11 A. Yes, we did. We calculated the</p> <p>12 barometric efficiency, which tells us how</p> <p>13 atmospheric changes, pressure changes, affect</p> <p>14 water levels in the well. We calculated these</p> <p>15 barometric efficiency coefficients, so that we</p> <p>16 could then correct the data to remove those</p> <p>17 effects.</p> <p>18 MR. THORNTON: Mr. Hearing Officer, could</p> <p>19 we take a short break at this point? It's 10:30,</p> <p>20 a little after.</p> <p>21 THE HEARING OFFICER: Yeah, let's make this</p> <p>22 our morning break.</p> <p>23 MR. FEREDAY: Okay.</p> <p>24 THE HEARING OFFICER: Let's take 15</p> <p>25 minutes.</p>	<p style="text-align: right;">Page 1553</p> <p>1 the vertical scale.</p> <p>2 We also have a barometer plot on the</p> <p>3 right side of the diagram to show the barometric</p> <p>4 pressure. And this is an example of the</p> <p>5 barometric correction analysis that we did for</p> <p>6 each and every well as part of this test. And you</p> <p>7 can see the black line, which is along the bottom,</p> <p>8 which is the barometer, moving up and down. If</p> <p>9 you look at the gray line above that, that would</p> <p>10 be the water level in the Big Gulch stock well.</p> <p>11 And you can see that it moves up and</p> <p>12 down. And some of those movements are pretty</p> <p>13 similar to that of the barometer. And that, in</p> <p>14 fact, would be the barometric effect.</p> <p>15 So by calculating the barometric</p> <p>16 efficiency, which we did with the pre pump-test</p> <p>17 data and correcting that water-level data that you</p> <p>18 see in gray, we end up with the water-level plot</p> <p>19 which is blue.</p> <p>20 And that water-level plot shows a</p> <p>21 nice, steady drawdown curve during the pumping</p> <p>22 portion of the test, with a classic response</p> <p>23 recovery curve occurring after the pumping</p> <p>24 stopped, as indicated on the graph by "pump on"</p> <p>25 and "pump off."</p>
<p style="text-align: right;">Page 1552</p> <p>1 MR. FEREDAY: Okay.</p> <p>2 THE HEARING OFFICER: We'll be back at</p> <p>3 quarter till.</p> <p>4 (Recess.)</p> <p>5 THE HEARING OFFICER: We're recording</p> <p>6 again.</p> <p>7 Mr. Fereday.</p> <p>8 Q. (BY MR. FEREDAY): Mr. Utting, before</p> <p>9 the break, you were discussing corrections for</p> <p>10 barometric effects in aquifer tests. I would like</p> <p>11 you to refer to Exhibit 44, figure C-3. And I</p> <p>12 believe that's on page C-5 of that Exhibit 44.</p> <p>13 A. I'm there.</p> <p>14 THE HEARING OFFICER: Okay. What page?</p> <p>15 I'm sorry, Mr. Fereday.</p> <p>16 THE WITNESS: It's in the appendix, so it</p> <p>17 would be near the end. It's Appendix C. It's on</p> <p>18 page 5.</p> <p>19 THE HEARING OFFICER: Okay. Thank you.</p> <p>20 Q. (BY MR. FEREDAY): Could you describe</p> <p>21 what this graph shows.</p> <p>22 A. Yes. This is a plot for the Big Gulch</p> <p>23 stock well and its linear plot or arithmetic plot,</p> <p>24 so that the time scale is arithmetic across the</p> <p>25 top. And the water level below ground level is</p>	<p style="text-align: right;">Page 1554</p> <p>1 So by doing this analysis for each</p> <p>2 well, we were able to get a water-level drawdown</p> <p>3 that we believe is representative of the</p> <p>4 barometric effects being removed.</p> <p>5 Q. Did your work with regard to</p> <p>6 barometric analysis completely correct for that</p> <p>7 barometric effect, in your opinion?</p> <p>8 A. It didn't totally correct for a</p> <p>9 barometric effect, which is probably a result of</p> <p>10 the barometric efficiency based on fairly short</p> <p>11 term data. And there are some longer term</p> <p>12 effects, so the linear regression -- this is</p> <p>13 getting very detailed, but the linear regression</p> <p>14 for the barometric effect does leave some effects</p> <p>15 that are unaccounted for in terms of barometric.</p> <p>16 But there's also a water-level trend effect that</p> <p>17 needs to be taken care of too.</p> <p>18 Q. Let's refer, then, to the previous</p> <p>19 page, page C-4, and this is figure C-2, entitled</p> <p>20 "Posttest water-level trend analysis for SVR-7."</p> <p>21 Could you tell us what that shows,</p> <p>22 please.</p> <p>23 A. Okay. On this figure we have across</p> <p>24 the top, the date, and then we start in January of</p> <p>25 the year, and we go through the end of May. And</p>

<p style="text-align: right;">Page 1555</p> <p>1 the year being 2008, the year of the test.</p> <p>2 On the vertical scale we have the</p> <p>3 water level, which on this scale is only a 1 foot</p> <p>4 difference between the top and the bottom. So it</p> <p>5 shows the water levels within well SVR No. 7. And</p> <p>6 the thing that we use this graph for was to</p> <p>7 develop a water-level trend correction.</p> <p>8 And as you can see from mid-April</p> <p>9 through the end of May, the water levels generally</p> <p>10 follow a straight line. And that straight line we</p> <p>11 then calculate the equation for and project it</p> <p>12 through to the start of the test, which intersects</p> <p>13 with the water levels that occurred before the</p> <p>14 test. And that shows us that a linear correction</p> <p>15 for water-level trend is a pretty good</p> <p>16 approximation.</p> <p>17 We then use that equation, which you</p> <p>18 can see written on this graph, to correct the</p> <p>19 drawdown data so you remove -- effectively remove</p> <p>20 the trend from the data during the test.</p> <p>21 Q. Just so I understand this, Mr. Utting,</p> <p>22 does this graph show us how you corrected the</p> <p>23 recovery water level in the well to see whether it</p> <p>24 would match up with the existing regional trend in</p> <p>25 the aquifer? Is that what you were doing?</p>	<p style="text-align: right;">Page 1557</p> <p>1 "SVR-7 aquifer test."</p> <p>2 Could you tell us what that is.</p> <p>3 A. I presume you meant Mr. Utting.</p> <p>4 Q. I'm sorry. Mr. Utting.</p> <p>5 A. Yes. What we notice on the</p> <p>6 hydrograph, the water-level plot, are a series of</p> <p>7 what we call hydraulic events. And that would be</p> <p>8 a water level going down and then rising up in</p> <p>9 response to something that occurred in the</p> <p>10 aquifer. This something would be pumping.</p> <p>11 Q. Okay. Now, before we get to those --</p> <p>12 and I take it you're referring to these symbols,</p> <p>13 the asterisks, the X's --</p> <p>14 A. Yes.</p> <p>15 Q. -- and so forth?</p> <p>16 There is a denotation in there of the</p> <p>17 SVR-7 aquifer test, a period of time.</p> <p>18 Could you -- is that when the aquifer</p> <p>19 test was taking place?</p> <p>20 A. Yes.</p> <p>21 Q. It was taking place, I see, in March.</p> <p>22 And as you've previously testified, that is during</p> <p>23 a period when the groundwater levels are dropping</p> <p>24 in the -- in the entire area; correct?</p> <p>25 A. That is correct.</p>
<p style="text-align: right;">Page 1556</p> <p>1 A. Yes. Because if we just relied on</p> <p>2 uncorrected data, it would look like the well</p> <p>3 never recovered. In fact, it would look like a</p> <p>4 month after the pumping stopped it continued to go</p> <p>5 down after rising, which of course would not occur</p> <p>6 in a pumping test.</p> <p>7 So we are trying to see how the water</p> <p>8 level returns to nonpumping conditions. And this</p> <p>9 figure shows that by mid-April that in fact had</p> <p>10 occurred.</p> <p>11 Q. Let's refer back, if we could, to</p> <p>12 figure 5 of Exhibit 45, which was the comparison</p> <p>13 of water-level responses in test well 1 and test</p> <p>14 well 4. I'd like to ask you a couple of questions</p> <p>15 about that.</p> <p>16 A. Okay.</p> <p>17 MR. FEREDAY: And, Mr. Hearing Officer,</p> <p>18 that is located in Exhibit 45, and it's a fold-out</p> <p>19 sheet.</p> <p>20 THE HEARING OFFICER: Figure 5?</p> <p>21 MR. FEREDAY: Correct.</p> <p>22 THE HEARING OFFICER: Yeah. Thank you.</p> <p>23 Q. (BY MR. FEREDAY): Mr. Squires, with</p> <p>24 regard to the 2008 time period there in March, I</p> <p>25 see two blue vertical lines and in between words</p>	<p style="text-align: right;">Page 1558</p> <p>1 Q. So when the observation well is trying</p> <p>2 to recover from that drawdown induced by the SVR-7</p> <p>3 aquifer test, it is trying to recover not to some</p> <p>4 seasonal high line, but it's trying to recover, is</p> <p>5 it not, to a declining water level regionally?</p> <p>6 A. That is correct.</p> <p>7 Q. And is that what you're showing back</p> <p>8 on Exhibit C-5 -- or excuse me, C-4 of Exhibit 44?</p> <p>9 A. Yes.</p> <p>10 Q. Okay. Now, with regard to figure 5 of</p> <p>11 Exhibit 45, you had mentioned hydraulic events.</p> <p>12 Could you tell us what this comparison</p> <p>13 of test well 1 and test well 4 shows with regard</p> <p>14 to these symbols, the square, the circle, the</p> <p>15 asterisk, and so forth?</p> <p>16 A. The symbols are placed on this figure</p> <p>17 to show similar events occurring in the water</p> <p>18 levels of both of these test wells. And the</p> <p>19 purpose of that is to show where the hydrograph of</p> <p>20 test well 1, which indicate in some cases a rise</p> <p>21 and a fall, would also be similar to the</p> <p>22 hydrograph of test well 4, which would show a rise</p> <p>23 and a fall.</p> <p>24 And so by placing these symbols, there</p> <p>25 are a number of different hydraulic events which</p>

<p style="text-align: right;">Page 1559</p> <p>1 would be associated with pumping shows up in both  2 of these wells, even though they're far apart from  3 each other.  4 Q. Okay. And I recognize that these are  5 on different scales. But in your opinion, do  6 these show consistency between these two wells as  7 to response to these outside hydraulic events?  8 A. Yes. And that's, in fact, why we use  9 the different scales, so that we could see that  10 they're showing up in the water levels in both  11 wells.  12 Q. I take it, then, that the difference  13 in scale is due to the distance of these wells  14 from potential pumping centers; would that be  15 right or --  16 A. That is one of the factors. The  17 further you are away, the smaller the response  18 would be.  19 The other factor is the fact -- is the  20 fact that we know that the aquifer is unconfined  21 up near the green line that Mr. Squires has  22 testified about, that Dr. Wood has testified  23 about. In that area the aquifer is unconfined,  24 and therefore you get a smaller response to an  25 event. It has to do with the physics of the</p>	<p style="text-align: right;">Page 1561</p> <p>1 time, therefore the recovery occurs in a shorter  2 period of time. So we got that recovery.  3 Q. Uh-huh.  4 A. And in fact, you can see that in this  5 figure 5 where the water level -- the Kling  6 pumping test is shown beneath the January 2007  7 time, and we have test well 1, which was the  8 responding test well.  9 And at the risk of not blinding you,  10 you can see that here's the test -- excuse me --  11 and the water levels came back up to the rising  12 trend. And in fact, because we're still at the  13 portion where it's rising slightly, one might  14 mistakenly conclude that it recovered early. But  15 in fact, if you look at the trend, and that's  16 actually an aquifer-like trend.  17 Q. So in figure 5 of Exhibit 45, over on  18 the far left where it says "Kling irrigation well  19 test," just so I understand what you just told  20 us --  21 A. Yes.  22 Q. -- what we see there is a stress on  23 the aquifer with a steep downward spike of maybe  24 8, 10 feet, something like that, and then the well  25 shut off; correct?</p>
<p style="text-align: right;">Page 1560</p> <p>1 concept of storitvity. I'm happy to go into  2 detail. But I think everyone's eyes would glaze  3 over.  4 Q. Understood, and I appreciate that.  5 Did the fact that water levels recovered to a  6 trend line after the SVR-7 aquifer test tell you  7 anything?  8 A. Well, that tells us that we're not  9 pumping out of some compartment that has no  10 recharge. It tells us that there's recharge to  11 the system. The water level is recovering in the  12 well back to the level it should based on theory  13 and the amount being pumped and the time being  14 pumped.  15 Q. By the way, did any of the 16 aquifer  16 tests that you analyzed in that Exhibit 12, did  17 any of those tests, other than the Kling test,  18 include an analysis of the recovering well  19 returning to a trending line?  20 A. None of them did that.  21 Q. Except for the Kling test?  22 A. Well, the Kling test, we didn't need  23 to do that because we did the test during the time  24 period where the water level was relatively  25 stable. We also pumped for a shorter period of</p>	<p style="text-align: right;">Page 1562</p> <p>1 A. That is correct.  2 Q. And then we see a recovery, and then  3 we see a slight drawdown.  4 What causes that slight drawdown then?  5 A. You're referring to the drawdown that  6 occurs after the February -- this little drawdown  7 right here (indicating)?  8 Q. Yes, after the February tick.  9 A. I'm guessing that has to do with other  10 pumping in the area. We don't know. But we see  11 the classic drawdown response that must be pumping  12 in the other area. For example, when you look at  13 similar time the next year, you see a nice  14 drawdown curve and recovery here on the graph  15 beneath the January 2008/February 2008 area. And  16 we were not doing any testing at the time, so  17 someone else is pumping in the area.  18 Q. And then as we follow that orange  19 line, it goes up quite steeply, does it not, up to  20 about mid-March to a high point?  21 A. That's correct.  22 Q. And then from there, is that the trend  23 that you're -- the regional trend that you're  24 talking about, the steep decline as irrigation  25 comes on?</p>

<p style="text-align: right;">Page 1563</p> <p>1 A. That is correct.</p> <p>2 Q. So it's interesting to me that looking</p> <p>3 at this figure 5 that test well No. 1 recovered to</p> <p>4 a higher level in January of 2008 than it did in</p> <p>5 January, February of 2007.</p> <p>6 Can you speak to that, please.</p> <p>7 A. Well, when we look at the long-term</p> <p>8 monitoring data, we see that there are seasonal</p> <p>9 variations. Each year the water levels recover</p> <p>10 during the winter. They go down at the end of the</p> <p>11 irrigation season. And so I've looked at other</p> <p>12 wells and seen a generally subtly rising trend in</p> <p>13 properly completed monitoring wells. This could</p> <p>14 well be part of that that we see the water levels</p> <p>15 are slowly recovering and rising during the last</p> <p>16 few years.</p> <p>17 Q. Mr. Utting, in your opinion, would</p> <p>18 this sort of trend between -- just in this one</p> <p>19 well, I recognize it's only one well, but between</p> <p>20 January of 2007 and January 2008 on test well 1,</p> <p>21 would this be consistent or inconsistent with what</p> <p>22 Mr. Dittus testified in terms of what he sees in</p> <p>23 his wells?</p> <p>24 A. This would be totally consistent,</p> <p>25 because Mr. Dittus testified that his water level</p>	<p style="text-align: right;">Page 1565</p> <p>1 A. Well, the test gave us very valuable</p> <p>2 data on many fronts. I suppose the main thing is</p> <p>3 that it showed us that a high-capacity well of</p> <p>4 municipal-quality water is entirely feasible from</p> <p>5 the Pierce Gulch Sand Aquifer in this middle</p> <p>6 vicinity of the M3 property.</p> <p>7 Q. When you say "large" or</p> <p>8 high-production well, how many gallons a minute</p> <p>9 would you say that this could --</p> <p>10 A. You could easily --</p> <p>11 Q. -- that this aquifer could support</p> <p>12 from this area?</p> <p>13 A. Individual wells can produce over</p> <p>14 2,000 gallons per minute. And we could have a</p> <p>15 number of those wells each producing 2,000 gallons</p> <p>16 per minute.</p> <p>17 Q. Anything else that you've concluded</p> <p>18 from this test?</p> <p>19 A. Well, the aquifer is highly</p> <p>20 transmissive. We came up with an average value of</p> <p>21 410,000 gallons per day, per foot, which is very</p> <p>22 transmissive. We came up with quantifications of</p> <p>23 storitivity, which are totally consistent with the</p> <p>24 unconfined nature of the aquifer to the northeast</p> <p>25 and confined nature to the southwest.</p>
<p style="text-align: right;">Page 1564</p> <p>1 seemed to be subtly rising the last few years.</p> <p>2 And we certainly see that in this hydrograph.</p> <p>3 Q. You've noted with respect to this</p> <p>4 figure 5 of Exhibit 45 that test well 1 and test</p> <p>5 well 4 are on opposite sides of the inferred deep</p> <p>6 fault; correct?</p> <p>7 A. That is correct.</p> <p>8 Q. Do you see hydraulic connection</p> <p>9 between test well 1 and test well 4 showing up in</p> <p>10 this graph? In your opinion, is there hydraulic</p> <p>11 connection?</p> <p>12 A. Yes, there is hydraulic connection I</p> <p>13 see in this graph. When I see hydraulic events</p> <p>14 that show up in both of these water-level plots,</p> <p>15 it tells me that the aquifers are connected, and</p> <p>16 we're seeing the same hydraulic events. There's</p> <p>17 no disconnect or barrier shown on there.</p> <p>18 Q. Is it your opinion that they are in</p> <p>19 fact in the same aquifer?</p> <p>20 A. There's no doubt in my mind that they</p> <p>21 are in the same aquifer.</p> <p>22 Q. What is your view, Mr. Utting, of the</p> <p>23 results of the SVR-7 test? Can you give us an</p> <p>24 overview of your conclusions with regard to the</p> <p>25 SVR-7 aquifer test.</p>	<p style="text-align: right;">Page 1566</p> <p>1 And we concluded that there are no</p> <p>2 compartmentalization or no barriers that would cut</p> <p>3 off this portion of the aquifer, or anywhere else,</p> <p>4 with the exception of the green line at the north,</p> <p>5 which is a boundary to this aquifer.</p> <p>6 Q. How would you rate the SVR-7 aquifer</p> <p>7 test in terms of its quality and its reliability,</p> <p>8 Mr. Utting?</p> <p>9 A. Well, I started groundwater consulting</p> <p>10 30 years ago. And I had my own company. I was</p> <p>11 president for 13 years. And this is the best test</p> <p>12 that I have ever participated in. The most</p> <p>13 thorough, the most comprehensive, the most</p> <p>14 detailed analysis. It is a superior test,</p> <p>15 superior results.</p> <p>16 Q. Have you seen a better test in the</p> <p>17 Treasure Valley?</p> <p>18 A. I -- of all the tests I've looked at,</p> <p>19 which go beyond the 16 in this report, plus the</p> <p>20 17, this is by far the best. I've never seen</p> <p>21 anything close to it.</p> <p>22 Q. Do you believe that another aquifer</p> <p>23 test is needed to determine water sufficiency for</p> <p>24 the M3 Eagle project or the effects of pumping</p> <p>25 municipal well or wells on the M3 property?</p>

<p style="text-align: right;">Page 1567</p> <p>1 A. I do not.</p> <p>2 Q. So, Mr. Utting, could you give us your</p> <p>3 conclusions on these two aquifer tests that you</p> <p>4 have overseen, the Kling and the SVR-7 -- and I'm</p> <p>5 not asking you to repeat yourself, but if there's</p> <p>6 something else that you've concluded from these,</p> <p>7 I'd like to know what it is.</p> <p>8 A. Well, maybe I am repeating myself, but</p> <p>9 it's the same high-quality Pierce Gulch Sand</p> <p>10 Aquifer water that we see being produced from the</p> <p>11 south, is entirely feasible and possible from the</p> <p>12 Pierce Gulch Sand Aquifer beneath the M3 property.</p> <p>13 And it's highly transmissive. It's capable of</p> <p>14 large quantities of good-quality water.</p> <p>15 Q. In any of the data that you've</p> <p>16 reviewed or any of the tests that you've done with</p> <p>17 regard to -- especially with the SVR-7, the Kling,</p> <p>18 and the 16 aquifer test review, have you seen any</p> <p>19 indication that there is insufficient water</p> <p>20 available to support a water right for 6500</p> <p>21 acre-feet of pumping annually?</p> <p>22 A. I have seen no data to contradict</p> <p>23 that. Only data to support that.</p> <p>24 Q. What about your view about the</p> <p>25 long-term impacts to the aquifer in general, the</p>	<p style="text-align: right;">Page 1569</p> <p>1 way through these tests? Did you detect any other</p> <p>2 boundaries?</p> <p>3 A. I detected no other boundaries.</p> <p>4 Q. Have you relied on any other data with</p> <p>5 regard to water flow through the aquifer?</p> <p>6 A. Yes. The water table contour maps or</p> <p>7 the potentiometric surface maps that we made</p> <p>8 earlier and submitted to IDWR also show that</p> <p>9 groundwater flows through this region without</p> <p>10 being affected by a no-flow barrier. If there</p> <p>11 were a no-flow barrier, groundwater would not pass</p> <p>12 through it. It would have to go parallel to it.</p> <p>13 The contour maps that we made show</p> <p>14 that groundwater is flowing to the west-northwest</p> <p>15 through this region, and not being shunted by a</p> <p>16 no-flow barrier.</p> <p>17 Q. I'll refer you to Exhibit 18,</p> <p>18 figure 1.</p> <p>19 MR. THORNTON: And that number? I didn't</p> <p>20 hear, Jeff.</p> <p>21 MR. FEREDAY: Exhibit 18, figure 1.</p> <p>22 MR. THORNTON: Thank you.</p> <p>23 THE WITNESS: Oh, here we are. Exhibit 18.</p> <p>24 Q. (BY MR. FEREDAY): Mr. Utting, do you</p> <p>25 see the contour map that's figure 1 of Exhibit 18?</p>
<p style="text-align: right;">Page 1568</p> <p>1 surrounding areas, even several miles to the south</p> <p>2 or southeast where the protestants' wells are,</p> <p>3 what's your view, just based on these aquifer</p> <p>4 tests, of the likely effects of this pumping at</p> <p>5 full build-out?</p> <p>6 A. Well, I believe there are -- will be</p> <p>7 some measurable effects likely in the Pierce Gulch</p> <p>8 Sand Aquifer. We have seen high-transmissivity</p> <p>9 aquifer, and that means that the effects are</p> <p>10 generally smaller, but they're spread out. So I</p> <p>11 believe that within the Pierce Gulch sand we may</p> <p>12 see some of those effects.</p> <p>13 They may be less than I suspect, based</p> <p>14 on Mr. Dittus' testimony, where they've been</p> <p>15 pumping for at least 15 years, maybe 20 years on</p> <p>16 some of those wells, with water levels remaining</p> <p>17 essentially the same, showing the recharge is</p> <p>18 quite robust and counteracting those pumping</p> <p>19 effects.</p> <p>20 So there will be some effects, I</p> <p>21 believe. But they may be relatively small. Very</p> <p>22 likely to be relatively small.</p> <p>23 Q. What about your conclusions about any</p> <p>24 other boundaries, other than the green lines --</p> <p>25 the green line that you may have detected in any</p>	<p style="text-align: right;">Page 1570</p> <p>1 A. Yes, I do.</p> <p>2 Q. Did you have a hand in preparing this?</p> <p>3 A. I prepared this figure.</p> <p>4 Q. On what was this figure based?</p> <p>5 A. This figure is based on a number of</p> <p>6 wells that we went out and measured water levels</p> <p>7 to a hundredth of a foot, wells that were selected</p> <p>8 based on a previous year's analysis where we had</p> <p>9 160 wells but we had no ground surface control.</p> <p>10 So these wells were based on surveying</p> <p>11 the elevation of the wellhead and measuring</p> <p>12 carefully to a hundredth of a foot, and excluding</p> <p>13 wells that had evidence of being recently pumped</p> <p>14 and therefore giving misleading numbers, with the</p> <p>15 exception of a Caldwell test well and a well up in</p> <p>16 the northwest corner where we did not survey those</p> <p>17 wells, but we relied on the fact they were so far</p> <p>18 away that any errors in their wellhead elevation</p> <p>19 would not be significant in terms of controlling</p> <p>20 the contours that we placed on this figure.</p> <p>21 Q. When you say you surveyed the wellhead</p> <p>22 locations, what do you mean? Did you survey their</p> <p>23 elevation?</p> <p>24 A. Idaho Survey Group was contacted.</p> <p>25 They survey the X/Y position and the elevations so</p>

<p style="text-align: right;">Page 1571</p> <p>1 that we have an accurate representation of their  2 position in space and therefore could have  3 accurate water levels to within a few hundredths  4 of a foot.</p> <p>5 Q. Does this figure 1 of Exhibit 18  6 accurately portray, in your opinion, groundwater  7 flow through the Pierce Gulch Sand Aquifer, based  8 on the best available data?</p> <p>9 A. This accurately portrays our  10 understanding of flow where the lines are solid.  11 Where they become dashed, we're less certain. But  12 certainly in the Eagle/Star/M3 area, this is a  13 good portrayal.</p> <p>14 Q. You mentioned a minute ago that if  15 there were a boundary, the groundwater flow would  16 turn and run parallel to that boundary.</p> <p>17 Is that an accurate depiction of what  18 you said?</p> <p>19 A. That is correct.</p> <p>20 Q. And do you see any boundaries anywhere  21 in the direction of flow from these contour lines?</p> <p>22 A. Well, you'll see along the fault down  23 in the corner where we have an elevation of water  24 level 2600, you see the contour comes in at right  25 angles to that boundary, which is as it should.</p>	<p style="text-align: right;">Page 1573</p> <p>1 When I see the fact that wells have  2 been pumping in this area and water levels haven't  3 been changing, to me, it's a slam dunk. There's a  4 lot of recharge occurring.</p> <p>5 Q. In your experience, is defining the  6 input locations of recharge in an aquifer  7 typically a part of your work in evaluating water  8 right applications in Idaho?</p> <p>9 A. No.</p> <p>10 Q. How much water do you calculate flows  11 through -- and maybe you can refer back to  12 figure 1 -- flows through the roughly 3 1/2 mile  13 swath of the middle of the M3 property depicted on  14 figure 1?</p> <p>15 A. I calculate that 36 cfs, cubic feet  16 per second, or approximately 23 million gallons  17 per day, flow through a line that would be pretty  18 much the western boundary of the M3 property  19 between the green line and the panhandle. So a  20 little over 3 1/2 miles, maybe 3.7 miles. And  21 that calculation was based on the transmissivity  22 results calculated from the pumping test. It's  23 based on the gradient that we see from these  24 contours, and from the flow width indicated by  25 those flow factors.</p>
<p style="text-align: right;">Page 1572</p> <p>1 If we look at the green line in the  2 middle of the M3 property, we see the 2550 contour  3 comes in at right angles, which it should,  4 according to theory.</p> <p>5 When we look to the area where the  6 deep-seated bedrock fault that Dr. Wood testified  7 to earlier, we can see that the contour lines are  8 unaffected by that line. If that had been a  9 no-flow boundary, the flow would have been  10 directed toward the northwest in that area, but  11 it's not. It's pretty much westerly and crosses  12 right through at that area.</p> <p>13 Q. Mr. Utting, I'd like to turn now just  14 to a couple of questions about recharge.</p> <p>15 In your opinion, is the Pierce Gulch  16 Sand Aquifer receiving recharge?</p> <p>17 A. Yes, it is.</p> <p>18 Q. And is it a little? Is it a lot?  19 Could you describe it in any qualitative way?</p> <p>20 A. I believe the recharge is robust. I  21 believe that there's a significant amount of  22 recharge occurring. And I -- when I review --  23 listen to Mr. Dittus testify, I saw the recovery  24 of his wells without any decline, that confirms  25 that belief.</p>	<p style="text-align: right;">Page 1574</p> <p>1 Q. That aquifer flow is under nonpumping  2 conditions in that location, or is it under  3 pumping conditions?</p> <p>4 A. That would be under -- I'm saying  5 generally nonpumping. There are probably some  6 small wells to the west that are pumping that.  7 But in terms of M3, that's nonpumping.</p> <p>8 Q. How would you expect that to change  9 under pumping conditions?</p> <p>10 A. Well, you would obtain a higher flow  11 toward that property because the wells would pump,  12 and therefore draw water toward them, lower the  13 levels near the wells, and cause an increase in  14 gradient. As Mr. Squires testified, the only way  15 you get water to a well is by lowering its level.  16 So that amount would increase. 36 is what's  17 flowing now without pumping.</p> <p>18 Q. Mr. Utting, what methods have you used  19 to predict impacts to aquifer water levels due to  20 pumping at the M3 Eagle project?</p> <p>21 A. I've used three methods. I've used  22 simplified Theis analysis, I've used an analytical  23 model, and I have used a numerical computer model.</p> <p>24 Q. We've heard quite a bit of testimony  25 already about using the Theis example or the Theis</p>

<p style="text-align: right;">Page 1575</p> <p>1 equation.</p> <p>2 Is it your view -- and would you</p> <p>3 agree, I guess, with Mr. Dittus -- that using</p> <p>4 Theis tends -- at least in this area, tends to</p> <p>5 overstate the predicted drawdowns?</p> <p>6 A. Yes, it does overstate drawdowns.</p> <p>7 Q. What is an analytical model?</p> <p>8 A. An analytical model is one that is</p> <p>9 based on equations like the Theis equation, or</p> <p>10 similar derivatives of that, to take into account</p> <p>11 more of the features of the aquifer. Again, it's</p> <p>12 a pretty simplified way of doing the analysis.</p> <p>13 But the analytical model that I</p> <p>14 developed allowed me to put in multiple pumping</p> <p>15 wells that M3 might have planned, and the effects</p> <p>16 of the edge of the aquifer so that they can be</p> <p>17 incorporated into the analysis.</p> <p>18 Q. And what is a numerical model?</p> <p>19 A. A numerical model is one that breaks</p> <p>20 the region up into a number of layers and cells</p> <p>21 where you can assign the hydraulic properties to</p> <p>22 each of those cells. And those properties are</p> <p>23 based on testing.</p> <p>24 You then can incorporate a lot of</p> <p>25 variation within the properties of the system.</p>	<p style="text-align: right;">Page 1577</p> <p>1 Q. Could you describe the difference</p> <p>2 between the traditional tools such as Theis and</p> <p>3 numerical modeling projections. Give the Hearing</p> <p>4 Officer a feel for what differences he's likely to</p> <p>5 see there.</p> <p>6 A. Well, a numerical model allows you to</p> <p>7 do calibration. And calibration is very important</p> <p>8 because you can take the existing data and see how</p> <p>9 well the model replicates the existing data. And</p> <p>10 when you see areas where there's a discrepancy,</p> <p>11 you can go back and say, "Okay. What do we need</p> <p>12 to know more about this area?" Collect additional</p> <p>13 data, modify the data with the understanding that</p> <p>14 you have.</p> <p>15 So the numerical model will allow us</p> <p>16 to incorporate many more hydraulic aspects of the</p> <p>17 system and be able to give us confidence that it's</p> <p>18 able to replicate what has occurred in the past,</p> <p>19 so that increases our confidence in what we</p> <p>20 predict to occur in the future.</p> <p>21 Q. Could you refer to Exhibit 16, please,</p> <p>22 and tell us what that is.</p> <p>23 A. Exhibit 16 is a modeling report that I</p> <p>24 was the senior author on which reviewed five</p> <p>25 numerical models of the greater Eagle/Star/M3</p>
<p style="text-align: right;">Page 1576</p> <p>1 You can incorporate geometry of the aquifer. You</p> <p>2 can include recharge, which is not included in the</p> <p>3 Theis or the analytical model. You can include</p> <p>4 the effects of rivers. You can include the</p> <p>5 effects of drains, irrigation canals. You can</p> <p>6 replicate the system much more completely.</p> <p>7 Q. You created a numerical model in this</p> <p>8 matter, did you not?</p> <p>9 A. I worked closely with Pacific</p> <p>10 Groundwater Group, which was the company that I</p> <p>11 co-founded, and specifically with a Peter</p> <p>12 Schwartzman, so that we worked together. I would</p> <p>13 come up with many of the concepts, translate the</p> <p>14 hydrogeology. He would do some of the number</p> <p>15 crunching. We discussed the results. We would</p> <p>16 then work interactively. So I was project manager</p> <p>17 on that and played a key role.</p> <p>18 Q. What is your experience with modeling</p> <p>19 with Mr. Schwartzman? You said you were his</p> <p>20 partner. Have you worked on models with him</p> <p>21 before?</p> <p>22 A. I have worked with Peter on numerous</p> <p>23 projects over the past 20 years, which include</p> <p>24 modeling, interaction, pumping test analysis, all</p> <p>25 aspects of hydrogeology.</p>	<p style="text-align: right;">Page 1578</p> <p>1 vicinity that have been completed over several</p> <p>2 decades, which includes the Treasure Valley</p> <p>3 Hydrologic Project, U of I model, and the most</p> <p>4 recent model, which we call the M3 model, which I</p> <p>5 was the project manager on that one.</p> <p>6 Q. Is the M3 model which is contained in</p> <p>7 Exhibit 16 a realistic representation of the</p> <p>8 aquifer system in this area?</p> <p>9 A. I think it's a very realistic</p> <p>10 representation in that it takes into account</p> <p>11 what's now known about its 3D spatial position.</p> <p>12 We know it's a dipping system. This model was set</p> <p>13 up to incorporate that. It has the results of the</p> <p>14 17 aquifer tests, which have been conducted in the</p> <p>15 general area. So we have input to the</p> <p>16 transmissivity and storativity of that area.</p> <p>17 We, I think, have a very good</p> <p>18 understanding. We have also taken pumping test</p> <p>19 data from those previous tests and used that in</p> <p>20 the calibration so that we know it can replicate</p> <p>21 those pumping tests so that when we use it to</p> <p>22 predict what M3's effects might be we have</p> <p>23 increased confidence.</p> <p>24 Q. Does the M3 model go beyond previous</p> <p>25 groundwater models in the Treasure Valley, in your</p>

<p style="text-align: right;">Page 1579</p> <p>1 opinion, in terms of its reliability or accuracy  2 pertaining to this part of north Ada County and  3 its groundwater regime?  4 A. I believe it to be the most accurate  5 and most representative groundwater model  6 developed to date for this area.  7 Q. When you speak of the dipping strata  8 or layers in this model, what do you mean? And  9 how did the model approach the dipping nature of  10 this aquifer?  11 A. Well, the -- as Dr. Wood has testified  12 and Ed Squires has testified, we have a good  13 understanding of the spatial positioning,  14 especially in the project area, and especially in  15 the Eagle/Star area of the Pierce Gulch Sand  16 Aquifer.  17 And we know that it dips to the  18 southwest and rises to the northeast. We know it  19 has boundaries. And so this model is constructed  20 with dipping layers. We have three layers that  21 incorporate the Pierce Gulch Sand Aquifer, so that  22 as we learn more about it, we can vary the  23 properties within the model.  24 And in fact, many of the pumping tests  25 that we use in the calibration process were</p>	<p style="text-align: right;">Page 1581</p> <p>1 Q. And the reason for that was what?  2 A. Well, when we're doing a model, the  3 purpose of this model was to help us to predict  4 with confidence the impacts of developing water  5 from beneath the M3 project site in the Pierce  6 Gulch Sand Aquifer. So what we needed to know is  7 how far those pumping effects would occur.  8 So we need a boundary to the model  9 which is far enough away so that we have an  10 understanding of how much water is flowing through  11 there, but pumping of the wells doesn't cause any  12 change in the flow within that area.  13 So we developed, which initially was  14 called general head boundary, and then converted  15 that to a constant flow or constant flux boundary,  16 as we learned more about the system.  17 Q. Could you refer, please, to  18 Exhibit 16, figure 6, and perhaps figure 7 as well  19 on the next page, pages 50 and 51 of Exhibit 16.  20 And while you're looking at that, let me ask you  21 another question about boundaries.  22 Would there be a lower boundary of the  23 aquifer as well, Mr. Utting?  24 A. You mean physically on the bottom?  25 Q. Yes.</p>
<p style="text-align: right;">Page 1580</p> <p>1 conducted with a pumping well in the upper part of  2 the aquifer, with an observation well in perhaps  3 the middle or the deeper portion, so this model  4 can replicate that.  5 Q. You mentioned that we know the  6 boundaries of the PGSA or that -- you mentioned  7 boundaries of the PGSA.  8 Could you describe what those might  9 be.  10 A. Okay. We know that we have what's  11 been referred to as the green line, which is the  12 edge of the aquifer as it comes up and intersects  13 the ground surface, and that forms the northern  14 boundary of the aquifer on the M3 project site.  15 We have the West Boise/Eagle fault,  16 which forms a boundary along the eastern portion  17 diagonally down toward the Garden City area. We  18 know that the aquifer extends up to the Payette  19 Valley. We know it extends to the Snake River  20 Valley, and we know it extends downgradient down  21 the Boise River Valley. So we know it's present  22 in all those areas.  23 In terms of the actual boundaries, our  24 model on the southeast corner did not incorporate  25 a physical boundary to the aquifer.</p>	<p style="text-align: right;">Page 1582</p> <p>1 A. Yes. In this case we used the bottom  2 boundary as the Terteling Springs Mudstone, the  3 low permeability silts and clays that Dr. Wood  4 discussed and that Ed Squires discussed. And so  5 that forms the bottom of our model.  6 Q. And with regard to the green line  7 boundary. Is -- is that the boundary that has  8 been previously described as the area where the  9 aquifer comes up dip and essentially breaks the  10 surface, and as it gets closer to that green line,  11 it becomes less and less confined, ultimately  12 becoming unsaturated? Would that be a good  13 description?  14 A. That's a very good description.  15 Q. With regard to figure 6 on Exhibit 16,  16 it says "The domain of the M3 model."  17 Is there anything more we need to know  18 about that? Is it the square, dark line that  19 describes the domain?  20 THE HEARING OFFICER: Okay. Let me find  21 that figure.  22 THE WITNESS: Sure.  23 MR. FEREDAY: Sorry.  24 THE WITNESS: So it would be page 50.  25 MR. FEREDAY: Page 50 of Exhibit 16.</p>

<p style="text-align: right;">Page 1583</p> <p>1 THE HEARING OFFICER: Okay. Not in the  2 appendices?  3 THE WITNESS: Not in the appendices.  4 THE HEARING OFFICER: So figure 6. Okay.  5 Very good. Thanks. I have it.  6 Q. (BY MR. FEREDAY): Are you on figure 6  7 now?  8 A. I'm on figure 6 now, yes.  9 Q. Mr. Squires testified about a --  10 briefly about this model. I believe he mentioned  11 the term "headgate."  12 Do you recall that?  13 A. I do indeed.  14 Q. Could you elaborate on that with  15 respect to either figure 6 or figure 7?  16 A. Well, figure 7 will show -- on the  17 right-hand side, it says "layers 5-7." These are  18 the layers that simulated the Pierce Gulch Sand  19 Aquifer.  20 On the lower right-hand corner, we see  21 blue lines on the bottom and on the side, which  22 would be the southeast area. If you want a better  23 geographic orientation, you can look at figure 6,  24 where we can see Interstate 84 going through and  25 some of the other features of the area. But</p>	<p style="text-align: right;">Page 1585</p> <p>1 from outside of the model domain.  2 So we pick this area because (a) it's  3 far enough away from the pumping centers at M3  4 such that pumping would have no significant impact  5 thereby artificially inducing additional flow, and  6 (b) allowing us to calculate the flow at that  7 boundary and then convert that to a fixed amount  8 in the modeling simulation so that we weren't  9 artificially saying "Hey, there's more water here  10 than is actually flowing there."  11 Now, in truth, long-term pumping huge  12 amounts from either areas in there could cause  13 more water to flow through there. But for the  14 sake of this model prediction of M3, we're seeing  15 no more is allowed to, in effect, occur.  16 Q. With regard to the boundaries that you  17 have identified for the PGSA, would you say that  18 the boundaries are reasonably well-known in  19 comparison to other aquifer studies you have done?  20 A. Especially for water rights for a  21 single project, yes.  22 Q. Did you incorporate information in  23 putting together your model from the Treasure  24 Valley Hydrologic Project?  25 A. We incorporated to a large extent the</p>
<p style="text-align: right;">Page 1584</p> <p>1 basically, it's in the Meridian area.  2 Q. So it appears that that boundary, that  3 inlet boundary, is the -- down at the right-hand  4 corner going up through the Flying Y of I-84  5 there; correct?  6 A. That is correct.  7 Q. And are these boundary conditions, or  8 a model on boundary conditions, appropriate, in  9 your opinion, as a modeler?  10 A. Yes, they are. And I can explain why,  11 if you'd like me to.  12 Q. Yes, please.  13 A. We know from preparing contour maps,  14 both from this project and working for the City of  15 Meridian, that -- in fact, the Treasure Valley  16 Hydrologic Project, I believe, also shows this,  17 that groundwater in that area flows toward the  18 northwest.  19 So we know that within the Pierce  20 Gulch Sand Aquifer, water is entering this region.  21 It's coming from outside of the region, but it's  22 flowing into this region. And by using  23 transmissivities and using gradients from those  24 contour maps, we can calculate how much is flowing  25 into this portion of the Pierce Gulch Sand Aquifer</p>	<p style="text-align: right;">Page 1586</p> <p>1 recharge information from the Treasure Valley  2 Hydrologic Project. We did not incorporate their  3 interpretation of the geology.  4 Q. That would include the TVHP's failure  5 to at least fully account for the dipping aquifer;  6 would that be one thing?  7 A. The dipping aquifer, the properties of  8 the aquifer, all those things. We knew that we  9 have much more and extensive database of better  10 data for that.  11 Q. Would that also include the TVHP's  12 selection of the hydrologic divide between the  13 Payette and the Boise as a groundwater divide as  14 well, or a boundary?  15 A. Yes, absolutely. Our contour maps,  16 contour maps prepared by the USGS from 1980s data,  17 maybe even late '70s, show that there is not this  18 hydrologic -- this no-flow boundary that the  19 Treasure Valley project used or that Dr. Wood  20 testified was not present there.  21 So we looked to a much larger area so  22 that we did not have to put an artificial boundary  23 in, that TVHP put in.  24 Q. How about the model that was described  25 by Mr. Squires as the University of Idaho model?</p>

1 Are you familiar with that one?

2 A. Yes, I am.

3 Q. Could you describe to us some things  
4 about that model? And I believe it's Exhibit 41,  
5 if you would like to refer to that.

6 A. Okay. I'm on Exhibit 41, and there is  
7 probably another figure in the Exhibit 16 that we  
8 were referring to that I could also use to show  
9 some aspects that are from Exhibit 41.

10 Q. Okay. So is that then accurate to say  
11 that in preparing your model you used some  
12 information from the University of Idaho's model?

13 A. Yes. In fact, we looked at all the  
14 previous models and learned from them and applied  
15 what we thought were the best understandings and  
16 features. But we learned a lot from the U of I  
17 model and were able to incorporate that learning  
18 into the development of the M3 model.

19 Q. Who produced the U of I model? Do you  
20 know?

21 A. It was a master's thesis developed by  
22 Stacy Douglas under the direction of Dr. Jim  
23 Osiensky.

24 Q. And do you find their model useful?

25 A. It was useful on many fronts. We

1 worked -- we interacted pretty much in a one-way  
2 direction with Stacy and Dr. Osiensky in that we  
3 provided hydrogeologic information and data as we  
4 were collecting it. They didn't really tell us  
5 back much what they were doing. Their intent was  
6 to be an independent model, not directed by us.

7 And so when it came out, there was  
8 some things that we would have incorporated  
9 differently. But on the whole, what we really  
10 liked to see, was an independent confirmation of  
11 the groundwater flow from portions of the Boise  
12 Basin to portions of the Payette Basin, which of  
13 course was shown on previous USGS studies too.

14 Q. In Exhibit 41, would you please turn  
15 to page 44. Exhibit 41, again, is the U of I  
16 model report.

17 Could you tell us what exhibit -- or  
18 page 44 shows. There's a figure 17 there.

19 A. Figure -- are you there? Yes.

20 Figure 17 is a water table or a  
21 potentiometric surface map constructed by  
22 Ms. Douglas as part of her modeling study here.  
23 So this incorporated the raw water-level data that  
24 Hydro Logic obtained. And I believe it was put in  
25 to the program server, which produced these

1 contour lines.

2 Q. What is your opinion about those  
3 contour lines in figure 17 of the U of I model?

4 A. Well, I think there's a major flaw in  
5 one aspect in that it combines all the aquifer  
6 zones together as if they were one aquifer.  
7 Everything was contoured. And it shows that there  
8 is flow from the M3 site into the Willow Creek  
9 Aquifer, which we have not seen any indication of  
10 that because of the extreme head differences, the  
11 geochemistry is different. We just don't see that  
12 that flow exists.

13 Generally speaking, though, with a  
14 flow from the southeast corner with a portion of  
15 it flowing to the Payette Valley, I would agree  
16 with, and other portions where some remains in the  
17 Boise Valley, I'd also agree with.

18 Q. Now, Mr. Utting, you just mentioned  
19 that this Stacy Douglas effort with Dr. Osiensky  
20 was produced using data from -- water-level data  
21 from HLI.

22 Didn't the University of Idaho also  
23 collect some of its own groundwater-level data?

24 A. They participated in the collection  
25 effort that Hydro Logic made in the summer of

1 2006. They also obtained other miscellaneous  
2 hydrogeologic data that I don't really know what  
3 they collected. But they certainly were part of  
4 the program collecting it in 2007, 2006.

5 Q. I would like you to refer now to  
6 Exhibit 50, figure 3, please. This is the staff's  
7 memorandum of March 2nd. They predict drawdown  
8 after 50 years of pumping at 10 cfs in the  
9 vicinity of the M3 Eagle project.

10 A. Is that figure 3?

11 Q. Correct.

12 A. Yes, I see that.

13 Q. That is page 22 of Exhibit 50.

14 Mr. Utting, do you know whether 10 cfs  
15 is the average amount of pumping that's projected  
16 for the M3 Eagle project?

17 A. Well, it's roughly 10 percent over. I  
18 believe the target is 9.03 cfs, which would  
19 represent the average pumping at full build-out  
20 after the project is completed.

21 Q. Okay. How does figure 3's drawdown  
22 contours as projected by staff compare to those  
23 that you found in your modeling effort?

24 A. Well, the predictions shown in  
25 figure 3, they predict much greater drawdowns than

<p style="text-align: right;">Page 1591</p> <p>1 the numerical model that we had previously shown.</p> <p>2 Q. Which do you think is more accurate,</p> <p>3 Mr. Utting?</p> <p>4 A. The numerical model is a much more</p> <p>5 accurate and simplified analytical model, I</p> <p>6 thought.</p> <p>7 Q. Did the staff use a simple Theis</p> <p>8 analysis in producing figure 3, or did they use</p> <p>9 some other analysis? Do you know?</p> <p>10 A. I believe they used a Theis solution,</p> <p>11 as it states on the figure. And they simulated</p> <p>12 the boundary with an image well. So it was a</p> <p>13 simple Theis solution, yes.</p> <p>14 Q. Mr. Utting, is a groundwater model</p> <p>15 ever definitive?</p> <p>16 A. No. Never.</p> <p>17 Q. Can it come relatively close?</p> <p>18 A. Some can be quite close, yes.</p> <p>19 Q. Do you expect your model here to be</p> <p>20 quite close?</p> <p>21 A. I expect it to be quite close because</p> <p>22 we've gone -- for the prediction for the area that</p> <p>23 we've really focused on, I expect it to be quite</p> <p>24 close because of the calibration.</p> <p>25 Q. What else would you do to evaluate the</p>	<p style="text-align: right;">Page 1593</p> <p>1 the recharge water in wells SVR-9 and test well 2,</p> <p>2 that just made me smile because that's the area</p> <p>3 where I would expect to see some rainfall coming</p> <p>4 in, because the aquifer is near the surface, it's</p> <p>5 unconfined, that's where the rainfall could get</p> <p>6 in. So to me, that was really good.</p> <p>7 The other thing that I really liked</p> <p>8 was his interpretation that the geochemistry shows</p> <p>9 rapid transit time through this area where we</p> <p>10 believe has high transmissivities and with those</p> <p>11 gradients would have rapid travel times.</p> <p>12 Q. That's rapid travel time below the</p> <p>13 so-called headgate at the southeastern border of</p> <p>14 your model; correct?</p> <p>15 A. Well, from the headgate on up through</p> <p>16 the M3 property, that's where I see a rapid travel</p> <p>17 time.</p> <p>18 Q. On up or on down?</p> <p>19 A. It would be physically to the</p> <p>20 northwest. It would be downgradient.</p> <p>21 Q. Does your model provide support,</p> <p>22 Mr. Utting, or does it undercut what your</p> <p>23 conceptual view, your pump-test experience, your</p> <p>24 water-level studies, or any other work show about</p> <p>25 the Pierce Gulch Sand Aquifer? Is it</p>
<p style="text-align: right;">Page 1592</p> <p>1 potential effects of the M3 Eagle pumping on area</p> <p>2 wells?</p> <p>3 A. Well, I'm not sure if additional</p> <p>4 modeling would help or additional testing. I</p> <p>5 think the most valuable thing would be to continue</p> <p>6 monitoring with properly designed and constructed</p> <p>7 monitoring wells, and use that information from</p> <p>8 pumping to see what's really going on.</p> <p>9 We can predict that there will always</p> <p>10 be the question of how accurate it is. Well, the</p> <p>11 way to find out is to predict -- I mean not to</p> <p>12 predict, but to monitor and see what's really</p> <p>13 going on in the system.</p> <p>14 Q. With regard to your efforts to</p> <p>15 evaluate the Pierce Gulch Sand Aquifer through a</p> <p>16 model, did you find the geochemistry report,</p> <p>17 Exhibit 43, to be helpful?</p> <p>18 A. I found it one of those great moments</p> <p>19 where someone doing something independently</p> <p>20 confirms what I've been doing. So I've been</p> <p>21 looking at the physical flow system. I've been</p> <p>22 looking at pumping test data that tell me we have</p> <p>23 an unconfined aquifer in this area.</p> <p>24 And when I saw Mr. Glanzman's figures</p> <p>25 that showed that we had some rainfall as part of</p>	<p style="text-align: right;">Page 1594</p> <p>1 confirmatory, or is it --</p> <p>2 A. It's confirmatory. It's one of the</p> <p>3 many tools, and it confirms what we've seen</p> <p>4 through the other methods of analysis.</p> <p>5 Q. In your opinion, is there sufficient</p> <p>6 water in the Pierce Gulch Sand Aquifer to support</p> <p>7 M3 Eagle's proposed pumping at full build-out?</p> <p>8 A. Yes.</p> <p>9 Q. Will M3 Eagle's pumping cause</p> <p>10 significant drawdowns in the Pierce Gulch Sand</p> <p>11 Aquifer?</p> <p>12 A. I guess it depends on what</p> <p>13 "significant" is. Our model predicts 10 to</p> <p>14 15 feet. Based on what Mr. Dittus has observed,</p> <p>15 that's probably an overprediction. It's only</p> <p>16 significant if 10 to 15 feet is considered</p> <p>17 significant.</p> <p>18 Q. And that's 10 to 15 feet how far away?</p> <p>19 A. That would be a mile, mile and a half</p> <p>20 away.</p> <p>21 Q. And that would be after 50 years of</p> <p>22 pumping?</p> <p>23 A. 50 years of pumping.</p> <p>24 Q. Did you also use a 10 cfs number as an</p> <p>25 assumed annual average amount of pumping?</p>

<p style="text-align: right;">Page 1595</p> <p>1 A. I did. I used the 10 cfs just to be  2 conservative, to have a slightly larger number in  3 case somebody accuses me of trying to trim it too  4 far.  5 Q. Mr. Utting, would you conduct  6 additional studies of the Pierce Gulch Sand  7 Aquifer that focused on doing additional seismic  8 work?  9 A. Well, from my understanding of what  10 that work is projected to be now, no. As I  11 understand, initially it was going to be down Big  12 Gulch so that we could use our good understanding  13 based on wells and geophysics to help calibrate  14 the seismic data, so that when we looked at other  15 areas, such as Luke Gulch or Willow Creek, that we  16 would have a better understanding of what was  17 going on.  18 From what I now know because of  19 budgetary cuts, only the Big Gulch line is  20 planned. And I don't see how doing that in the  21 area that we have the best information is really  22 going to add anything.  23 Q. What's the difference between running  24 a single line and running more than one line?  25 A. Well, when you run a line in an area</p>	<p style="text-align: right;">Page 1597</p> <p>1 probably not too much. But I think it would take  2 us well into lunch.  3 THE HEARING OFFICER: Is that acceptable to  4 everyone?  5 MR. THORNTON: That's fine.  6 THE HEARING OFFICER: Okay. Let's come  7 back five minutes after 1:00.  8 MR. FEREDAY: Thank you.  9 (Lunch recess.)  10 THE HEARING OFFICER: We're recording after  11 the lunch recess.  12 Mr. Fereday, I assume you have some  13 more questions of Mr. Utting.  14 MR. FEREDAY: Yes.  15 Q. Mr. Utting, with regard to the M3  16 model, I'd like to ask you some questions about  17 the sensitivity analysis, if any, that you may  18 have conducted in connection with this model.  19 A. Yes. We did fairly standard analyses  20 to look at the various properties and values we  21 might not understand. We also coupled that with  22 calibration statistics. Those are both related.  23 Q. Now, what is sensitivity analysis --  24 A. Sensitivity --  25 Q. -- in this context?</p>
<p style="text-align: right;">Page 1596</p> <p>1 with good control. And by good control, we have a  2 number of wells with good downhole or bore hole  3 geophysics, we then are able to take the seismic  4 data, which is just when sound waves return, and  5 be able to calibrate that on known geology. Then  6 we can take that information to areas where we  7 don't have those wells to give us that calibration  8 and have confidence.  9 But if we are only doing the seismic  10 in the area where we know it's going on to the  11 best of our knowledge, it's not really going to  12 add anything.  13 Q. Do two lines also help you to orient  14 the direction or structure of a fault?  15 A. Sure. If you have only one point and  16 you see some indication of a fault, there's no way  17 to know the direction or whether it continues  18 unless you have a second or a third or a fourth or  19 a fifth point to line those up.  20 MR. FEREDAY: Mr. Hearing Officer, I have a  21 few more questions. But it might be appropriate  22 to take a break now for lunch and come back --  23 THE HEARING OFFICER: Okay.  24 MR. FEREDAY: -- and conclude. I'm not  25 quite sure how much time I need with him, but</p>	<p style="text-align: right;">Page 1598</p> <p>1 A. It says "wait."  2 A sensitivity analysis is varying the  3 values of a parameter within the model. By a  4 parameter, I mean the transmissivity, the vertical  5 leakage, some other factor that we don't know  6 exactly everywhere in the model. So we vary  7 that --  8 MR. VANDYKE: Gary.  9 THE HEARING OFFICER: Oh, I'm sorry. We  10 didn't recognize we were near the end of this  11 tape. We should have looked.  12 MR. FEREDAY: Should we go off the record?  13 THE HEARING OFFICER: Yeah.  14 (Recess.)  15 THE HEARING OFFICER: Okay. We are  16 recording again. And again, I apologize for the  17 interruption.  18 Mr. Utting or Mr. Fereday, I think we  19 were talking about a sensitivity analysis.  20 MR. FEREDAY: Correct.  21 Q. Mr. Utting, you did conduct some  22 sensitivity analyses with respect to the modeling  23 you did for M3; isn't that right?  24 A. That is correct.  25 Q. And could you again describe for us</p>

<p style="text-align: right;">Page 1599</p> <p>1 what a sensitivity analysis is.</p> <p>2 A. A sensitivity analysis is where we</p> <p>3 vary the value of one of the parameters within the</p> <p>4 model to see how it affects the model results.</p> <p>5 And if we can change a value of a parameter such</p> <p>6 as vertical leakage by a factor of ten and see</p> <p>7 very little difference in the output, then we know</p> <p>8 it's not very sensitive to data. Therefore, we</p> <p>9 don't have to refocus on defining our knowledge of</p> <p>10 that value.</p> <p>11 If, on the other hand, we vary a value</p> <p>12 and discover the model is radically different,</p> <p>13 then we know it's very sensitive to that value and</p> <p>14 therefore we need to make sure we know that as</p> <p>15 precisely as possible.</p> <p>16 Q. Which values did you find the model</p> <p>17 most sensitive to?</p> <p>18 A. Well, they are listed on page 14 of</p> <p>19 the appendix in Exhibit 16, which if you want to</p> <p>20 turn the page -- this is within the first -- the</p> <p>21 first PGG report, which is --</p> <p>22 Q. Now, Mr. Utting, while we're going to</p> <p>23 page 14 of that appendix, I note that the report</p> <p>24 of the model which is Exhibit 16 contains within</p> <p>25 it a June 2008 document with a tan cover from</p>	<p style="text-align: right;">Page 1601</p> <p>1 And the ones that we measured in the</p> <p>2 field would be the contour map that I referred to</p> <p>3 in my testimony just before lunch. And those</p> <p>4 water levels are the most precise set of water</p> <p>5 levels that we have. So we're trying to get the</p> <p>6 model to replicate those water levels.</p> <p>7 So we come up with our best match, and</p> <p>8 then we vary some of the parameters to see, "Well,</p> <p>9 what if we don't know this very much, very</p> <p>10 exactly, and we change the value, how does it</p> <p>11 affect things?"</p> <p>12 And we discovered that the calibration</p> <p>13 was sensitive to the vertical hydraulic</p> <p>14 conductivity of the aquitards. So by that I mean</p> <p>15 the property of those silt and clay zones</p> <p>16 separating the aquifers, and therefore how much</p> <p>17 water can flow through them.</p> <p>18 Q. Excuse me. Were those the zones</p> <p>19 separating the lower from the upper zone in the</p> <p>20 PGSA itself?</p> <p>21 A. No. Those would be the zones</p> <p>22 separating the PGSA from overlying</p> <p>23 undifferentiated, unnamed alluvial aquifers, and</p> <p>24 in some cases between that zone and the overlying</p> <p>25 Boise River gravels and other Payette River</p>
<p style="text-align: right;">Page 1600</p> <p>1 Pacific Groundwater Group.</p> <p>2 Is that the appendix you're referring</p> <p>3 to?</p> <p>4 A. That is the appendix I'm referring to,</p> <p>5 yes.</p> <p>6 Q. And was this prepared in consultation</p> <p>7 with you?</p> <p>8 A. Yes. I worked closely with Pacific</p> <p>9 Groundwater Group. We have, in fact, four</p> <p>10 separate Pacific Groundwater Group reports</p> <p>11 contained within this appendix. Each one</p> <p>12 documents a different stage of the model</p> <p>13 development.</p> <p>14 Q. Do you agree with the results and</p> <p>15 methods used to produce this appendix?</p> <p>16 A. Yes, I do. I had a hand in this.</p> <p>17 Q. Perhaps now you could go to page 14</p> <p>18 and make the reference that you began a minute</p> <p>19 ago.</p> <p>20 A. Okay. On page 14, the top of the</p> <p>21 page, it says, "Steady-state sensitivity</p> <p>22 analyses." And the way we developed the model is</p> <p>23 we first tried to generate a steady-state match of</p> <p>24 the water levels calculated by the model to those</p> <p>25 that we've measured in the field.</p>	<p style="text-align: right;">Page 1602</p> <p>1 gravels in that area.</p> <p>2 So it's an interesting sensitivity in</p> <p>3 that we discovered that when we increased the</p> <p>4 vertical hydraulic conductivity, it was sensitive,</p> <p>5 it wouldn't calibrate very well. But when we</p> <p>6 reduced it, it didn't make much difference.</p> <p>7 And so we kept it at the level where</p> <p>8 it didn't make much difference, was the value that</p> <p>9 we felt was the best representative, and in many</p> <p>10 ways the most conservative value, because then</p> <p>11 when we predicted impacts in the PGSA, we wouldn't</p> <p>12 be relying heavily on that leakage to counter</p> <p>13 those drawdowns. So we picked a value based on</p> <p>14 that sensitivity value that was also conservative.</p> <p>15 Some things it wasn't sensitive to?</p> <p>16 It wasn't very sensitive to the hydraulic</p> <p>17 conductivity or the conductive material in the</p> <p>18 riverbeds. And it wasn't very sensitive to the</p> <p>19 one factor called conductance with the headgate,</p> <p>20 the general head boundary.</p> <p>21 It was sensitive to the water levels</p> <p>22 that we assigned there, but we had good data from</p> <p>23 good measurements in the Meridian area, so that</p> <p>24 gave us a confidence we picked good numbers to use</p> <p>25 in the model.</p>

<p style="text-align: right;">Page 1603</p> <p>1 Q. When you say it was not very sensitive  2 to that headgate or model inlet area, what do you  3 mean?  4 A. Well, the way we calculated the flow  5 into what we're calling the headgate, which would  6 be the southeast boundary, was initially with  7 what's called the general head boundary. And by  8 that, we look at the difference in water levels  9 just inside the model with those at a known  10 distance and we figure --  11 Q. With those at a known distance outside  12 the model?  13 A. Outside the model. So up toward the  14 recharge area where we have water-level data from  15 various wells. We calculated the distance between  16 those wells and the difference in water levels,  17 and came up with a gradient -- or the model does  18 that, rather. We assigned it that difference in  19 levels, and then using transmissivities from  20 pumping tests, we calculated this conductance  21 term, which is a term that's a function of the  22 distance and hydraulic conductivity that comes out  23 of those tests.  24 Q. Did you also calibrate the model?  25 A. Yes. So it's calibrated to the steady</p>	<p style="text-align: right;">Page 1605</p> <p>1 measured data.  2 We did that because we wanted to show,  3 you know, in a transparent process, okay, we are  4 varying it, and this is what we think happens.  5 But if we want to, quote, "honor" the original  6 transmissivities by varying them less, this is  7 what would result.  8 So we ended up with parallel models  9 that were very similar, but one more honoring the  10 transmissivities, one more honoring the heads.  11 The net effect in the long run wasn't big because  12 the predictions were all very close to each other.  13 So that is a type of sensitivity analysis that  14 shows that within that range of variation didn't  15 make a huge difference in terms of the predictions  16 of impacts from pumping at M3.  17 Q. So do the T-match and H-match versions  18 of model bracket values or --  19 A. They bracket a range of uncertainty in  20 that known transmissivity, because we don't know  21 that value everywhere within the model. But this  22 gives us a pretty good idea that within this  23 range, it's got to be pretty close, because we're  24 getting similar predictions.  25 Q. I'd like you to refer to -- with</p>
<p style="text-align: right;">Page 1604</p> <p>1 state, which is trying to get the best match.  2 Now, in that process -- and this is a type of  3 sensitivity analysis -- we recognized that the  4 transmissivity or the hydraulic conductivity in  5 various zones made a difference to trying to match  6 the water levels generated by the model to the  7 water levels measured in the field.  8 And we recognized that if we stayed  9 exclusively close to the transmissivity values  10 measured in the field and estimated from driller's  11 logs in areas off to the west, that we couldn't  12 get as good a match as if we let ourselves vary  13 those more.  14 So the initial criteria was to allow a  15 variation of plus or minus 50 percent from the  16 measured value. We couldn't get as good a match  17 as we thought was possible.  18 So we then allowed ourselves to vary  19 those more using a three times to a one-third  20 times, and ended up with essentially two models:  21 One that we called the T-match model, which we  22 developed, which had a narrower range of how much  23 we'd allow ourselves to vary the transmissivity;  24 one called the H-match, or the head-match model,  25 that generated better calibration results to the</p>	<p style="text-align: right;">Page 1606</p> <p>1 regard to calibration, to pages 58 and 59 of  2 Exhibit 16, please, and tell us what these show,  3 please. I see four --  4 A. Yes.  5 Q. -- different plots there in figures 14  6 and 15.  7 A. After we get the steady-state  8 calibration where it matches this series of what  9 was measured basically in a snapshot during the  10 summer of 2007, we then did what's called a  11 transient calibration.  12 And a transient calibration is trying  13 to show how the model will respond to a pumping  14 event. So the simulated pumping event generates a  15 change in water levels at some point. We want to  16 see how those match the actual measured changes in  17 the water level.  18 So we have pumping test data, which  19 show drawdown curves, and we have the model  20 generating drawdown curves.  21 Q. So the model generates a drawdown  22 curve based on the parameters that you inserted  23 into the model; correct?  24 A. That is correct.  25 Q. And the idea is that the model is run,</p>

<p style="text-align: right;">Page 1607</p> <p>1 and then it is intended to simulate reality; is 2 that correct? 3 A. That's correct. 4 Q. And then in calibration you compare 5 the simulation with the field-measured reality? 6 A. It's more than a comparison. It's 7 actually using that reality to adjust some of the 8 values within the model to better replicate that 9 reality. And we try to adjust, mostly with the 10 storage coefficient -- because that is a factor 11 that shows how the aquifer responds to changes in 12 water levels, but we also adjust the 13 transmissivity, or more specifically the hydraulic 14 conductivity, to get that match. 15 Q. And what do these four graphs, 16 figures 14 and 15, show us with regard to what 17 we've been discussing here concerning calibration? 18 A. These are a series of calibration 19 graphs for two of the three pumping tests that we 20 used in the calibration process. If, for example, 21 you look at figure 14, which is on page 58 of 22 Exhibit 16, we have -- the upper figure, for 23 example, has got dark blue and light blue. I 24 guess all the figures have dark blue and light 25 blue.</p>	<p style="text-align: right;">Page 1609</p> <p>1 because during the pumping test that's going at a 2 constant rate, you don't get the drawdown to go 3 up, down, and up again. 4 So the match isn't perfect there. But 5 we can see the beginning part is good, and at the 6 end it's coming back up to match. So I would rate 7 that as good and the one above as excellent. 8 Q. With regard to test well 4 observed, 9 we note that it goes upwards at a fairly regular 10 curve, then, as you noted, curves down just a bit, 11 and then goes back up. 12 Were you saying that this apparently 13 was caused by some let's call it a third-party 14 effect, an outside effect, a pumping well or well 15 center that you didn't know about or couldn't know 16 about? Would that be accurate? 17 A. I don't think it was a pumping center. 18 I believe it was some incomplete removal of either 19 barometric and/or the water-level trend effect, 20 just because that well had been completed just 21 before the test, and we were unable to get as 22 solid a BE, barometric efficiency correction, to 23 analyze that. 24 But the significant thing to note here 25 is the first two days we get a good match. And</p>
<p style="text-align: right;">Page 1608</p> <p>1 And we have figure A and figure B 2 on -- as part of 14 that show the T-match model 3 and the H-match model. And through this process 4 we show the light blue is the model-generated 5 drawdowns, and these would be drawdowns measured 6 at test well 4 during the pumping test from 7 pumping at SVR-7 to -- the measured versus the 8 model-generated ones. And this shows the degree 9 of match that we were generating and able to get 10 with the two models. 11 Q. Is this degree of match good, very 12 good, excellent? How does it rate, in your view, 13 as a hydrogeologist and an expert modeler? 14 A. Well, I would say it's very good. And 15 I won't say excellent because you'll notice on 16 both those graphs, the test well 4 -- oh, I should 17 have also pointed out we had Big Gulch. The Big 18 Gulch one matches very well. 19 The test well 4 doesn't match quite as 20 well because I believe we didn't -- we were not 21 able to entirely correct for some of the effects 22 going on that were outside of pumping during that 23 test. So you see the drawdown curve, the measured 24 one, goes down and then comes back up, which is 25 probably indicative of something beyond pumping,</p>	<p style="text-align: right;">Page 1610</p> <p>1 during the first two days, the trend would not be 2 significant and the barometric effect was 3 relatively small. So that's really important in 4 terms of T&amp;S getting that match. It's the early 5 time data. 6 Q. Mr. Utting, what do you conclude by 7 the fact that in that same test well, test well 4 8 and its simulation -- the end points are actually 9 fairly close together. What does that tell you? 10 A. That tells me that -- long term that 11 the calibration is working well too. 12 Q. Are these acceptable -- acceptably 13 close calibrations, in your opinion? 14 A. Yes, they are. 15 Q. What about the next figure, figure 15? 16 A. Figure 15 is a hydrograph for the 17 Lexington Hills well as part of its 30-day test. 18 And again, we have the H-match model on top and 19 the -- excuse me. I have to look at this 20 carefully. 21 Q. Isn't figure 15 -- 22 A. Sorry. 23 Q. -- comparing what your model would 24 predict with Lexington Hills in the upper case and 25 with the Eagle field No. 2 in the lower one?</p>

<p style="text-align: right;">Page 1611</p> <p>1 A. Yeah, that is in fact correct. These  2 are the H-match models showing the match -- the  3 model with the measured drawdowns in the fields.  4 Q. Lexington Hills well is completed in  5 the PGSA, is it not?  6 A. That is correct.  7 Q. And how about Eagle field No. 2?  8 A. That is also correct, completed in the  9 PGSA.  10 Q. And both of these wells, Lexington and  11 Eagle field, had aquifer tests conducted for them  12 by others?  13 A. That is correct.  14 Q. And were both of those aquifer tests  15 evaluated in your 16 aquifer test exercise which  16 is Exhibit 12?  17 A. Yes.  18 Q. You can continue and explain to us  19 what these calibration exercises show in  20 figure 15, if you would.  21 A. The upper figure, Lexington Hills,  22 shows the observed and simulated drawdowns. And  23 these are not actually in the Lexington Hills  24 well, this is in an observation well, which was  25 the golf course well, which is -- if we need to</p>	<p style="text-align: right;">Page 1613</p> <p>1 A. That is correct.  2 Q. What do you conclude with regard to  3 the model's ability to calibrate, based on these  4 two graphs?  5 A. Well, this particular version, the  6 H-match did an excellent job of calibrating in the  7 transient mode.  8 Q. Now, the model, I think you testified  9 earlier, is a tool; correct?  10 A. That is true.  11 Q. And the tool can be used for a variety  12 of different -- asking a variety of questions,  13 can't it?  14 A. That is correct.  15 Q. And I'd like to know what questions  16 you have asked of this particular model. Could  17 you run us through some of these.  18 A. Well, the ultimate question that we  19 wanted to know would be the predictions of impacts  20 from M3 pumping. But before we were confident in  21 that, we needed to look at a number of other  22 things.  23 One was the issue of whether upwelling  24 water from the bottom of the system, which in this  25 case would be the Terteling Springs, it would be</p>
<p style="text-align: right;">Page 1612</p> <p>1 get the exact details on its depth and distance,  2 it would be in the 16 aquifer test report. I'm  3 happy to get those details if you'd like.  4 But two things are apparent here: One  5 is we get a good match of the curve throughout the  6 30-day period, and the other is we can see a lot  7 of variation in water level that occurred in the  8 field data because there was no correction for  9 barometric efficiency. You can see it bouncing up  10 and down and bouncing up and down.  11 And it may be that the variation of  12 the curve is in part of the water-level trend  13 analysis, which did not occur in that well.  14 The lower figure is the Eagle field  15 well No. 2. And in this case, this is the  16 comparison of the data recorded in the well that  17 Mr. Dittus testified on, known as the State and  18 Linder test well. So we know we have a  19 high-quality, well-sealed monitoring well that  20 these water samples were collected from.  21 Q. So the more wavy curve, the darker one  22 on the lower graph, Eagle field No. 2, is the  23 actual drawdown calculated in the State and Linder  24 monitoring well as a result of the Eagle field  25 test; is that correct?</p>	<p style="text-align: right;">Page 1614</p> <p>1 the hot water, the geothermal water coming in, if  2 that would make a significant difference in terms  3 of our predictions.  4 So we used the model by applying a  5 flow on the bottom that would simulate this  6 seepage. We calculated that rate of flow, which  7 is not known, but we calculate it by looking at a  8 head gradient that we saw within paired wells  9 where we had the water level in the sand aquifer  10 or the Terteling Springs and the Pierce Gulch.  11 So we'd have a gradient. We then  12 estimated hydraulic conductivity typical of a  13 clay, which we got values out of Freeze and Cherry  14 where they have a range of values. We applied  15 that to the model and said, "What if this water  16 were all flowing in throughout the whole model  17 domain?"  18 And we consider that to be  19 conservative in that the higher rates of flow were  20 going to be closer to the foothills. Far out in  21 the basin, we would expect less. But we applied  22 that rate everywhere, and found that it made no  23 significant difference in the predicted drawdowns  24 of pumping at M3. That was one of the things we  25 did.</p>

<p style="text-align: right;">Page 1615</p> <p>1 Q. So that was a model run you actually 2 conducted?</p> <p>3 A. Yes.</p> <p>4 Q. And is that reflected in Exhibit 16?</p> <p>5 A. Yes, I believe it is. On that same 6 page that we talked about, sensitivity analysis -- 7 and if you'll refresh me on that page number.</p> <p>8 Q. I think it was 14 --</p> <p>9 A. 14?</p> <p>10 Q. -- of the appendix?</p> <p>11 A. Yes. We have a paragraph on page 14 12 of the appendix -- I'll wait until the Hearing 13 Examiner is there.</p> <p>14 THE HEARING OFFICER: Thank you.</p> <p>15 THE WITNESS: So the last paragraph under 16 section 5.3, discusses this analytical run. And 17 it lists the values that we use in the simulation 18 for the vertical hydraulic conductivity of the 19 clay that's within the Terteling Springs Mudstone, 20 an estimated value of 10 to the minus 21 8 centimeters per second.</p> <p>22 And this was also in the same range as 23 some values that I was able to obtain on some 24 laboratory tests of samples that had been 25 collected.</p>	<p style="text-align: right;">Page 1617</p> <p>1 through leakage of the Boise River and from the 2 New York Canal.</p> <p>3 So I knew that water was flowing in 4 through the headgate. And we had a calculated 5 value based on measured water levels and pumping 6 test transmissivities.</p> <p>7 So we then said, "What if, for who 8 knows what reason, perhaps they've lined the 9 canal, perhaps they've pumped out more water, who 10 knows, we've reduced that flow in by 20 percent, 11 what does that do? How does that affect the 12 predicted drawdowns from M3? How does that affect 13 water levels within the PGSA?"</p> <p>14 Q. So you did that kind of a model run --</p> <p>15 A. Yes, we did.</p> <p>16 Q. -- presuming that there would be a 17 reduction of some 20 percent --</p> <p>18 A. 20 percent.</p> <p>19 Q. -- in canal seepage and therefore any 20 commensurate reduction in any recharge that was 21 occurring from canal seepage; is that right?</p> <p>22 A. And we use the term "canal seepage" 23 because we're not saying what's really causing a 24 reduction, just if there is any reduction. It 25 could be canal seepage. It could be anything</p>
<p style="text-align: right;">Page 1616</p> <p>1 So we calculated the gradient, we 2 calculated this hydraulic conductivity, and used 3 that as a vertical flow rate for each of the cells 4 in the bottom of the model. And it states here, 5 the maximum increase anywhere in the model head 6 was less than a tenth of a foot. So we considered 7 that to be not significant.</p> <p>8 Q. (BY MR. FEREDAY): Would it be 9 accurate to say that the model's use in this 10 connection to model potential geothermal and other 11 water upwelling is grounds for concluding that if 12 there is such upwelling into the PGSA, it is 13 minor?</p> <p>14 A. That is correct.</p> <p>15 Q. What other model runs did you do? Did 16 you evaluate, for example, changes in inflow to 17 the model through the so-called headgate in the 18 southeast? And if so, could you explain it.</p> <p>19 A. Yes. From reviewing the Treasure 20 Valley Hydrologic Project, it was recognized that 21 somewhere to the southeast of our model outside of 22 our model boundary and perhaps beyond the Pierce 23 Gulch Sand Aquifer, and as Mr. Squires has 24 testified, in an area that is not the Pierce Gulch 25 Sand Aquifer, there is recharge that occurs</p>	<p style="text-align: right;">Page 1618</p> <p>1 else. But we just used that because that is, I 2 think, a concern in people's mind that canal use 3 will be changing.</p> <p>4 Q. Do you recall Dr. Ralston's memorandum 5 that he prepared for the protestants where he 6 raised the canal seepage issue?</p> <p>7 A. Yes.</p> <p>8 Q. And was this model run done, at least 9 in part, in response to that?</p> <p>10 A. Yes.</p> <p>11 Q. With regard to let's say the New York 12 Canal, do you consider the water in the New York 13 Canal the same essentially as the water in the 14 Boise River?</p> <p>15 A. Yes, I do.</p> <p>16 Q. So what were the results of this model 17 run that made this assumption about reduced 18 recharge?</p> <p>19 A. Well, let us look at a figure in this 20 exhibit, and we will see.</p> <p>21 Q. You are in Exhibit 16. And where --</p> <p>22 A. Exhibit 16, and I'm looking at 23 figure 11 and figure 12.</p> <p>24 Q. Could you give us a page number.</p> <p>25 A. Page 55 and page 56.</p>

<p style="text-align: right;">Page 1619</p> <p>1 Q. Of the main report?</p> <p>2 A. Of the main report.</p> <p>3 Q. Could you describe what pages 55 and</p> <p>4 56 shows. I see we've got figures 11 and 12.</p> <p>5 A. Figures 11 and 12. Figure 11 is a</p> <p>6 T-match model generated simulation, the change in</p> <p>7 water level that would be caused by a 20 percent</p> <p>8 reduction in recharge from the southeast model</p> <p>9 domain boundary.</p> <p>10 And it says "higher pumping rate</p> <p>11 model" because that's another aspect that we</p> <p>12 looked at with this model, is what if our</p> <p>13 estimates of pumping from all the wells in the</p> <p>14 area were wrong. So we increased those by</p> <p>15 30 percent just to be conservative.</p> <p>16 So in this version of the model, we</p> <p>17 used this higher pumping rate, we used all the</p> <p>18 recharge coming in at the surface, all -- we ran</p> <p>19 the model to its essence, a steady state. So it</p> <p>20 had water levels that were not changing with time.</p> <p>21 We then recorded those levels. We</p> <p>22 then reduced the flow at what Mr. Squires called</p> <p>23 the headgate, the southeast boundary of the model</p> <p>24 by 20 percent, and said, "How do these water</p> <p>25 levels change?"</p>	<p style="text-align: right;">Page 1621</p> <p>1 to be right at those boundaries. In fact, if</p> <p>2 there was a decrease in flow, that will occur</p> <p>3 further upgradient, further toward the southeast,</p> <p>4 and therefore right near the model boundaries</p> <p>5 these effects are going to be overexaggerated. So</p> <p>6 our intent was really to look at what's going on</p> <p>7 north of the Boise River.</p> <p>8 Q. So in summary, doing this model run</p> <p>9 with regard to reduced recharge showed what? Was</p> <p>10 it a big -- did it show a big change?</p> <p>11 A. It showed in the area of interest</p> <p>12 north of the Boise River that there could be a</p> <p>13 5-foot decline in water level caused by reduction</p> <p>14 of flow in the southeast, but it's probably quite</p> <p>15 a bit less.</p> <p>16 And we can see that as you get further</p> <p>17 and further toward M3, we're further from the</p> <p>18 5-foot contour there, and the impacts would be a</p> <p>19 change in water level of perhaps a foot, 2 feet at</p> <p>20 most.</p> <p>21 Q. And was this model -- that's steady</p> <p>22 state, I think you said. So this would be out at</p> <p>23 some future time --</p> <p>24 A. Future time.</p> <p>25 Q. -- after all the pumping or all that</p>
<p style="text-align: right;">Page 1620</p> <p>1 And we did it with both versions of</p> <p>2 model. Figure 11 is the T-match model. Figure 12</p> <p>3 on page 56 is the H-match model. The point being</p> <p>4 we wanted to use both verses of the model to see</p> <p>5 what sort of water-level changes in the PGSA,</p> <p>6 especially those in the Eagle/M3 area that might</p> <p>7 occur from such a reduction.</p> <p>8 Q. What do you conclude from figures 11</p> <p>9 and 12, then, as to those changes? Can you</p> <p>10 describe what we're seeing here.</p> <p>11 A. Right. What we're seeing are contour</p> <p>12 lines that radiate out of the southeast corner of</p> <p>13 the model. And each of those blue lines</p> <p>14 represents a water-level decline of 5 feet.</p> <p>15 So we have a 5-foot, a 10-foot, a 15,</p> <p>16 and 20, and the beginning of a 25-foot contour on</p> <p>17 figure 11 and also on figure 12.</p> <p>18 Now, what's important to note here is</p> <p>19 I testified earlier that we wanted model boundary</p> <p>20 conditions that were far enough away from the M3</p> <p>21 site so that changes that were occurring in the</p> <p>22 model, such as pumping from the M3 site, wouldn't</p> <p>23 affect the boundaries.</p> <p>24 Well, here we are changing the</p> <p>25 boundaries. And so the biggest changes are going</p>	<p style="text-align: right;">Page 1622</p> <p>1 reduction in recharge had been experienced</p> <p>2 throughout; is that correct?</p> <p>3 A. Yes, that's correct.</p> <p>4 Q. What other model runs did you do to</p> <p>5 check your model against other assumptions? For</p> <p>6 example, did you evaluate what would happen if the</p> <p>7 northern boundary of the PGSA were as projected by</p> <p>8 the Treasure Valley Hydrologic Project?</p> <p>9 A. Yes, we did.</p> <p>10 Q. And what did you do to make that model</p> <p>11 run?</p> <p>12 A. We took the figure from the Treasure</p> <p>13 Valley Hydrologic Project which showed the</p> <p>14 northern boundary of the model, which is</p> <p>15 interpreted as a no-flow boundary. In fact, by</p> <p>16 default, it had to be. It was the boundary.</p> <p>17 So we then said, "Well, what if that</p> <p>18 line, which was coincident with the surface water</p> <p>19 divide, actually was a no-flow boundary, cut off</p> <p>20 all the flow to the north?" So we took the</p> <p>21 existing model, and we ran a steady-state version.</p> <p>22 We then put in that boundary and ran the model,</p> <p>23 and then we did the simulation of pumping at M3</p> <p>24 Eagle.</p> <p>25 What we discovered is that the</p>

<p style="text-align: right;">Page 1623</p> <p>1 predicted drawdowns varied by less than a tenth of  2 a foot in the area of M3 and to the south and  3 toward Eagle. Certainly to the edges where that  4 boundary would occur, things were quite different  5 because we weren't allowing groundwater to flow as  6 it would naturally want to flow.  7 Q. What about a model run that evaluated  8 increased pumping in the area? Did you do that?  9 A. Well, we did that. And I mentioned  10 that briefly with figure 11 and figure 12. We  11 decided to be more conservative to just increase  12 all the pumping in the area to help counter any  13 errors we could have potentially made in  14 estimating pumpage and increased pumpage that  15 might occur.  16 So we increased that pumping by  17 30 percent, and used that in all the simulations  18 that occurred, which included the -- the latest  19 simulations, I should say, which included the  20 prediction of impacts from reducing flow in the  21 southeast and the latest versions, which I would  22 consider the most up-to-date ones of predicted  23 drawdown impacts in the area that the protestants  24 are concerned with.  25 Q. So are you saying you combined, I</p>	<p style="text-align: right;">Page 1625</p> <p>1 that you would predict -- excuse me -- to occur  2 based on this model?  3 A. Yes, we did.  4 Q. With regard to Exhibit 16, would you  5 refer to pages 60 and 61, please.  6 Could you describe what these show.  7 A. We have on figure 16 both the T-match  8 and the H-match model with the lower pumping rate  9 version of the model.  10 On figure 17, we have the T-match and  11 the H-match model with this increased pumping that  12 I referred to, about 30 percent more pumping.  13 Both of these models show the ultimate  14 drawdown that we are predicting after 50 years of  15 pumping. Earlier on we did a series of steps of  16 pumping at increments of the predicted wells going  17 online with increasing pumping. And we did not do  18 that in this simulation because those simulations  19 showed that after about 20, 25 years, you're  20 pretty much at total steady state and nothing much  21 is happening after that.  22 So let's just look at the worst case,  23 what could happen after we're all dead, most of us  24 are dead. 50 years from when the project is fully  25 built out, so this could be 80 years in the</p>
<p style="text-align: right;">Page 1624</p> <p>1 guess, the worst-case conditions that you could  2 model and put them into one run?  3 A. Well, not exactly. We kept the high  4 pumpage for those simulations, but we did not keep  5 the reduced flow from the southeast. So the  6 simulations that we have in this report in the  7 last PGG memorandum are with the higher pumping  8 but with the flow that the model calculates.  9 And I would like to state there was  10 one issue that was raised in the Department memo  11 about this boundary being affected by pumping.  12 And I do want to go on the record as stating that  13 we did convert that boundary from a general head  14 to a specified flux or specified flow so that we  15 were not allowing any pumping to increase flow  16 through that boundary.  17 Q. Which boundary are you speaking of?  18 A. The southeast boundary that initially  19 started off as a general head boundary, and then  20 in the final simulations and from here on out will  21 be a specified flux or specified flow rate.  22 Q. That's at the so-called headgate?  23 A. Yes.  24 Q. So did you then calculate actual  25 drawdowns that you could predict -- or drawdowns</p>	<p style="text-align: right;">Page 1626</p> <p>1 future. But this is the predicted drawdown that  2 we see, based on the model.  3 Q. This predicted drawdown relied on a  4 pumpage that I think you testified earlier is  5 close to 10 percent greater than what M3 actually  6 projects to pump; isn't that right?  7 A. That is correct.  8 Q. So what's next for this model? What  9 do we do with this model from here?  10 A. Well, it has -- I think it's a  11 valuable tool. And it is a tool. It's one of  12 many tools. As we -- presuming the water right is  13 granted, presuming the project goes forward and  14 wells are put in and we gather more data,  15 presuming that the Department of Water Resources  16 gathers more data, we could continue this  17 calibration process.  18 This model represents a series of  19 improvements in four different reports. So as we  20 incorporate more data, especially in areas that  21 are further away -- we might have questions that  22 we want to answer in other areas -- we can  23 calibrate the model further.  24 We can use the model to look at  25 different aquifers after we have more data</p>

<p style="text-align: right;">Page 1627</p> <p>1 collected. It's basically one of many tools that 2 helps explain what's going on. And as we have 3 more data to put into the model, we can improve it 4 and use it as a tool. 5 Q. I'd like to ask you a question about 6 the Treasure Valley Hydrologic Project and its 7 assumed water budget. 8 Are you familiar with the water budget 9 in the TVHP? 10 A. Yes, I am. 11 Q. Given that it's your testimony, as 12 well as that of others, that the PGSA flows not 13 only along and potentially to the Boise River, 14 that it also flows to the Payette Basin, what is 15 your opinion as to the accuracy of the TVHP water 16 budget for the aquifers that it evaluated? 17 A. Well, since the TVHP did not recognize 18 flow to the Payette, it indicates a portion of the 19 water that's not recognized in the budget. And if 20 that water budget doesn't include that water going 21 out of it at some point, it must not recognize 22 water coming into the area at some point, because 23 there's a balance. It's all determined through 24 what goes in, what comes out, change in storage. 25 So it makes me think that there is</p>	<p style="text-align: right;">Page 1629</p> <p>1 application. And tab I believe it's A4. 2 A. Okay. 42? 3 Q. Yeah. 4 A. This goes -- 5 Q. 42 is M3 Eagle second amended 6 application for water right permit. 7 A. Yes, yes. And what tab? 8 Q. A4. 9 A. There we are. Yes. 10 Q. Okay. And on this exhibit -- and I 11 see your name and print down there "M. Utting" on 12 the cover of this sheet behind tab A4; is that 13 correct? 14 A. That is correct. 15 Q. So you were one of the primary 16 authors, I'm assuming, of this model -- I mean of 17 this document? 18 A. Yes, that's correct. 19 Q. Okay. And if you go to, let's see, 20 page 1, and then on about the fifth line down in 21 the overview -- actually, it starts, and I'll read 22 this sentence, "Because the Payette Valley near 23 Leatha is almost 300 feet lower than the Boise 24 Valley near Eagle, groundwater flows out of the 25 Boise Basin and into the Payette River Basin</p>
<p style="text-align: right;">Page 1628</p> <p>1 likely to be more recharge into this area than 2 conceived of as part of the TVHP because they 3 didn't recognize that amount was leaking before. 4 MR. FEREDAY: I have no further questions. 5 THE HEARING OFFICER: Okay. Mr. Thornton, 6 are you ready to cross-examine? 7 MR. THORNTON: Yeah, we've got lots of 8 questions. I was wondering if we could just maybe 9 have a five-minute break or ten-minute break. 10 It's going on two o'clock. 11 THE HEARING OFFICER: Yeah, let's break. 12 MR. THORNTON: Okay. 13 THE HEARING OFFICER: Give you a chance to 14 regroup. 15 (Recess.) 16 THE HEARING OFFICER: We're recording. 17 Mr. Thornton. 18 MR. THORNTON: Okay. 19 20 CROSS-EXAMINATION 21 BY MR. THORNTON: 22 Q. Hello, Mr. Utting. How are you doing? 23 A. I'm doing well. Thank you. 24 Q. Good. If we can have you start by 25 turning to Exhibit 42. That's the second amended</p>	<p style="text-align: right;">Page 1630</p> <p>1 through the sands of this aquifer." 2 And do you agree with that statement? 3 A. Yes, I do. 4 Q. Okay. Thank you. 5 And a little farther down in that same 6 paragraph, maybe a little more than halfway down, 7 there's a sentence that starts "The groundwater 8 proposed to be withdrawn." 9 Do you see that sentence? 10 A. Uh-huh. 11 Q. And that sentence states, "The 12 groundwater proposed to be withdrawn by M3 Eagle 13 for its development will be from subsurface flow 14 that has already departed the Boise Basin on its 15 way to the Payette Basin so that impacts to 16 existing area users in the lowlands near Eagle are 17 predicted to be small." 18 Would you agree with that? 19 A. Yes. 20 Q. Okay. Then if you could refer to 21 Exhibit No. 16, which is the M3 model that we've 22 been talking quite a bit about. 23 A. Yes. 24 Q. And I lost my place here. And then if 25 you go to figure 9.</p>

<p style="text-align: right;">Page 1631</p> <p>1 A. I am there.</p> <p>2 Q. You beat me.</p> <p>3 THE HEARING OFFICER: Page 53.</p> <p>4 Q. (BY MR. THORNTON): Excuse me for the</p> <p>5 interruption here. Page 53.</p> <p>6 And apparently on page 53; is that</p> <p>7 correct, Mr. Utting?</p> <p>8 A. That is correct.</p> <p>9 Q. Thank you.</p> <p>10 A. Figure 9 is on 53.</p> <p>11 Q. And the figure 9 indicates flow to the</p> <p>12 Payette Valley and flow to the Boise River with</p> <p>13 different colored arrows.</p> <p>14 Do you agree with that?</p> <p>15 A. It says the Boise River Valley, not</p> <p>16 necessarily to the river, but the Boise River.</p> <p>17 Q. And I would agree, to the Boise River</p> <p>18 Valley and to the Payette River Valley?</p> <p>19 A. That is correct.</p> <p>20 Q. Okay. And then how do you reconcile</p> <p>21 this with Exhibit 42, which we just discussed,</p> <p>22 that identifies water flowing only to the Payette</p> <p>23 Valley?</p> <p>24 A. Well, I believe it doesn't say -- it</p> <p>25 doesn't say it only flows to the Payette Valley.</p>	<p style="text-align: right;">Page 1633</p> <p>1 A. Well, the hard evidence would include</p> <p>2 our understanding of the geology that shows the</p> <p>3 presence of the Pierce Gulch Sand Aquifer in the</p> <p>4 Meridian/Eagle/M3/Star vicinity, and extending</p> <p>5 through all locations within this model domain, as</p> <p>6 evidenced by the deep gas exploration wells and</p> <p>7 other deep wells throughout the basin where the</p> <p>8 geophysical signature shows the presence of the</p> <p>9 Pierce Gulch Sand Aquifer overlying the Terteling</p> <p>10 Springs Mudstone.</p> <p>11 That, in combination with the water</p> <p>12 levels that we measured in the field and surveyed,</p> <p>13 would push the water through the aquifer, as we</p> <p>14 understand it to be configured, in that direction.</p> <p>15 In fact, that was also shown by contour maps the</p> <p>16 USGS produced Lindholm and in Newton's, from</p> <p>17 water-level data collected in the '80s.</p> <p>18 Q. Okay. And then I believe it's been</p> <p>19 testified to that the Treasure Valley model had a</p> <p>20 no-flow boundary on the north-northwestern margin</p> <p>21 inhibiting flow to the Payette Valley; is that</p> <p>22 correct?</p> <p>23 A. That is correct.</p> <p>24 Q. And I believe I just heard you testify</p> <p>25 that based on that model no-flow boundary that you</p>
<p style="text-align: right;">Page 1632</p> <p>1 It says the water flowing beneath the M3 site</p> <p>2 proceeds to the Payette Valley. If you'll look at</p> <p>3 the figures with both legends of the model, you</p> <p>4 can see that the portions of groundwater that</p> <p>5 flows under the M3 site does, in fact, continue</p> <p>6 toward the Payette Valley.</p> <p>7 And there are certainly portions of</p> <p>8 the water within the Pierce Gulch Sand Aquifer</p> <p>9 that, as Mr. Squires testified earlier, does flow</p> <p>10 to the Boise valley. And in fact, there aren't</p> <p>11 arrows drawn here, but there could be some drawn</p> <p>12 that would then continue toward the west where it</p> <p>13 would, in fact, discharge into the Snake River.</p> <p>14 Q. Okay. And do you have information</p> <p>15 that identifies a percentage, an approximate</p> <p>16 breakdown of the amount of water flowing through</p> <p>17 the Boise Valley, how much goes to the Boise --</p> <p>18 indeed stays in the Boise Valley, how much goes to</p> <p>19 the Snake River, and how much goes to the Payette?</p> <p>20 A. I do not.</p> <p>21 Q. Okay. Okay. And then what is the</p> <p>22 main hard evidence that you have that you used in</p> <p>23 your model to show that water flows to -- in the</p> <p>24 PGSA to the Payette Valley? Could you explain</p> <p>25 that again, please.</p>	<p style="text-align: right;">Page 1634</p> <p>1 assumed or thought that it underestimated actually</p> <p>2 the amount of flow through the -- through the</p> <p>3 Pierce Gulch Sand Aquifer because it did not have</p> <p>4 an exit point in the Payette River; is that</p> <p>5 correct?</p> <p>6 A. No. What I speculated on is that</p> <p>7 there was probably an error in the water budget</p> <p>8 because they did not recognize this component of</p> <p>9 water flowing toward the north, that they must not</p> <p>10 have accounted for it somewhere else in the</p> <p>11 budget. And it could be that they did not account</p> <p>12 for it coming into the model. So whether it's</p> <p>13 specific to the PGSA or other areas, I don't know.</p> <p>14 Q. Okay. So you're not sure of the fact</p> <p>15 that it did underestimate the flow?</p> <p>16 A. Well, since they did not -- your</p> <p>17 question was directed to the PGSA?</p> <p>18 Q. Right.</p> <p>19 A. They did not direct -- they did not</p> <p>20 even recognize the PGSA, so I can't say where they</p> <p>21 might have made this error.</p> <p>22 Q. Did they recognize a deep regional</p> <p>23 aquifer in the Treasure Valley?</p> <p>24 A. They had a deep regional aquifer, yes.</p> <p>25 Q. Okay. And would that be assumed to be</p>

<p style="text-align: right;">Page 1635</p> <p>1 the Pierce Gulch Sand Aquifer?</p> <p>2 A. Well, some areas, I would assume that</p> <p>3 was the assumption that would be made.</p> <p>4 Q. Okay. All right. If you would --</p> <p>5 again, on Exhibit 16, and on page 27. And if I</p> <p>6 could back up. Page 26 in your mass balance,</p> <p>7 amount of water pumped by wells. And then the</p> <p>8 second paragraph, in about the -- maybe it's the</p> <p>9 second sentence it states, "The total average</p> <p>10 annual pumping from the entire model domain was</p> <p>11 calculated to be about 90 to 144 cfs, while the</p> <p>12 total input to the groundwater system recharge at</p> <p>13 surface seepage from the Boise River, New York</p> <p>14 Canal, and other surface water sources is</p> <p>15 calculated to be about 1,030 and 1,040 cfs."</p> <p>16 And do you agree with that statement?</p> <p>17 A. I agree with that statement. I'm just</p> <p>18 trying to recall whether that included the</p> <p>19 increase we did later. So yes, I will say I agree</p> <p>20 with that.</p> <p>21 Q. Okay. And in those estimates of</p> <p>22 pumping from the entire model domain, that was</p> <p>23 again within your 520 square miles; is that</p> <p>24 correct?</p> <p>25 A. Yes.</p>	<p style="text-align: right;">Page 1637</p> <p>1 this area, especially when the applications are</p> <p>2 prior in time to M3's application?</p> <p>3 A. Although not directly done with the</p> <p>4 model, it's something that could be considered</p> <p>5 with the model. One could look at that. Whether</p> <p>6 it's prudent or not, it's hard to know because</p> <p>7 some of those water rights, such as municipal</p> <p>8 water rights, where you are granted a number which</p> <p>9 represents continuous pumping at the maximum rate</p> <p>10 for the full-time, and that just doesn't occur in</p> <p>11 most municipal systems.</p> <p>12 So it's hard to know exactly how to</p> <p>13 address that because if a water right for a</p> <p>14 municipality is set to pump at the full amount,</p> <p>15 what are they going to do with that water in the</p> <p>16 winter? So the reality is they don't. They have</p> <p>17 to pump at a rate that meets their needs, which</p> <p>18 means they have to be able to meet a peak need,</p> <p>19 which is going to be far in excess of the average</p> <p>20 consumption over the long term.</p> <p>21 So by increasing our pumpage by</p> <p>22 30 percent, in part that is addressed, although</p> <p>23 not specifically.</p> <p>24 Q. Did you address in your model the</p> <p>25 potential change in seepage from the New York</p>
<p style="text-align: right;">Page 1636</p> <p>1 Q. In that estimate how did you account</p> <p>2 for water right applications that were ahead of</p> <p>3 M3's application in time?</p> <p>4 A. Well, they were not directly accounted</p> <p>5 for, but they could be considered part of the</p> <p>6 30 percent increase when we did the increased</p> <p>7 pumping within the model domain.</p> <p>8 Q. Okay. And then are you aware that for</p> <p>9 water right applications for groundwater that are</p> <p>10 for 1 cfs or more, applications for 1 cfs or more,</p> <p>11 ahead in time of M3's that there's approximately</p> <p>12 90 cfs currently in front of Department of</p> <p>13 Resource in this area?</p> <p>14 MR. FEREDAY: Objection. Foundation and</p> <p>15 also beyond the scope of direct.</p> <p>16 THE HEARING OFFICER: Sustained.</p> <p>17 Mr. Thornton, if you can lay some</p> <p>18 foundation.</p> <p>19 MR. THORNTON: Okay.</p> <p>20 Q. Your model in the mass balance, is it</p> <p>21 not important to identify what the pumping rates</p> <p>22 are currently?</p> <p>23 A. Yes.</p> <p>24 Q. Is it also not -- is it prudent to</p> <p>25 also look at what future pumping there may be for</p>	<p style="text-align: right;">Page 1638</p> <p>1 Canal?</p> <p>2 A. We did.</p> <p>3 Q. And why was that important?</p> <p>4 A. It was raised as an issue in</p> <p>5 Dr. Ralston's critique. And we thought, Well,</p> <p>6 let's look at it. Let's find out what we think</p> <p>7 will occur should recharge decrease from the</p> <p>8 southeast.</p> <p>9 Now, our model does not directly have</p> <p>10 the New York Canal in it in the model domain as a</p> <p>11 recharge source. But based on Treasure Valley</p> <p>12 Hydrologic Project, we believe that that is a</p> <p>13 source of water to the groundwater system in the</p> <p>14 Boise Valley.</p> <p>15 Q. And so it was important to you to</p> <p>16 understand the potential change in outflow of the</p> <p>17 aquifer due to the reduction in seepage from the</p> <p>18 New York Canal; correct?</p> <p>19 A. No. I would say reduction of inflow</p> <p>20 to the aquifer.</p> <p>21 Q. Inflow. From the New York Canal; is</p> <p>22 that correct?</p> <p>23 A. Yes.</p> <p>24 Q. Would it not be important, then, to</p> <p>25 look at what is pending in terms of water rights</p>

<p style="text-align: right;">Page 1639</p> <p>1 application in front of IDWR to make a decision 2 on?</p> <p>3 MR. FEREDAY: Objection. Asks him to 4 speculate about what's pending and what might be 5 approved.</p> <p>6 THE HEARING OFFICER: Overruled. I think 7 that's a legitimate question.</p> <p>8 THE WITNESS: Could you restate the 9 question, please, so I make sure I got it right?</p> <p>10 Q. (BY MR. THORNTON): Yeah. In your 11 opinion, is it important, then, to have an 12 accurate model to understand what in the 13 relatively near future could be appropriated for 14 water rights out of the groundwater in this model 15 domain area?</p> <p>16 A. I think if one were to do a complete 17 base analysis to really look at the whole basin, 18 that would be appropriate. To look at an analysis 19 for one water right, in this case, I think it's 20 not necessary because when we looked at things 21 that changed the overall water level, such as the 22 reduction of the flow from the southeast boundary 23 or altered the flow by not allowing flow to the 24 north, the predictions of the impacts, which would 25 be the amount of drawdown caused by pumping,</p>	<p style="text-align: right;">Page 1641</p> <p>1 water right applications that are senior to your 2 M3 application?</p> <p>3 A. Only in terms of increasing the 4 pumpage by 30 percent to assess what that would do 5 in terms of overall impact to the system. In 6 fact, if you'd like to look at those figures that 7 we were looking at before, you can see that 8 there's very little difference in terms of the 9 simulated drawdown.</p> <p>10 I'd like to look at those two figures 11 that we were looking at just before we were done, 12 which would be figures 16 and 17.</p> <p>13 THE HEARING OFFICER: Okay. Just a minute. 14 Mr. Thornton, do you want him to go to 15 that particular --</p> <p>16 MR. THORNTON: I am perfectly fine with 17 Mr. Utting doing that.</p> <p>18 THE HEARING OFFICER: Okay.</p> <p>19 THE WITNESS: We have these -- figure 16 20 shows the predicted drawdowns with the lower 21 pumping rate. Figure 17 shows the predicted 22 drawdowns with the higher pumping rate. And we 23 can see that the predicted impacts -- that is, the 24 lowering of water levels predicted after 50 years 25 of pumping between the two versions of the</p>
<p style="text-align: right;">Page 1640</p> <p>1 varied by so little that I would see that these 2 other applications could, in theory, cause some 3 lowering of the water levels in the PGSA.</p> <p>4 Although what Mr. Dittus testified to 5 is that even with their increase in pumping, they 6 haven't seen that. But it would be more of a 7 translation. And therefore, the concern would be 8 if the whole water table dropped by 10 feet, let's 9 say, for the whole area, could M3 get the water on 10 their site? Well, the answer is yes. It's a 11 highly transmissive aquifer.</p> <p>12 Would they need an extra well? I 13 don't know. Probably not.</p> <p>14 Would the impacts predicted to other 15 wells be different in terms of a change in water 16 level? The answer to that would be probably very, 17 very little, certainly that the difference would 18 be less than precision of the analysis.</p> <p>19 So then the question is, would these 20 pending water rights affect the whole system so 21 that senior water rights were affected? Well, 22 that may be the case, but it wouldn't necessarily 23 be because of the drawdown caused by the pumping 24 there.</p> <p>25 Q. So did you account for any of those</p>	<p style="text-align: right;">Page 1642</p> <p>1 model -- is negligible.</p> <p>2 So that shows us that increasing 3 pumping in the area may lower the overall water 4 levels for everyone, but in terms of the impacts 5 caused by M3's pumping, there's no effective 6 difference.</p> <p>7 Q. (BY MR. THORNTON): Okay. And thank 8 you.</p> <p>9 On that same figure 16 and figure 17, 10 would you help me understand where it says 11 "Pumping at 4500 gpm"?</p> <p>12 A. Yes.</p> <p>13 Q. And on the next one it says -- the 14 next figure 17 it says the same.</p> <p>15 Are those correct?</p> <p>16 A. That is correct. That number refers 17 to the combined pumpage from three supply wells, 18 each pumping at 1,500 gallons per minute, which is 19 the 10 cfs that we used in the simulation, which 20 would be 10 percent more than the average pumping 21 rate we anticipate or applied for for this water 22 right application.</p> <p>23 Q. Okay. And then on those same two 24 figures, 16 and 17, 16 identifies lower pumping 25 rate and 17 represents higher pumping rate, but</p>

<p style="text-align: right;">Page 1643</p> <p>1 I'm confused as to they're both pumping at 4500.  2 Could you help me understand that.  3 A. The pumping from the M3 site is at  4 4500 gallons per minute from both of these  5 simulations. The difference being we have a lot  6 of other wells pumping during the simulation. The  7 wells at Meridian, the wells at Nampa, United  8 Water Idaho, Eagle, Caldwell, Emmett, irrigation  9 wells, they're all pumping in this simulation.  10 We then say, let's increase the  11 simulation -- the pumping of those other wells by  12 30 percent. That's the higher pumping rate we're  13 talking about, from all the other wells in the  14 model area, but we keep the same pumping rate for  15 the M3 wells.  16 Q. Okay. And the approximate pumping  17 rate in cfs -- from 4500 gpm is approximately how  18 many cfs?  19 A. 10 cfs.  20 Q. 10 cfs. Go back to my original  21 question of --  22 I'm not sure how to do this,  23 Mr. Hearing Officer. But we have a document I'd  24 like to enter as an exhibit, if I could -- again,  25 I'm not sure the full process -- that identifies</p>	<p style="text-align: right;">Page 1645</p> <p>1 I don't think there's an adequate  2 foundation for this. And I would object to its  3 entry into this record. If they want to put a  4 witness on to testify about this, that might be  5 different, in which case we could voir dire at  6 that time. But we would object to it being  7 offered as an exhibit into this record here.  8 MR. THORNTON: That's one of the witnesses  9 that we lost out.  10 THE HEARING OFFICER: That you what?  11 MR. ALAN SMITH: Could we ask that the  12 Department take --  13 MR. THORNTON: One of our expert witnesses  14 that we were ruled against having.  15 MR. ALAN SMITH: Could we ask the  16 Department take official notice of its own  17 records?  18 THE HEARING OFFICER: Yeah, I guess I don't  19 have a problem with receiving this into evidence  20 if it's really -- it's not brought in through  21 Mr. Utting. And I guess that's the struggle that  22 I'm having, is Mr. Utting has already said he  23 hasn't looked at this, other than the 30 percent  24 increase in pumping throughout the area.  25 So the introduction through him I</p>
<p style="text-align: right;">Page 1644</p> <p>1 from the IDWR website the amount of water --  2 groundwater applications in excess of 1 cubic feet  3 per second that are prior in time to M3's, and  4 it's approximate in 90 cfs.  5 If I could, the basis for that, if  6 we're looking at 10 cfs in the area of impact cone  7 of depression from M3 and this data is just  8 showing 90 cfs, to me there appears to be a  9 potential that I don't see how they built into the  10 model, that potential effect from these other  11 applications that are currently before IDWR?  12 MR. FEREDAY: Mr. Hearing Officer, we would  13 object to this exhibit as being irrelevant,  14 certainly misleading. I see that some of these  15 water rights appear to not even be -- well, it's  16 unclear whether they're proposed to be in the  17 Pierce Gulch Sand Aquifer.  18 Many of them -- or some of them are  19 not even in this area. I think one of them, for  20 instance, 63-32499, is out on the Mountain Home  21 desert, for example. It's certainly unclear how  22 many of these, some of which go back 15 or 20  23 years in application date, have any likelihood of  24 coming to fruition or what their effect might be  25 on the aquifer.</p>	<p style="text-align: right;">Page 1646</p> <p>1 don't think will do any good. I mean what more do  2 we hope to accomplish through that, Mr. Thornton?  3 Now, I'm willing to say it's a Department record  4 and give it the weight that I guess it deserves  5 based on the locations of the wells. But I think  6 all of that needs some vetting in this particular  7 hearing. I don't want to go back through and try  8 to figure out where they're located and what might  9 be proposed by them.  10 MR. THORNTON: The point that I'm trying to  11 make is it does not appear that there was a  12 rigorous, and even good-faith effort, in terms of  13 what is -- two things: What is already being  14 applied for for water rights applications, as well  15 as what -- looking at the -- as Dr. Church talked  16 to, the economic development in the future of the  17 area that may come in right behind M3 in terms of  18 having a sustainable groundwater provided to the  19 area. I just didn't see that that was included in  20 their model.  21 THE HEARING OFFICER: Okay. Here's a  22 compromise I guess I'd like to strike and move on.  23 And the compromise, I guess, Mr. Thornton is that  24 I'll accept it into the record. And if you want  25 to mark it, let's mark it with your next exhibit</p>

<p style="text-align: right;">Page 1647</p> <p>1 number.</p> <p>2 But the way in which I will view</p> <p>3 this -- or this document, unless there's</p> <p>4 additional information presented about it, is that</p> <p>5 it generally shows some broad-brush information</p> <p>6 about applications that are pending in the</p> <p>7 Treasure Valley, but probably has little value to</p> <p>8 me in determining how much of that really should</p> <p>9 have been included in some modeling.</p> <p>10 And without any additional</p> <p>11 information, it probably has very little value to</p> <p>12 me, other than just to show that there are</p> <p>13 applications that are pending and that Mr. Utting</p> <p>14 did not look at that specifically as part of his</p> <p>15 modeling effort, which I think he's already</p> <p>16 testified to.</p> <p>17 So let's mark it as the next exhibit.</p> <p>18 And do you know what number that is?</p> <p>19 MR. THORNTON: We had the exhibit. We had</p> <p>20 it as 850.</p> <p>21 THE HEARING OFFICER: Okay.</p> <p>22 MR. THORNTON: And if you wish to change</p> <p>23 it, that's fine.</p> <p>24 THE HEARING OFFICER: So you have marked it</p> <p>25 as 850.</p>	<p style="text-align: right;">Page 1649</p> <p>1 Q. Mr. Utting, we just reviewed</p> <p>2 Exhibit 42, page 1, which was the M3 hydrogeologic</p> <p>3 characterization year one progress report. And in</p> <p>4 that report we read -- and I'll restate it because</p> <p>5 it's a basis for some of my next questions -- that</p> <p>6 "The groundwater proposed to be withdrawn by M3</p> <p>7 for its development will be from subsurface flow</p> <p>8 that has already departed the Boise Basin on its</p> <p>9 way to the Payette Basin so that impacts to</p> <p>10 existing area water users in the lowlands near</p> <p>11 Eagle are predicted to be small."</p> <p>12 THE HEARING OFFICER: Okay. You are</p> <p>13 referring to Exhibit 42?</p> <p>14 MR. THORNTON: Exhibit 42 and page --</p> <p>15 tab 4.</p> <p>16 THE HEARING OFFICER: That would be A4?</p> <p>17 MR. ALAN SMITH: Tab 4.</p> <p>18 MR. THORNTON: Tab 4. Thank you.</p> <p>19 MR. ALAN SMITH: Page 1.</p> <p>20 Q. (BY MR. THORNTON): And that is saying</p> <p>21 basically the impacts are predicted to be small in</p> <p>22 the lowlands near Eagle.</p> <p>23 And if I could then have you refer to</p> <p>24 Exhibit 16, the M3 model. And on page 33.</p> <p>25 A. I'm there.</p>
<p style="text-align: right;">Page 1648</p> <p>1 MR. THORNTON: Yeah, it was in our exhibits</p> <p>2 that we exchanged.</p> <p>3 THE HEARING OFFICER: Okay. So you have it</p> <p>4 down?</p> <p>5 MR. VANDYKE: Yeah, it's down.</p> <p>6 THE HEARING OFFICER: And it's received</p> <p>7 into evidence. But specifically for the record,</p> <p>8 it has limited value to me as a Hearing Officer</p> <p>9 without some further clarification.</p> <p>10 MR. THORNTON: Okay.</p> <p>11 THE HEARING OFFICER: And I don't think</p> <p>12 it's appropriate that you try to clarify that with</p> <p>13 Mr. Utting. He's not the person to bring it in.</p> <p>14 MR. THORNTON: Okay. And then do we need</p> <p>15 to give you a copy?</p> <p>16 THE HEARING OFFICER: Yes. Why don't you</p> <p>17 put a sticker on that, Nick, and mark it as</p> <p>18 Protestant's Exhibit 850. Let's go off the record</p> <p>19 just a minute.</p> <p>20 (Recess.)</p> <p>21 (Exhibit 850 marked and admitted.)</p> <p>22 THE HEARING OFFICER: We're recording</p> <p>23 again.</p> <p>24 Mr. Thornton.</p> <p>25 MR. THORNTON: Okay.</p>	<p style="text-align: right;">Page 1650</p> <p>1 Q. Okay. So on page 33, the second</p> <p>2 paragraph from the bottom, it identifies that "The</p> <p>3 M3 model not being calibrated to replicate</p> <p>4 responses in the unnamed alluvial aquifer</p> <p>5 overlying the Pierce Gulch Sand Aquifer. The</p> <p>6 model estimates that wells completed in this</p> <p>7 aquifer may have drawdowns that are on the order</p> <p>8 of two-thirds of those predicted for wells</p> <p>9 completed in the Pierce Gulch Sand Aquifer at</p> <p>10 similar locations." Then it goes -- it says that</p> <p>11 the M3 model -- I'm paraphrasing -- was not</p> <p>12 calibrated to aquifers other than the Pierce Gulch</p> <p>13 and cannot be used to accurately predict aquifer</p> <p>14 response from pumping in any aquifer besides the</p> <p>15 Pierce Gulch Sand Aquifer.</p> <p>16 Do you agree with that statement?</p> <p>17 A. I do.</p> <p>18 Q. Okay. And then if you could refer to</p> <p>19 Exhibit 12, page 240 and 241 in Exhibit 12 -- let</p> <p>20 me make sure I have the right exhibit here -- is</p> <p>21 your analysis of 16 aquifers.</p> <p>22 A. Okay.</p> <p>23 Q. And on the page 240 at the bottom,</p> <p>24 No. 19 states that "Construction of additional</p> <p>25 high-capacity wells in the PGA appears feasible</p>

<p style="text-align: right;">Page 1651</p> <p>1 throughout much of the Eagle/Star/M3 project area.  2 These high-capacity wells will cause drawdowns  3 that will affect other wells." It goes on to  4 state that "There are more than 1600 wells in the  5 greater Eagle/Star/M3 area, many of them poorly  6 constructed." And then finishes by saying,  7 "Development of additional municipal groundwater  8 supplies and associated water table drawdowns may  9 require some existing wells to be deepened and/or  10 replaced."  11 Is that correct?  12 A. That is correct.  13 Q. Okay. And then the 20, on statement  14 20, on page 241, it goes on to say that  15 "Development of additional wells and full  16 development of existing municipal water rights  17 will cause artesian pressure to decline over time  18 throughout the Star/Eagle area. This decline of  19 artesian pressure may cause some wells that flow  20 at ground surface to cease doing so. Wells  21 currently relying on artesian flowing conditions  22 to provide water supplies may require pumps to  23 produce water for use in the future."  24 And do you agree with that statement?  25 A. Yes, they may require pumps.</p>	<p style="text-align: right;">Page 1653</p> <p>1 poorly constructed or deteriorating well would  2 require some work. So that's how I reconcile  3 that.  4 In the statement on full development  5 of municipal water rights, yes, if someone's well  6 has got a water level that's just above ground  7 surface and they're relying on its flowing and  8 over time there is a decrease, they might have to  9 have a pump.  10 So a 10 to 15 water level in the PGSA  11 translating to a smaller water level in overlying  12 aquifers, I don't consider that large. However, a  13 well that needs some work may be impacted to the  14 point where it will require that work to produce  15 that water that it might just barely be able to  16 produce now.  17 Q. And in your document here it states  18 there to be 1700 wells in -- did you also hear the  19 testimony of Mr. Squires that could be between  20 2,000, 2,500 wells in the same area?  21 A. I did hear that. And I agree with  22 Mr. Squires' testimony.  23 Q. So did you hear Mr. Squires' testimony  24 where he talked about many of the domestic wells  25 being poorly constructed?</p>
<p style="text-align: right;">Page 1652</p> <p>1 Q. And then going back to what we just  2 read in Exhibit 42 where it states that since --  3 and I'm paraphrasing, that the water withdrawn  4 from the M3 Eagle area is already on its way --  5 departing the Boise Basin on its way to the  6 Payette Basin. Therefore, impacts to existing  7 area users in the lowlands near Eagle are  8 predicted to be small.  9 And you agree with those two  10 statements?  11 A. I do.  12 Q. So help me understand how water-level  13 declines, even in artesian pressure, are  14 considered to be a small impact?  15 A. First year study, we predict that  16 they're small. That evolves through additional  17 testing, analysis, and development of a model to  18 actually quantify those effects which we saw in  19 those figures.  20 So in the protestants' area in the  21 PGSA, we predict drawdowns ultimately after 50  22 years of 10 to 15 feet. If we have a poorly  23 constructed well, a well that isn't deep enough, a  24 well that's clogged, a well that isn't producing,  25 10 to 15 feet could cause a problem that that</p>	<p style="text-align: right;">Page 1654</p> <p>1 A. Yes.  2 Q. Do you have an idea of how many of  3 those poorly-constructed wells, what percentage of  4 them may be affected by these drawdowns?  5 A. I do not.  6 Q. Are there any documentation to that in  7 your model or any other reports that you've  8 prepared?  9 A. There is not.  10 Q. Okay. Okay. If we could turn to  11 page -- in Exhibit 16, and go to page 27. And on  12 page 27 there's a table 1, mass balance comparison  13 of well pumpage volumes.  14 A. Yes.  15 Q. And did you have -- did you work on a  16 portion of this? Are you familiar with this?  17 A. I am familiar with this, yes.  18 Q. And could you describe, looking at --  19 and as I understand, and is it correct to assume  20 that the revised modeling results, November 14th,  21 that column, is the appropriate one to be asking  22 questions on?  23 A. It depends on the question, but I  24 think that's the most appropriate.  25 Q. Okay. And could you describe in that</p>

<p style="text-align: right;">Page 1655</p> <p>1 column "Revised model results" what inflow, what  2 well outflow, and then below that with M3, could  3 you describe what those figures for all of us are,  4 what they represent.</p> <p>5 A. In constructing a model, we have to  6 look at where water comes in to and out of the  7 model region. So inflow includes all the sources  8 of water inflowing to the model.</p> <p>9 We have a number of categories. We  10 have surficial recharge. And that would include  11 irrigation return flow, that would include  12 precipitation. And we had a number of ways of  13 analyzing that based on land use and rates that --  14 the rates we got from the Treasure Valley  15 Hydrologic Project.</p> <p>16 We did a GIS analysis of land use to  17 convert that into surficial recharge. We  18 discussed underflow in the southeast model corner  19 earlier. I could reiterate that if you'd like.  20 We looked at Dry Creek. We have indication on  21 USGS gauging data that there's a small amount of  22 water that goes into the groundwater system there.</p> <p>23 We looked at a small amount of water  24 leaking out of Lake Lowell, we looked at Boise  25 River seepage, and we looked at Payette River</p>	<p style="text-align: right;">Page 1657</p> <p>1 that is calculated by the model flowing into the  2 model domain.</p> <p>3 Q. Okay. And would that flow from Lake  4 Lowell into the model domain, that has some -- I  5 guess there's some factor that -- percentage that  6 then identifies this much available water for the  7 Pierce Gulch Sand Aquifer; is that correct?</p> <p>8 A. No. It's just largely into the  9 system, into the model, so that we're accounting  10 for all the known inputs and outputs into that  11 model vision.</p> <p>12 Q. And where does -- and you've said this  13 before. Where does the -- what is the recharge,  14 source of recharges for the Pierce Gulch Sand  15 Aquifer?</p> <p>16 A. Well, we have recharge coming in from  17 the southeast model corner. We know that Pierce  18 Gulch sand is there. We know we have water  19 flowing in that area. We calculated that to begin  20 with through this general head boundary, where we  21 specified the transmissivity of the region  22 upgradient from there and from known water rights.  23 And that calculates the flow.</p> <p>24 The other recharge to the Pierce Gulch  25 Sand Aquifer would occur within the model,</p>
<p style="text-align: right;">Page 1656</p> <p>1 seepage. And both of those would have been  2 calculated by the model. From that we come up  3 with a total inflow to the system.</p> <p>4 The outflow would be pumpage from the  5 wells, the domestic wells, municipal, commercial,  6 irrigation wells. So we compare all those  7 numbers. We look at with and without M3 pumping  8 to get some totals and some percentages.</p> <p>9 Q. Okay. And then on your inflow, what  10 appears like Lake Lowell, a small percentage,  11 1.6 percent.</p> <p>12 And could you describe to me how that  13 percent from Lake Lowell, in what I, a  14 layperson -- I'm thinking that's miles across the  15 valley. And if I understand that right, there's a  16 small percentage of that seepage from Lake Lowell  17 coming into your headgate of the model?</p> <p>18 A. Not to the headgate of the model.  19 Overall model domain. If you look at that figure  20 that shows the whole model domain, Lake Lowell is  21 in a portion of that model domain.</p> <p>22 So by looking at the levels of the  23 lake and the clay layers on the bottom, the head  24 difference between the lake and underlying  25 groundwater, the seepage that would occur through</p>	<p style="text-align: right;">Page 1658</p> <p>1 depending on the head differences between the  2 layers.</p> <p>3 Q. Okay. And did you testify that some  4 of that recharge is from the Boise River, some  5 from the New York Canal, some from irrigation?</p> <p>6 A. I believe that that water -- are you  7 talking about the water in the PGSA?</p> <p>8 Q. I'm talking about the flow into the  9 Pierce Gulch Sand Aquifer.</p> <p>10 A. That would come from upgradient.  11 Based on TVHP, it seems that there's a source of  12 recharge up there. So I'm assuming that that's  13 part of it.</p> <p>14 Q. From river, from the canal, and from  15 irrigation?</p> <p>16 MR. FEREDAY: Objection. I think he  17 testified already that it was not from irrigation  18 but from the canals. So if --</p> <p>19 MR. THORNTON: I believe that he testified  20 that it was from irrigation. We can go back and  21 look at that.</p> <p>22 THE HEARING OFFICER: Okay. Overruled.</p> <p>23 THE WITNESS: I think what you're referring  24 to is recharge to the overall model comes from  25 irrigation. But the only place where we have the</p>

<p style="text-align: right;">Page 1659</p> <p>1 PGSA right at the surface, there is no irrigation.  2 So we do not have direct recharge into the PGSA  3 from irrigation.  4 Q. (BY MR. THORNTON): Okay. And then if  5 we could go to Exhibit 32B, which, Mr. Utting, is  6 your kind of C.V.  7 A. Yes, there I am.  8 Q. And if you would turn to the -- I  9 guess it's the third page there -- yeah, I don't  10 see a page number, but it would be the third page.  11 A. Yes.  12 Q. And on five, statement five, it says,  13 "Water within the Pierce Gulch Sand Aquifer  14 beneath M3 Eagle property originates from a  15 combination of seepage from the Boise River,  16 New York Canal beneath parts of the city of Boise  17 and Meridian, local precipitation, applied  18 irrigation water, and probably infiltration of  19 surface water from various creeks such as dry  20 creeks."  21 So here I'm seeing you're saying it  22 does come from applied irrigation, and then am I  23 also hearing you say that it doesn't?  24 A. Well, I did state earlier that the  25 only place we know recharge occurs in the model</p>	<p style="text-align: right;">Page 1661</p> <p>1 earlier, Boise River seepage approximately  2 7.8 percent.  3 And essentially what is that telling  4 me, Boise River seepage 7 -- approximately  5 8 percent?  6 A. It says that within the model regime  7 there are places where the Boise River is seeping  8 into groundwater -- the groundwater system, not  9 necessarily PGSA, but somewhere within an aquifer.  10 And that would be the model  11 calculating it by the difference in water levels  12 in the river and the difference in water level  13 within the aquifer underneath it. And where  14 that's a downward flow, you would have seepage  15 from the river into the model domain.  16 Q. Okay. And could you explain to me the  17 Payette River seepage of 27 percent. Where is --  18 tell me how that Payette River seepage is  19 accounted for in your model and what that means.  20 A. Well, for the same mechanism, where  21 the water levels in the Payette River are higher  22 than the groundwater levels in the underlying  23 aquifer, you would have groundwater moving  24 downwards into that gradient. And that occurs in  25 the Payette Valley, generally upstream from</p>
<p style="text-align: right;">Page 1660</p> <p>1 area would be at the southeast boundary. I also  2 stated earlier that in the northeast portions of  3 the boundary Pierce Gulch becomes shallower and  4 couples to upper zones.  5 So by this statement I mean in that  6 area, say near Lexington Hills, it is  7 theoretically possible for that to occur. I  8 stated that recharge within the model to the PGSA  9 would depend on the head differences or the  10 water-level differences between the zones.  11 So it is possible at some portions  12 that applied irrigation could be brought down into  13 there, but I don't know specifically. Since this  14 was written, I have to say I've now listened to  15 Mr. Glanzman's testimony and seen his report, and  16 realize that the geochemistry says that if that is  17 occurring it's got to be pretty darn small or it  18 would show up in the geochemistry.  19 Q. And so you heard testimony from  20 Mr. Glanzman that he has seen no evidence of  21 irrigation water going to the PGSA?  22 A. I have heard that, yes.  23 Q. And if we could go back to Exhibit 16,  24 page 27. And on table 1 again. And underneath  25 the column of "inflow." And you identified</p>	<p style="text-align: right;">Page 1662</p> <p>1 Emmett.  2 Q. And so the -- and that's, again, in  3 your model domain?  4 A. Within the model domain, yes.  5 Q. And in your testimony you provided  6 earlier about the running no-flow boundary  7 example --  8 A. Yes.  9 Q. -- I believe that -- did you testify  10 to that?  11 A. I did.  12 Q. Do you have information, such as this  13 table, where we can see what amounts of seepage --  14 what the change was in that no flow? Have you  15 presented that in this report? Perhaps it's  16 there, and I didn't see it.  17 A. We did not present that.  18 Q. Did you, in fact, on that no-flow  19 boundary identify that the Payette River seepage  20 would be zero?  21 A. What do you mean, did I identify that?  22 Q. Did -- let me restate the question.  23 I believe I just heard you said you  24 ran a no-flow -- a model run showing a no-flow  25 boundary.</p>

1 A. I haven't looked at that specifically,  
2 but putting that no-flow boundary in the model  
3 still has the Payette portion of the aquifer  
4 system, it still has the difference in water  
5 levels. In the upgradient level above Emmett,  
6 it's highly likely to be changed by that, and  
7 therefore I don't think there would be a  
8 significant change.

9 Q. Would your -- it appears in your model  
10 domain if you -- is it true that if you had a  
11 no-flow boundary your model domain would have to  
12 change?

13 A. We just put a barrier in of -- we  
14 didn't actually move the model boundary in. We  
15 just put a wall of zero permeability from the  
16 green line, then following that surficial divide  
17 that TVHP speculated as a no-flow boundary. We  
18 put a vertical wall, said, "Hey, water can't cross  
19 it."

20 On the other side of the model, it can  
21 do whatever it's doing, but we don't care because  
22 that's irrelevant at this stage. But it just  
23 meant that this water was not allowed to flow to  
24 the Payette. It was forced to go to the west or  
25 southwest.

1 Q. And how do you reconcile -- what I  
2 guess resonates with me is that there's a  
3 discrepancy in the model domain when in a no-flow  
4 boundary that you ran you didn't adjust the  
5 boundary, you just simply said no flow to the  
6 Payette River. But perhaps you still said seepage  
7 into the model domain was 27 percent.

8 A. Well, we didn't come up with any  
9 results for that. We were just looking at  
10 predictive impacts. So we did not present a table  
11 of the differences in results because it's an  
12 artificial situation, but we were using it as a  
13 tool to examine the "What if water couldn't get to  
14 the Payette, would it matter?" And we concluded  
15 it made no difference in terms of the water  
16 availability beneath the M3 site pumping from the  
17 PGSA.

18 Q. Did you do any runs in terms of water  
19 table declines with that no-flow boundary, taking  
20 into account no seepage to the Payette River?

21 A. No.

22 Q. And if we could go to page 27 just  
23 below that table, it talks mass balance flow to  
24 Pierce Gulch Sand Aquifer from outside the model  
25 domain.

1 A. Yes.

2 Q. And about halfway down there's a  
3 sentence that starts "In the analyses -- in the  
4 transmissivities of the Pierce Gulch Sand Aquifer  
5 as calculated from numerous pumping tests in the  
6 Meridian area, we're assumed to also represent the  
7 regions between the model's southeastern boundary  
8 and the region beneath the Boise River upstream  
9 from the Capitol Bridge."

10 Do you agree with that?

11 A. Yes.

12 Q. What were your assumptions based on?

13 A. Assumptions were based on the fact  
14 that we see productive wells going up-valley, that  
15 the permeability of those materials were likely to  
16 be similar. When we look around the valley, we  
17 see this coarse sand deposit of both the Pierce  
18 Gulch sand and the sand unit of the Terteling  
19 Springs formation. So we extrapolated upgradient.

20 And as we found out in the sensitivity  
21 analysis, that was not highly sensitive to  
22 variations in that conductive -- in the Terteling.  
23 It's a function of that -- those transmissivity  
24 levels.

25 Q. And you're saying that the area

1 up-valley, I believe you said.

2 How is Meridian up-valley from the M3  
3 area?

4 A. Well, Meridian's not up-valley, it's  
5 upgradient. It's at the edge of the model where  
6 we know the Pierce Gulch Sand Aquifer exists,  
7 where we know water is flowing to the northwest,  
8 and therefore it's coming in across the boundary  
9 that we showed in that figure within the Pierce  
10 Gulch Sand Aquifer.

11 Q. So you're saying that the -- if I  
12 heard you, that the Pierce Gulch Sand Aquifer  
13 underneath Meridian is flowing to the northwest?

14 A. Well, not the aquifer. But water  
15 within the aquifer is, yes.

16 Q. Water within the aquifer. Okay. So  
17 water within the aquifer in the Meridian area is  
18 flowing to the northwest?

19 A. That is correct.

20 Q. Okay. Probably come back to that in a  
21 bit. On your -- if we can go back to 27 again,  
22 the mass balance.

23 As I understand the first sentence in  
24 that paragraph, it identifies the M3 model  
25 calculated that about 102 cfs to 115 cfs of

<p style="text-align: right;">Page 1667</p> <p>1 groundwater flows into the southeast corner of the  2 model through the Pierce Gulch Sand Aquifer; is  3 that correct?  4 A. That is correct.  5 Q. Okay. Is that the amount of water  6 that's going through as we've heard termed the  7 headgate --  8 A. Yes.  9 Q. -- as you estimated that?  10 Okay. And if we could go to page 28.  11 The amount of water going through your headgate,  12 the 102 to 115, I believe is described in the top  13 of page 28, the source; is that -- the  14 origination; is that correct?  15 A. Let me read this for a second.  16 Q. Okay.  17 A. (Reviews.)  18 Yes.  19 Q. I believe it states, does it not, that  20 "A significant portion of this general head flow  21 into the model's southeastern boundary originated  22 as seepage from both the Boise River and the  23 New York Canal"?  24 A. That is correct.  25 Q. And then I believe you're citing</p>	<p style="text-align: right;">Page 1669</p> <p>1 correct?  2 A. That's correct.  3 MR. FEREDAY: Mr. Hearing Officer, I'm not  4 sure where this is going. But I guess I would  5 appreciate an instruction to ask a question here  6 rather than just ask him whether he can read. I'm  7 concerned about where this is going.  8 MR. THORNTON: If I could respond to that.  9 THE HEARING OFFICER: Sure, Mr. Thornton.  10 MR. THORNTON: Part of the reason I'm  11 reading it is, as I understand the Hearing Officer  12 has stated, that to be unbiased you haven't read  13 through this information. So I think these are  14 important points, concepts, assumptions,  15 limitations or whatever that need to be  16 understood, and the foundation for the question.  17 That's why I'm going through reading them.  18 Most of us have read them here, but as  19 I understand you have, as a matter of purpose,  20 decided not to read those. That's why I'm trying  21 to bring them up now.  22 THE HEARING OFFICER: Okay. The purpose of  23 cross-examination, Mr. Thornton, I guess, is to  24 impeach or to distinguish the testimony of the  25 witness in some way, perhaps discredit it in some</p>
<p style="text-align: right;">Page 1668</p> <p>1 Urban -- and I believe that's from the Treasure  2 Valley Hydrologic Report; is that correct?  3 A. That is correct.  4 Q. Okay.  5 -- reported a loss to the underlying  6 groundwater system of 21 cfs during '96 and  7 apparently 110 during 2000; correct?  8 A. That's correct.  9 Q. And both sets of those measurements  10 were made over a reach upstream from Capitol  11 Bridge; correct?  12 A. Correct.  13 Q. And then he, Urban, also reported from  14 the New York Canal system over its entire length  15 at an average rate of 13 percent indicating  16 somewhere between an 80 to 150 cfs loss; is that a  17 fair judgment?  18 A. The 80 to 150 were flow measurements  19 that were reported in Hutchings and Petrich, I  20 believe. Yes.  21 Q. Okay. And then at the end of that  22 paragraph it states that the quantities of loss  23 indicated in these three Treasure Valley  24 hydrologic reports are similar, and therefore  25 supportive of your inflow calculations; is that</p>	<p style="text-align: right;">Page 1670</p> <p>1 way or to highlight inconsistencies.  2 So Mr. Fereday has presented  3 information. And I think Mr. Fereday's question  4 might be, what is the importance ultimately of the  5 questions that you're asking. I mean I don't mind  6 your going through it if at some point in time you  7 say "Okay, Mr. Utting, based on these statements,  8 then, why are you concluding such and such?" And  9 I think that's probably the question that  10 Mr. Fereday is waiting.  11 So if we're just reciting numbers that  12 are supportive of what Mr. Fereday has put into  13 the record, then it has no value to it. If you're  14 attempting to distinguish in some way or highlight  15 something that Mr. Utting has testified to by  16 doing this, then it has value. But I guess I want  17 to know where the ultimate question is in all  18 this. And I think that's what Mr. Fereday has  19 asked.  20 MR. THORNTON: Okay. And I think  21 appropriate to bring that up. So I will work on  22 trying to solidify that and shorten it up.  23 THE HEARING OFFICER: Okay.  24 Q. (BY MR. THORNTON): Mr. Utting, if we  25 could have you go to Exhibit 33, the Treasure</p>

<p style="text-align: right;">Page 1671</p> <p>1 Valley Hydrologic Report.  2 THE HEARING OFFICER: Exhibit what again?  3 MR. THORNTON: Exhibit 33.  4 THE HEARING OFFICER: 33.  5 MR. THORNTON: And it's the very first one,  6 the executive summary, the overall executive  7 summary. So perhaps tab A.  8 MR. FEREDAY: I believe that is  9 Exhibit 33A.  10 THE HEARING OFFICER: Now, while we're  11 looking, the other thing is, Mr. Thornton -- and  12 maybe there was some misunderstanding -- when I  13 come into a hearing, there are -- and I don't know  14 how much time to spend on this. It probably is a  15 waste of time. But there are documents that have  16 been marked but they're not yet received into  17 evidence.  18 And I don't have any idea as a hearing  19 officer -- these documents have all been submitted  20 as prospective exhibits, so I have no idea which  21 ones will come in and which ones won't. I didn't  22 even have any idea which were stipulated to for  23 admission.  24 So number one, it's hard for me to get  25 through all the information. Number two, I</p>	<p style="text-align: right;">Page 1673</p> <p>1 MR. FEREDAY: -- that is part of record and  2 is in evidence.  3 THE HEARING OFFICER: So it's 33 what?  4 MR. FEREDAY: A.  5 MR. THORNTON: 33A.  6 THE HEARING OFFICER: Okay. I'm there.  7 Q. (BY MR. THORNTON): Okay. On 33A,  8 page 18, at the top of the -- I guess it would be  9 the third paragraph, in the Treasure Valley  10 report -- and on the page 18, then, how do you  11 account for what is stated on page 18, third  12 paragraph, where it says that "The largest  13 component of recharge to the shallow aquifer is a  14 seepage from canal system and infiltration through  15 irrigated agriculture" with what you have stated  16 in the model in terms of the inflow coming from --  17 to the Pierce Gulch Sand Aquifer coming from the  18 canal in the Boise River Basin?  19 MR. FEREDAY: We would object, at least to  20 the extent that this asks Mr. Utting to comment on  21 a study that isn't his study and that he did not  22 testify about in direct.  23 THE HEARING OFFICER: Okay.  24 MR. THORNTON: I can re-ask, perhaps.  25 THE HEARING OFFICER: No. Overruled. I --</p>
<p style="text-align: right;">Page 1672</p> <p>1 shouldn't be reading exhibits that will not be  2 part of the evidence.  3 MR. THORNTON: I agree.  4 THE HEARING OFFICER: It's inappropriate  5 for me. So there are reasons why I don't go  6 through that evidence beforehand. Now, I'm  7 responsible for what's in the record at the  8 present time, which is a rather weighty  9 responsibility looking at what's here. But there  10 are reasons why I don't preread those. Okay? All  11 right.  12 MR. FEREDAY: Mr. Hearing Officer, if I  13 could --  14 THE HEARING OFFICER: Yeah.  15 MR. FEREDAY: -- I believe this -- all of  16 these exhibits, up through --  17 MR. LAWRENCE: 50.  18 MR. FEREDAY: -- certainly up through 50  19 were stipulated in and were received in evidence.  20 THE HEARING OFFICER: Right.  21 MR. FEREDAY: So those are a part of the  22 record.  23 THE HEARING OFFICER: Right.  24 MR. FEREDAY: This would be one of those --  25 THE HEARING OFFICER: Right.</p>	<p style="text-align: right;">Page 1674</p> <p>1 Well, go ahead, Mr. Utting.  2 THE WITNESS: They are totally consistent.  3 Our model had a lot of recharge coming in through  4 leaky canals and irrigation return flows that went  5 into the shallowest aquifer, which would be the  6 Boise River gravels and other unconfined zones.  7 So it's totally consistent. It's not the Pierce  8 Gulch Sand Aquifer. It's the shallower aquifer  9 where this is.  10 Q. (BY MR. THORNTON): So what is the  11 source of recharge to the Pierce Gulch Sand  12 Aquifer? I'm confused.  13 A. Well, as I stated, we have flow coming  14 in from the southeast. And where that actually  15 comes from is to some area to the southeast  16 because our contour lines show it flowing in from  17 that direction.  18 We had the model calculate the throw  19 rate based on gradient and based on  20 transmissivity. There may be other sources of  21 recharge where there are head differences where  22 it's pulled in from other aquifers. But that's  23 not direct recharge, that's not a boundary  24 condition on the model.  25 There are some areas beneath the M3</p>

<p style="text-align: right;">Page 1675</p> <p>1 site where the aquifer becomes unconfined, and it  2 is in fact the shallowest aquifer, where some  3 precipitation from, you know, rainfall and  4 snowmelt will get into the aquifer.  5 And I think Mr. Glanzman's testimony  6 showed that there were these two wells in that  7 area that had precipitation recharge. So our  8 recharge comes from the southeast, and that's the  9 primary area where the direct recharge occurs in  10 our model.  11 Q. Page 27 of the model, Exhibit 16, does  12 it not say that for the -- underneath "Mass flow"  13 that the M3 model calculated that 102 to 115 cfs  14 of groundwater flows into the southeast corner of  15 the model?  16 A. Yes, that's correct, through the  17 Pierce Gulch Sand Aquifer.  18 Q. And then you go on to state lower down  19 in that same paragraph that it is coming from the  20 Boise River upstream, and also you have identified  21 leakage from the canals, or at least the New York  22 Canal; is that correct?  23 A. I have identified that, yes.  24 Q. I guess I'm still confused in terms of  25 how you just said what -- let me try to ask a</p>	<p style="text-align: right;">Page 1677</p> <p>1 Q. And on Exhibit 33A, page 18, on the  2 sixth paragraph down, it identifies that recharge  3 to the deep aquifer begins as downward flow  4 through coarse-grained alluvial sediments in the  5 eastern portion of the basin.  6 And you agree with that; is that  7 correct?  8 A. I'm not exactly sure what they mean by  9 the eastern portion of the basin, but they  10 certainly have coarse-grained sediments and  11 infiltration in this area, in the Boise area, yes.  12 Q. Okay. And then on the last paragraph  13 on page 18 -- and perhaps you'll want to read  14 through that -- is it not true that it says based  15 on some of the water chemistry data collected,  16 again, from shallow aquifers near the New York  17 Canal -- and I'll paraphrase here. It basically  18 says that it does not go into the deeper aquifer.  19 If you can perhaps through that --  20 MR. FEREDAY: Objection. I think this has  21 been asked and answered now a few times. Maybe  22 I'm missing something, but that's what it looks  23 like to me.  24 MR. THORNTON: The point I'm trying to  25 bring up is I'm hearing several different answers</p>
<p style="text-align: right;">Page 1676</p> <p>1 better question.  2 Going back to the Treasure Valley  3 report, Exhibit 33A, page 18, where in that study  4 they said that the seepage from the canal is the  5 largest component for the shallow aquifer.  6 How much of the canal water goes into  7 the Pierce Gulch Aquifer?  8 A. I have no idea. We looked at the  9 recharge coming into the model. My charge was not  10 to assess where that recharge coming into the  11 model came from. We've heard Dr. Wood testify and  12 Ed Squires testify that the Pierce Gulch sand  13 undoubtedly comes up and intersects the Boise  14 River gravels somewhere upgradient from our model.  15 So there's a source of water, of Boise River  16 water.  17 We have seen that upgradient from the  18 Capitol Street Bridge that they've measured  19 seepage losses going into the groundwater system.  20 We've also seen that seepage losses were measured  21 from the New York Canal itself.  22 So we know there are places and ways  23 this water can get into the model. We used the  24 model to calculate the amount flowing in based on  25 gradient and transmissivity.</p>	<p style="text-align: right;">Page 1678</p> <p>1 from several different people, even the same  2 person, in terms of the source.  3 THE HEARING OFFICER: Okay. Are we  4 referring to the last paragraph on page 18 --  5 MR. THORNTON: Yeah.  6 THE HEARING OFFICER: -- Mr. Thornton?  7 MR. THORNTON: Yes.  8 THE HEARING OFFICER: And this is a  9 discussion of water chemistry data collected from  10 shallow aquifers?  11 MR. THORNTON: Yeah, near the New York  12 Canal.  13 THE HEARING OFFICER: Okay. And I guess  14 I'll sustain the objection just on the basis that  15 Mr. Utting has not testified about water chemistry  16 at all. That's not his area of expertise. So  17 I'll sustain the objection on that basis.  18 MR. THORNTON: Okay.  19 Q. Did you hear Dr. Spence Wood testify?  20 He was here for, I believe, a day and a half or  21 so.  22 A. Yes, I did.  23 Q. Hear that Dr. Spence Woods (sic) said  24 nobody really knows where the recharge is to the  25 Pierce Gulch Sand Aquifer?</p>

<p style="text-align: right;">Page 1679</p> <p>1 A. I don't recall those words  2 specifically, but I would agree no one knows the  3 exact spot, put your finger here, this is where  4 it's going in.  5 Q. Okay. If we could go to -- whatever  6 one this is here -- to Exhibit 16, page 28. And  7 then I believe you just testified that the  8 recharge to the Pierce Gulch Sand Aquifer, a  9 significant portion, is again from the Boise River  10 and the New York Canal; correct?  11 A. Yes.  12 Q. Okay. And then are you familiar with  13 a report by the U.S. Geological Survey titled  14 "Stream flow gains and losses in the lower Boise  15 River Basin, Idaho, 1996 and '97?  16 MR. FEREDAY: Who was the author?  17 MR. THORNTON: It was Charles Berenbrock.  18 THE WITNESS: I'm not familiar with that  19 report.  20 MR. THORNTON: I would like to receive this  21 into evidence in terms of their findings on  22 seepage runs.  23 THE HEARING OFFICER: So you want --  24 MR. FEREDAY: Has this been previously  25 marked and provided?</p>	<p style="text-align: right;">Page 1681</p> <p>1 discovery process, our exchange of documents.  2 THE HEARING OFFICER: But it's my  3 understanding that it was not one of the documents  4 that the parties stipulated to the admission of.  5 MR. FEREDAY: That's correct.  6 THE HEARING OFFICER: So, Mr. Thornton,  7 you'll need to either establish with this witness  8 or somebody what this document is, and then  9 ultimately offer it.  10 MR. THORNTON: Okay. So at this point I'd  11 like to offer it. I'm not sure the technical  12 terms here.  13 THE HEARING OFFICER: Okay. I need to  14 ultimately have a copy of it, and we'll mark it if  15 it's not already marked.  16 Okay. So it's 285, Nick.  17 (Exhibit 285 marked.)  18 THE HEARING OFFICER: How soon do we want  19 to take the next afternoon recess, folks, to push  20 us through until 5:00?  21 MR. THORNTON: I have probably two or three  22 questions regarding this. And for me it would be  23 good to break then. I mean I could break now,  24 whatever I want. But just a couple more questions  25 on this document. I have more questions to go</p>
<p style="text-align: right;">Page 1680</p> <p>1 MR. THORNTON: Yes.  2 MR. LAWRENCE: What's the number?  3 MR. FEREDAY: What's the number?  4 MR. THORNTON: We have it as No. 285. This  5 is information that was shared through the  6 discovery process everyone had.  7 MR. JASON SMITH: That was No. 285?  8 MR. THORNTON: 285 is the exhibit number we  9 have.  10 THE WITNESS: Mr. Thornton, I may have  11 looked at that. I can't recall. If you could  12 bring a copy forward, I could look at it.  13 MR. THORNTON: Yeah. I'm just nervous.  14 I'm not sure if I'm supposed to do that or not.  15 THE HEARING OFFICER: Oh, you can present  16 it to Mr. --  17 MR. FEREDAY: Yeah, please do. Yes.  18 MR. THORNTON: I think -- is that more than  19 one there?  20 THE HEARING OFFICER: The parties did not  21 stipulate to the admission of this document, as I  22 recall.  23 MR. FEREDAY: Correct.  24 MR. ALAN SMITH: That has been admitted?  25 MR. THORNTON: Well, it was during the</p>	<p style="text-align: right;">Page 1682</p> <p>1 through, but...  2 THE HEARING OFFICER: Okay.  3 MR. FEREDAY: Well, I would appreciate a  4 break at this time so that the witness might have  5 an opportunity to review this document.  6 MR. THORNTON: Sounds good.  7 THE HEARING OFFICER: Okay. That's fair.  8 Let's break for 15 minutes.  9 MR. THORNTON: Okay.  10 THE HEARING OFFICER: Come back and finish  11 the day.  12 (Recess.)  13 THE HEARING OFFICER: We are recording.  14 Mr. Thornton, further questions of  15 Mr. Utting.  16 Q. (BY MR. THORNTON): And, Mr. Utting,  17 we were talking about the M3 model in terms of the  18 inflow or the flow to the Pierce Gulch as being  19 102 to 115 cfs; correct?  20 A. That's correct.  21 Q. And in the M3 model, it identified  22 that that amount seemed -- or appeared to be  23 supported by flow amounts identified in the  24 Treasure Valley Hydrologic Report; correct?  25 A. That is correct.</p>

<p style="text-align: right;">Page 1683</p> <p>1 Q. And the Treasure Valley Hydrologic 2 Report that is identified in that paragraph states 3 that there are some seepage from the -- 4 THE HEARING OFFICER: Where are you 5 referring? 6 MR. THORNTON: I'm sorry? 7 THE HEARING OFFICER: Where are you 8 referring to? 9 MR. THORNTON: Okay. On document 16 and on 10 page 28. Exhibit 16, page 28. 11 THE HEARING OFFICER: Okay. 12 Q. (BY MR. THORNTON): And in that 13 paragraph is it fair to say that the inflow is -- 14 MR. FEREDAY: Excuse me. We're not sure 15 which paragraph. 16 MR. THORNTON: First paragraph. I'm sorry. 17 Top. 18 Q. -- that the inflow to the model was 19 based on seepage from the Boise River and from the 20 New York Canal; correct? 21 A. Actually, no. The inflow for the 22 model was calculated by the model based on the 23 gradient and the transmissivity. 24 Q. Okay. 25 A. We looked at flow indicated in the</p>	<p style="text-align: right;">Page 1685</p> <p>1 foundation regarding what this document is, who 2 produced it, whether Mr. Utting is familiar with 3 it. So that's the prudent -- generally, that's 4 the preliminary information that comes in about a 5 document before it's offered. 6 MR. THORNTON: Okay. I will try to do 7 that. Thanks. 8 THE HEARING OFFICER: Okay. 9 Q. (BY MR. THORNTON): So in the document 10 titled "Stream flow gains and losses in the Lower 11 Boise River Basin, Idaho, 1996, 1997" conducted by 12 the United States Geological Survey, are you aware 13 of that document? 14 A. I'm aware of it, yes. 15 Q. Okay. Are you aware that they did an 16 assessment, an evaluation of stream-flow gains and 17 losses in the Lower Boise River Basin as well as 18 the New York Canal? 19 A. Only because I've looked at it briefly 20 now, which you've handed to me. It was not a 21 document I used to compare the calculated model 22 input. I don't know if Urban used this in his 23 analysis. But it does appear to be a regional 24 assessment of flow on the Boise River. 25 Q. Are you aware that this document is in</p>
<p style="text-align: right;">Page 1684</p> <p>1 TVHP upgradient from that boundary just to -- as a 2 check to make sure we were in the ballpark, that 3 our numbers were reasonable, that our 4 approximately 100 cfs flowing in was within the 5 range of the 100 -- where are they coming up 6 here? -- 100 to 260 cfs that they reported from 7 these two potential sources. 8 Q. Okay. And those two potential sources 9 were identified as seepage or losing reaches from 10 the Boise River and/or seepage from the New York 11 Canal; correct? 12 A. That is correct. 13 Q. And then in Exhibit 285, if you would 14 turn to that, please. And on page 1, third 15 paragraph, it identifies that during the -- 16 MR. ALAN SMITH: I'm going to object here 17 at this point. I don't think there's been a 18 foundation laid for what this document is or how 19 it relates to the M3 model or the model domain 20 that Mr. Utting has been testifying about. 21 MR. THORNTON: Can I offer that now, then? 22 Or I'm not sure the process, so... 23 THE HEARING OFFICER: You can attempt to 24 offer the document at the present time, just offer 25 it as an exhibit. You can attempt to lay a</p>	<p style="text-align: right;">Page 1686</p> <p>1 the public domain? 2 A. If it's USGS, it would be, yes. 3 Q. Are you aware that the information in 4 this document appears to refute the inflow 5 assumptions based on the M3 model? 6 MR. FEREDAY: Objection. Foundation. 7 THE HEARING OFFICER: Okay. Let's -- see, 8 that's not a foundational question now. Now 9 you're going to the content of what's within the 10 document. 11 MR. THORNTON: Okay. 12 THE HEARING OFFICER: So you either need to 13 lay more foundation, Mr. Thornton, or offer the 14 document, and then we can look at it. 15 MR. THORNTON: Okay. All right. 16 THE HEARING OFFICER: Okay. So it's up to 17 you. 18 MR. THORNTON: Okay. 19 Q. The question is, is the amount of -- 20 in your mass balance for flow to the Pierce Gulch 21 Sand Aquifer, is it important to have an accurate 22 amount of flow into the Pierce Gulch Sand Aquifer, 23 in your model, based for your model? 24 A. I don't know exactly what you mean by 25 "important." But we want the model to have</p>

<p style="text-align: right;">Page 1687</p> <p>1 relatively accurate flow of water into it, yes.</p> <p>2 Q. Is that one of the calculations of</p> <p>3 your model, one of the numbers or coefficients or</p> <p>4 variables in your model that is needed?</p> <p>5 A. It is something that the model</p> <p>6 calculated based on the gradients from measured</p> <p>7 water levels and from transmissivities measured in</p> <p>8 pumping tests. So the model calculated that flow.</p> <p>9 We used TVHP numbers to see if it was in the</p> <p>10 ballpark.</p> <p>11 Now, Dr. Wood testified earlier that</p> <p>12 he believes the PGSA comes up near the Boise</p> <p>13 River. So there may be some whole new source of</p> <p>14 water not accounted for in any of these studies.</p> <p>15 I don't know. I just wanted to make sure that the</p> <p>16 number we had wasn't highly unreasonable compared</p> <p>17 to what was measured in terms of known losses.</p> <p>18 Q. Are you aware that this report by the</p> <p>19 USGS, Exhibit 285, was conducted in conjunction</p> <p>20 for information for the Treasure Valley Hydrologic</p> <p>21 Project?</p> <p>22 A. I was not aware of that.</p> <p>23 MR. THORNTON: I guess at this time I would</p> <p>24 like to enter or offer this as an exhibit based on</p> <p>25 what appears to be a very different view on the</p>	<p style="text-align: right;">Page 1689</p> <p>1 (Exhibit 285 admitted.)</p> <p>2 THE HEARING OFFICER: Thank you,</p> <p>3 Mr. Thornton. You may ask questions about it.</p> <p>4 MR. THORNTON: Thank you.</p> <p>5 Q. Mr. Utting, on page 1 of Exhibit 285,</p> <p>6 in the third paragraph, second sentence identifies</p> <p>7 "The two upstream reaches of the river at net</p> <p>8 gains, whereas the most downstream reaches near</p> <p>9 the confluence with the Snake River had a net</p> <p>10 loss."</p> <p>11 And how does this net gain to the</p> <p>12 river, how is that reconciled with your model</p> <p>13 identifying net losses?</p> <p>14 A. Now, I always --</p> <p>15 MR. FEREDAY: I'm going to object just on</p> <p>16 the grounds that this witness has already</p> <p>17 testified that he didn't use this. So that --</p> <p>18 that question, I think, also lacks a foundation.</p> <p>19 THE HEARING OFFICER: Okay. Overruled.</p> <p>20 I want Mr. Utting to be able to read</p> <p>21 this carefully, Mr. Thornton, because as I read</p> <p>22 it, I'm not sure what it says. So I'm --</p> <p>23 THE WITNESS: That's always dangerous</p> <p>24 between a surface water hydrologist and</p> <p>25 hydrogeologist to know what "gain" and "loss"</p>
<p style="text-align: right;">Page 1688</p> <p>1 assumptions that are in the M3 model in terms of</p> <p>2 the mass balance for inflow to the Pierce Gulch</p> <p>3 Aquifer.</p> <p>4 THE HEARING OFFICER: Okay. Mr. Fereday?</p> <p>5 MR. FEREDAY: Well, we would object to it</p> <p>6 on the grounds that it was not relied upon by</p> <p>7 Mr. Utting, and we still don't see the foundation</p> <p>8 for it.</p> <p>9 If Mr. -- if the protestants, any of</p> <p>10 them, wish to introduce this document, they should</p> <p>11 probably validate it and verify it through their</p> <p>12 own witness. This witness is aware of it. That's</p> <p>13 all he's testified to. So we would object on that</p> <p>14 ground.</p> <p>15 THE HEARING OFFICER: Okay. Well, again, I</p> <p>16 think this is probably a document that falls</p> <p>17 within the discretion of the hearing officer and</p> <p>18 administrator of the hearing to receive into</p> <p>19 evidence. Perhaps under the formal rules of</p> <p>20 evidence, it wouldn't come in.</p> <p>21 But I personally know Mr. Berenbrock.</p> <p>22 He is an employee of the USGS, or at least was at</p> <p>23 the time, and I know that he's prepared reports</p> <p>24 for them. And this appears to be in that standard</p> <p>25 format. So I'll receive it into evidence.</p>	<p style="text-align: right;">Page 1690</p> <p>1 means. I assume he's talking about flow in the</p> <p>2 river increasing when he says "gain."</p> <p>3 Q. (BY MR. THORNTON): Correct. And if</p> <p>4 you would refer to page 5 and perhaps read a</p> <p>5 paragraph that's titled "Approach and methods"</p> <p>6 that would help you understand the gain versus</p> <p>7 loss.</p> <p>8 THE HEARING OFFICER: Okay. What page are</p> <p>9 you on?</p> <p>10 MR. THORNTON: It's page 5. And it's their</p> <p>11 approach and method for defining what a gain and</p> <p>12 loss is.</p> <p>13 THE WITNESS: Okay. Surface water</p> <p>14 perspective. That's reasonable.</p> <p>15 Q. (BY MR. THORNTON): Okay.</p> <p>16 A. Okay. Well, I don't know how his</p> <p>17 reaches compared with the one in Urban. And Urban</p> <p>18 indicated a small loss in '96, and maybe that's</p> <p>19 the same one that's in here. I don't know. He</p> <p>20 then indicated a larger one in 2000, so -- which,</p> <p>21 of course, would not be in this report.</p> <p>22 So it may be that that 21 cfs is</p> <p>23 reported in here. I don't know. I would have to</p> <p>24 look at it in detail. It is the same year, I</p> <p>25 think he refers to it as '96.</p>

<p style="text-align: right;">Page 1691</p> <p>1 Q. Correct. And if you would refer to 2 page 13 of that document, of your Exhibit 285. 3 A. Okay. 4 Q. And for the Boise River it identifies 5 "Reach one gained throughout its length, except 6 from Lucky Peak Dam to Barber Dam, where no gain 7 or loss was measured." It does identify that "The 8 largest gain of 16 cubic feet per second, per mile 9 was in downtown Boise between site 10 and 12, and 10 overall net gain was 51 cubic feet per second." 11 Figure 8, table 2. You can refer to that, 12 perhaps. 13 THE HEARING OFFICER: Mr. Thornton, I'm 14 lost. 15 MR. THORNTON: Okay. 16 THE HEARING OFFICER: It seems to me we 17 don't know what reaches are what, where it began, 18 where it did not -- 19 MR. THORNTON: Okay. 20 THE HEARING OFFICER: -- whether it's 21 consistent with -- these reaches have any match 22 points with previous testimony that was lost from 23 the Boise River down to Capitol Bridge. 24 MR. THORNTON: Okay. If you would refer, 25 Mr. Hearing Officer, to page 14, figure 6.</p>	<p style="text-align: right;">Page 1693</p> <p>1 THE HEARING OFFICER: My concern and my 2 voiced concern was that it seemed to me we were 3 skipping through this document from one place to 4 another without establishing certain things, 5 certain foundational information -- 6 MR. THORNTON: Okay. 7 THE HEARING OFFICER: -- that was important 8 both for Mr. Utting and for me. And it probably 9 should be done through a question and answer. 10 Q. (BY MR. THORNTON): Okay. And so, 11 Mr. Utting, if you could turn to page 14, 12 figure 6, of Exhibit 285. 13 And do you see the depiction of 14 location of reach one? 15 A. I do. 16 Q. Does the location of reach one also 17 include that area upstream of the Capitol Bridge? 18 A. Well, this figure doesn't show Capitol 19 Bridge. But -- I couldn't say for sure. It's 20 upstream. It's the furthest upstream reach on the 21 Boise River. 22 Q. It would be in that reach? 23 A. Yes, it would be that. 24 Q. Okay. 25 A. The big reach one and then there's</p>
<p style="text-align: right;">Page 1692</p> <p>1 THE HEARING OFFICER: Okay. 2 MR. THORNTON: There is a depiction of a 3 location of the reaches. From reach one, base of 4 Lucky Peak Dam, to the lower end of Garden City, 5 Glenwood Bridge. 6 THE HEARING OFFICER: Okay. I see it. 7 MR. THORNTON: And in the studies that the 8 USGS did, as identified in their findings on 9 page 13 that identify that this reach gained, and 10 the overall net gain in that reach was about 11 52 cubic feet per second. 12 THE HEARING OFFICER: The reach was -- 13 MR. FEREDAY: Objection. We still don't 14 have a question -- or at least a question for 15 which this witness has a foundation for answering. 16 MR. THORNTON: And I believe I was trying 17 to address the Hearing Officer's question to help 18 focus on where the location of these reaches were. 19 THE HEARING OFFICER: Boy. 20 MR. THORNTON: So I can ask it -- I don't 21 know if I need to ask a question now or not, 22 Mr. Hearing Officer. 23 THE HEARING OFFICER: You need to ask 24 questions of Mr. Utting. 25 MR. THORNTON: Right.</p>	<p style="text-align: right;">Page 1694</p> <p>1 small numbers in it. Okay. 2 Q. Right. 3 A. Those are river runs. Okay. These 4 are -- 5 THE COURT REPORTER: I need you to speak 6 up. I can't hear you. 7 THE WITNESS: Yeah, I'm sorry. I'm just 8 trying to figure out what the figure shows. It's 9 the first I've seen it. 10 Okay. I see reach one, and that 11 includes Capitol Bridge in there somewhere. 12 Q. (BY MR. THORNTON): Okay. And do you 13 see on page 13, again, a description for that 14 reach one having a net gain of approximately 15 52 cubic feet per second? 16 THE HEARING OFFICER: You're referring to 17 where? 18 MR. THORNTON: So page 13, underneath the 19 Boise River heading, the third -- second paragraph 20 down, last sentence. 21 THE WITNESS: I see that number, but, you 22 know, reach one includes areas beyond just 23 upstream from Capitol Bridge. So it may include 24 areas that are both losing and gaining, with a net 25 gain over a longer reach than Mr. Urban apparently</p>

<p style="text-align: right;">Page 1695</p> <p>1 considered in his report. But I can only  2 speculate on that.  3 Q. (BY MR. THORNTON): And if you would  4 refer to page 15 on table 2 where it identifies  5 flow gains and losses along three reaches of the  6 Boise River.  7 A. Uh-huh.  8 Q. And do you see where they have a site  9 number and site name on the left-hand side?  10 A. Yes, I do.  11 Q. And then going across to the right,  12 you will see a column which identifies either  13 measured gain or loss along the subreaches?  14 A. I see that.  15 Q. And do you see how the different site  16 numbers are broken up between site one and two as  17 the Boise River near Boise, and then it goes to  18 the Boise River below -- I mean Barber Dam near  19 Boise? Do you see how they're broken up in  20 segments?  21 A. I do.  22 Q. And do you see where it gives  23 information at Boise River at Ann Morrison Park?  24 A. Yes, I do.  25 Q. And having a gain of approximately</p>	<p style="text-align: right;">Page 1697</p> <p>1 A. I see that.  2 Q. And do you see an overall net gain or  3 loss of approximately 52 cubic feet per second?  4 A. Well, I see he's indicated that, yes.  5 Q. Okay. And these figures here in this  6 document were not used in your model; is that  7 correct?  8 A. That is correct.  9 Q. Okay. Thanks for that.  10 A. Can I comment on this?  11 Q. You bet. Sure.  12 A. One thing I notice is that the flow in  13 the river was approximately 230 to 250 cfs. And I  14 know from surface water measurements I've done if  15 you get 10 percent accuracy, you're doing pretty  16 darn good. And I notice that a lot of these  17 reaches the estimated gain is quite -- you know,  18 it's less than 10 percent. So I don't know how  19 accurate this is. That would be my first comment.  20 So the number 51.98 reported to two  21 significant figures to me is highly suspect, when  22 I consider the error brackets on this.  23 The other thing is there must be some  24 reason that TVHP updated these numbers somehow  25 under Urban. So I used Urban as the later figure.</p>
<p style="text-align: right;">Page 1696</p> <p>1 4 cubic feet per second?  2 A. I do.  3 Q. And do you see where it shows Boise  4 River at Fairview Avenue having a gain of  5 approximately 16 to 17 cubic feet per second?  6 A. Yes, I do.  7 Q. Okay. Do you see that all those sites  8 number for the first -- I don't know -- maybe  9 seven, eight sites are all in a gaining reach  10 except for the first one, where it is at zero?  11 A. I see that.  12 Q. Okay.  13 MR. FEREDAY: Objection. I don't think  14 that's a fair characterization of it --  15 THE WITNESS: Is there a question?  16 MR. THORNTON: Yeah.  17 MR. FEREDAY: -- of the data.  18 Go ahead and ask your question.  19 Q. (BY MR. THORNTON): Do you see on the  20 table 2, page 15, right-hand side underneath the  21 column "Measured gained or losses," where we just  22 went through different segments of reach one where  23 they were all in -- do you see that they're all an  24 increase, except for the first one which is no --  25 which is zero? Do you see that?</p>	<p style="text-align: right;">Page 1698</p> <p>1 I was not aware of this. I did not go back to  2 this source. But none of this really affects the  3 measured gradients or the transmissivities that we  4 used to calculate the flow in the model. This  5 shows the flow coming in. But those are my  6 comments.  7 Q. Do you know the accuracy, based on the  8 confidence limits, for Treasure Valley report?  9 A. No, I just know surface water  10 measurements, in general, are difficult.  11 Q. So would you say that the surface  12 water measurements identified in the Treasure  13 Valley report are any more or any less accurate  14 than in this report?  15 A. I have no idea.  16 MR. THORNTON: Okay. So I'm done with the  17 questioning on this document. If we want to go to  18 Mr. Glanzman.  19 THE HEARING OFFICER: Okay.  20 MR. FEREDAY: Mr. Hearing Officer, at this  21 point we would like to take a break, and based on  22 stipulation from a request from Mr. Glanzman to  23 clarify his testimony this morning, we'd like to  24 recall him to the stand so that he can finish up  25 and catch a plane early in the morning.</p>

<p style="text-align: right;">Page 1699</p> <p>1 THE HEARING OFFICER: Okay. We'll excuse 2 you temporarily, Mr. Utting. 3 Mr. Glanzman. 4 5 RICHARD K. GLANZMAN, 6 having been called as a witness by M3 Eagle LLC 7 and previously sworn, testified as follows: 8 9 FURTHER REDIRECT EXAMINATION 10 BY MR. FEREDAY: 11 Q. Mr. Glanzman, you realize you're still 12 under oath? 13 A. Yes, sir. 14 Q. This morning do you recall your 15 interchange with the Hearing Officer with regard 16 to Exhibit 71, page 5? 17 A. Yes, I do. 18 Q. And those questions you'll recall 19 involved his inquiries as to the identification 20 aquifer to aquifer of various water-quality 21 samples. 22 Do you recall that? 23 A. I do. 24 Q. I would like to clarify or invite you 25 to clarify the sequence of who did what when with</p>	<p style="text-align: right;">Page 1701</p> <p>1 Q. And how had you heard about the Spring 2 Valley Ranch wells? 3 A. I had taken a look at the Spring 4 Valley Ranch wells earlier for United Water. 5 Q. Oh, for a completely separate project? 6 A. Oh, absolutely. 7 Q. Okay. So when you received these 8 water-quality samples, did you have a map of any 9 of these aquifers? 10 A. No. I had no idea where they were, 11 other than the Spring Valley Ranch wells. 12 Q. Then what did you do once you received 13 these? 14 A. Plotted up the trilinear diagram and 15 did the basic statistics and found that there 16 were -- that cluster and seeming trends of some of 17 the water samples, groundwater samples, and then 18 their distribution kind of scattered about. 19 Q. And that is the first trilinear 20 diagram that shows up on page 6? 21 A. It is. 22 Q. Has that changed since you did that? 23 A. Only in now it has aquifer 24 designations on it, through questioning and an 25 iterative process with Ed Squires as to what -- is</p>
<p style="text-align: right;">Page 1700</p> <p>1 regard to your evaluation of water-quality samples 2 for the M3 project, sir? 3 A. Thank you. 4 Q. First of all, what was the sequence? 5 What happened first? What was your first 6 involvement in terms of evaluating those samples? 7 A. Ed Squires sent pages 1 and 2 of the 8 database in the back of Exhibit 43 for me to 9 evaluate and to -- he asked me to take a look at 10 that water chemistry and see what it might say, 11 how would I deal with it. So I plotted it on a 12 trilinear diagram. 13 Q. Okay. And when he -- when you got 14 those -- that sample data, had you heard of the 15 Willow Creek Aquifer, for example? 16 A. No, I had not. 17 Q. Had you heard of the Pierce Gulch Sand 18 Aquifer? 19 A. No, I had not. 20 Q. Had you heard of any of these 21 aquifers, the Spring Valley Ranch wells? 22 A. I had heard of the Spring Valley Ranch 23 wells. 24 Q. Okay. How about the Emmett Aquifer? 25 A. No.</p>	<p style="text-align: right;">Page 1702</p> <p>1 there any significance to this trend, for example, 2 looking at the Terteling Springs trend there. And 3 we were looking at the identification of the wells 4 that were involved there. And he says, "Well, 5 that's the Terteling Springs formation." 6 Q. So you didn't get instructions from 7 him in any way to plot these in some way, did you? 8 A. Oh, no. It was after the trilinear 9 was plotted, the only thing that changed on that 10 trilinear was symbols in which, through an 11 iterative process with Ed Squires, he identified 12 that, "Well, those are all Terteling Springs 13 formation, and that tassell of cluster that you've 14 got up there, those were all the Pierce Gulch Sand 15 Aquifer." 16 Those are the first time I really 17 heard of those two aquifers. And certainly later 18 the Willow Creek. I hadn't heard of that until -- 19 because I said, "Well, about these ones that are 20 scattered about here." I knew where Spring Valley 21 Ranch. That, I had. I knew what those were. 22 But the Willow Creek, I had no idea 23 what those were or they were not something 24 different than Pierce Gulch or... 25 Q. Were you seeing something different in</p>

<p style="text-align: right;">Page 1703</p> <p>1 your samples, though? You could tell that there</p> <p>2 was something different from what turned out to be</p> <p>3 a Willow Creek sample as compared to what turned</p> <p>4 out to be a Pierce Gulch sample?</p> <p>5 A. There was some differences. Clearly,</p> <p>6 as we were talking about it, I says, "The Willow</p> <p>7 Creek formation has some similarities to the</p> <p>8 Terteling Springs?"</p> <p>9 And then Ed came back and said, "The</p> <p>10 Willow Creek formation in the upper part of the</p> <p>11 Willow Springs, sandy part." So then --</p> <p>12 Q. Of the Terteling Springs?</p> <p>13 A. Of the Terteling Springs, yes. Willow</p> <p>14 Creek is the sandy part.</p> <p>15 Q. Mr. Glanzman, could you make water</p> <p>16 from the Willow Creek Aquifer fit geochemically</p> <p>17 into, say, the Pierce Gulch Sand Aquifer?</p> <p>18 A. No, sir, that's not possible. And it</p> <p>19 isn't necessarily -- these are reach tools. The</p> <p>20 trilinear diagram is one tool. We have the total</p> <p>21 dissolved solids as another tool. The other trace</p> <p>22 elements as an added adjunct to that. All of</p> <p>23 those have to say the same thing. And when they</p> <p>24 don't, then it is something else.</p> <p>25 Q. So is it accurate, then, to say that</p>	<p style="text-align: right;">Page 1705</p> <p>1 THE WITNESS: Yes. Thank you, sir.</p> <p>2 THE HEARING OFFICER: You may continue your</p> <p>3 cross-examination, Mr. Thornton.</p> <p>4 MR. THORNTON: Thank you.</p> <p>5</p> <p>6 MARK UTTING,</p> <p>7 having been called as a witness by M3 Eagle LLC</p> <p>8 and previously sworn, testified as follows:</p> <p>9</p> <p>10 CONTINUED CROSS-EXAMINATION</p> <p>11 BY MR. THORNTON:</p> <p>12 Q. If you could you go to Exhibit 2,</p> <p>13 which is your one-year progress report, regional</p> <p>14 hydrogeologic characterization.</p> <p>15 MR. FEREDAY: And for the record,</p> <p>16 Mr. Hearing Officer, Exhibit 2, I believe, is</p> <p>17 identical to the laboriously named Exhibit 42A4.</p> <p>18 This was a report that was part of 42, which was</p> <p>19 the application.</p> <p>20 MR. THORNTON: And if you wish, we can</p> <p>21 change that so it's --</p> <p>22 MR. FEREDAY: It actually might be simpler,</p> <p>23 now that the record is replete with references to</p> <p>24 42A4.</p> <p>25 THE HEARING OFFICER: Yeah.</p>
<p style="text-align: right;">Page 1704</p> <p>1 there's no way to plot a Willow Creek Aquifer</p> <p>2 water sample so that it's going to cluster the</p> <p>3 same way as an -- overall as a Pierce Gulch</p> <p>4 Aquifer sample?</p> <p>5 A. As the Hearing Officer pointed out,</p> <p>6 it's close, but it isn't within the cluster. It's</p> <p>7 in the Terteling Springs trend to the Boise</p> <p>8 Aquifer. So it's Terteling Springs formation</p> <p>9 mineralogy is usually what it is.</p> <p>10 MR. FEREDAY: Okay. No further questions.</p> <p>11 Thank you.</p> <p>12 THE WITNESS: Thank you.</p> <p>13 And I thank you, sir.</p> <p>14 THE HEARING OFFICER: Mr. Thornton?</p> <p>15 MR. THORNTON: No questions.</p> <p>16 THE HEARING OFFICER: Mr. Smith?</p> <p>17 MR. ALAN SMITH: No questions.</p> <p>18 THE HEARING OFFICER: Mr. Edwards?</p> <p>19 MR. EDWARDS: No.</p> <p>20 THE HEARING OFFICER: Okay. Thank you,</p> <p>21 Mr. Glanzman.</p> <p>22 THE WITNESS: Thank you, sir.</p> <p>23 MR. FEREDAY: We'll recall Mr. Utting.</p> <p>24 THE HEARING OFFICER: Thank you.</p> <p>25 MR. FEREDAY: Thank you, gentlemen.</p>	<p style="text-align: right;">Page 1706</p> <p>1 MR. THORNTON: So just to make sure I fully</p> <p>2 understand, 42A4 is the one-year progress report;</p> <p>3 is that correct?</p> <p>4 MR. FEREDAY: That's right.</p> <p>5 MR. THORNTON: And the date on that is</p> <p>6 May 2007; correct?</p> <p>7 MR. FEREDAY: That's right.</p> <p>8 THE WITNESS: If I may comment, the quality</p> <p>9 of reproduction in my copy is much better in</p> <p>10 figure 2 than the 4A.</p> <p>11 Q. (BY MR. THORNTON): I'll let you use</p> <p>12 what you --</p> <p>13 A. Okay.</p> <p>14 THE HEARING OFFICER: You want to refer to</p> <p>15 Exhibit 2, then, Mr. Thornton? It's up to you.</p> <p>16 MR. THORNTON: I'm fine with whatever is</p> <p>17 more efficient and understandable. I think -- how</p> <p>18 about we'll just use 2 now? Okay.</p> <p>19 THE HEARING OFFICER: Okay.</p> <p>20 MR. THORNTON: Exhibit 2. All right.</p> <p>21 Q. All right. On page 10 there is a</p> <p>22 paragraph starting "Domestic wells."</p> <p>23 A. Yes.</p> <p>24 Q. And it identifies 1600 domestic</p> <p>25 single-family households domestic wells in the</p>

<p style="text-align: right;">Page 1707</p> <p>1 greater project area from Eagle to Emmett, show  2 that the preponderance of these domestic wells are  3 located upgradient.  4 Could you describe to me what  5 upgradient is.  6 A. "Upgradient" means that the  7 potentiometric surface or water levels within the  8 aquifer are elevationally higher such that water  9 flows from the upgradient area toward and to the  10 downgradient area.  11 Q. Okay. And then on figure 11, I  12 believe that identifies, say, "See figure 11."  13 And I'm on a figure I believe it's 11. And this  14 identifies "Number of wells by section and quarter  15 section in the M3 project area."  16 Are you on that one?  17 A. Yes.  18 Q. Is there anything on this figure that  19 depicts gradient?  20 A. No, there's not.  21 MR. THORNTON: Okay. Mr. Hearing Officer,  22 I'm just going through some of the questions we've  23 already covered. I'm just making sure they're  24 covered so...  25 THE HEARING OFFICER: Let's go off the</p>	<p style="text-align: right;">Page 1709</p> <p>1 the -- a certain array or certain system of wells  2 adjacent to the M3 property would be the best way  3 to determine what is happening to drawdowns and to  4 help correlate with your -- calibrate your model?  5 A. I would like to see a good network of  6 high-quality, properly designed and constructed  7 wells all over the area that we would keep track  8 of to see what's going on as a result of all the  9 various hydraulic inputs and impacts that might  10 occur.  11 Q. Would that monitoring, in terms of  12 helping to better understand your model of  13 recalibrate, be to look at your predicted levels  14 of groundwater decline versus what's actually  15 happening?  16 A. That would help very much, yes.  17 Q. And potentially, that could be used to  18 help either recalibrate the model; is that  19 correct?  20 A. Uh-huh, yes.  21 Q. Okay. I believe you earlier stated  22 that -- today when asked a question by Mr. Fereday  23 regarding the geochemistry work, was it very  24 helpful for you in determining water flow, water  25 volume in the aquifer?</p>
<p style="text-align: right;">Page 1708</p> <p>1 record for a minute.  2 (Recess.)  3 THE HEARING OFFICER: We are recording.  4 Mr. Thornton.  5 MR. THORNTON: Okay.  6 Q. On Exhibit 16, the M3 model, on  7 page 34, and in the second portion of that page --  8 I'll wait until you get to it.  9 A. What page, please?  10 Q. Page 34.  11 A. Okay.  12 Q. In the large paragraph that's titled  13 "The role of models."  14 A. I am there.  15 Q. And it identifies that "We wish to  16 emphasize M3 model, or any model, cannot be relied  17 upon to give exact answers or to future what-if  18 questions." And then it says that "They cannot be  19 100 percent accurate."  20 And I believe you stated -- the  21 question I have is, I believe -- did you not state  22 that one of the best ways to test a model is  23 future monitoring?  24 A. Yes.  25 Q. Do you believe that monitoring of</p>	<p style="text-align: right;">Page 1710</p> <p>1 A. The geochemical analysis came after  2 all the modeling report was done, the pumping test  3 report was done, all these things afterwards. So  4 it was a confirmation for me to see that it was  5 another tool that was totally consistent with all  6 the other tools that we've produced.  7 So it was one more thing to say, yeah,  8 this is on the right track. It shows the flow  9 rates are rapid through the PGSA, and it shows  10 that we have a little precipitation input in just  11 the areas where we think that would be possible.  12 Q. Okay. And then did you hear the  13 testimony provided yesterday by Mr. Glanzman?  14 A. Yes, I did.  15 Q. Did you hear him testify that the  16 geochemistry data that he analyzed did not support  17 nor did it refute flow to the Payette River?  18 A. I heard that, yes.  19 Q. Or Payette River Basin, I should say.  20 A. I agree with that.  21 Q. If we could go to Exhibit 45 and to  22 figure 5 of 45.  23 A. I am there.  24 Q. Okay. And did you earlier testify  25 based on the -- I believe it was the orange or the</p>

<p style="text-align: right;">Page 1711</p> <p>1 red line, the M3 Eagle test well No. 1, did you  2 testify that you are seeing where it has --  3 appears to have an increase in the water table?  4 A. There are several places where I see  5 that, yes.  6 Q. Okay. And if one was to look at the  7 November to November points from year to year, are  8 you seeing an increase or a decrease?  9 A. Well, from those -- well, we don't  10 actually have but two data points for November.  11 And if I look at the very beginning of November,  12 then I would say it's slightly lower in the second  13 data point.  14 Q. Okay. And do you have a November 2006  15 point?  16 A. I see that the very end of November  17 there is a data point there, yes.  18 Q. Okay. So there's three points,  19 perhaps?  20 A. In that case there would be three  21 points.  22 Q. Okay.  23 A. Which would show that -- let's see.  24 We don't have the end of November of 2008. So  25 again, we're restricted to two points.</p>	<p style="text-align: right;">Page 1713</p> <p>1 you said that it -- I may be wrong, that it also  2 dips somewhat to the -- maybe it was the northeast  3 on this other axis. Which way is it dipping on  4 this --  5 A. Well, it rises to northeast and dips  6 toward the southwest of this conceptual block  7 diagram.  8 Q. Okay. And the rise to the northeast,  9 where does that -- where would that come out at,  10 if it's going to the northeast?  11 A. Well, we have the green line shown on  12 this block diagram, sometimes almost yellow in  13 this reproduction. And that green line is where  14 this -- the Pierce Gulch Sand Aquifer reaches the  15 surface, and therefore that would be a high point  16 in this figure.  17 Q. Okay. And what hard evidence or hard  18 science is there to show the end point of that  19 green line?  20 A. We don't have any evidence, hard  21 evidence of the end point of that green line. We  22 have a conceptual understanding of how this Pierce  23 Gulch Sand Aquifer was produced by the smearing  24 out of the Willow Creek Aquifer, and we believe  25 off to the west that they probably become</p>
<p style="text-align: right;">Page 1712</p> <p>1 Q. Okay. Is it -- is it appropriate to  2 look at just two data points or two years to be  3 able to identify if water table's increasing or  4 decreasing?  5 A. No, it's not appropriate.  6 Q. And if we could go back to 42, the  7 second -- 42A, the second amended application, and  8 it's A, tab 4.  9 A. Yes.  10 Q. And there's a figure 4, if you see  11 that.  12 A. I have figure 4, yes.  13 Q. Okay. That's titled "A conceptual  14 block diagram of the Pierce Gulch Sand Aquifer."  15 A. Yes.  16 Q. And I believe I heard you testify  17 earlier today -- and correct me if I'm wrong --  18 that the Pierce Gulch Sand Aquifer dips to -- why  19 don't you describe which way it's dipping in this.  20 It may be easier than me trying to recount. Could  21 you please --  22 A. In this conceptual block diagram, we  23 see the Pierce Gulch Sand Aquifer dipping toward  24 the southwest.  25 Q. And then is there also -- I believe</p>	<p style="text-align: right;">Page 1714</p> <p>1 hydraulically connected, but we don't know for  2 sure.  3 Q. Okay. If you could go to Exhibit 47.  4 And that's the hydrogeologic analysis of the M3  5 Eagle site by Dr. Ralston.  6 And are you familiar with this report?  7 A. I'm there. Do you want to direct me  8 to a page?  9 Q. And are you familiar, have you read  10 through this report?  11 A. I have, yes.  12 Q. Okay. On page -- on page 3 at the  13 top -- and actually, you may need to start reading  14 at page 2 -- excuse me -- the very last paragraph.  15 And it's quoting your July 2008 hydrologic report.  16 Could you identify, why does the green  17 line not extend farther to the northwest as a  18 no-flow boundary?  19 A. Well, we have hydraulic evidence there  20 is a well that's located in that area that is to  21 the northwest that has water levels intermediate  22 between the Willow Creek Aquifer and the Pierce  23 Gulch Aquifer, suggesting that as we get toward  24 the west that the no-flow boundary, which is a  25 function of the low-permeability deposits of the</p>

<p style="text-align: right;">Page 1715</p> <p>1 mudstone of the Terteling Springs must somehow be  2 thinning out, be less present, and we must be  3 getting the sand of the Terteling Springs  4 formation, which is the Willow Creek Aquifer of  5 that area, coming together with the Pierce Gulch  6 sands. In other words, they were smeared out, but  7 in that area we don't have the fine-grain  8 deposits.  9 Q. And that well, is that -- does that  10 have a name for the well? Is that the JDH, or I'm  11 confused?  12 A. No, no. We have a well. And I would  13 be hard-pressed to come up with it immediately.  14 Q. Well, perhaps in Dr. Ralston's --  15 A. No. No, he does not have that in  16 there. But we could look it up if you need that  17 data.  18 Q. Could you look at figure 9 on  19 Dr. Ralston's report of Exhibit 47.  20 A. Yes. Oh, sorry. Figure 9?  21 Q. Figure 9. It's the last page I have  22 in mine here.  23 A. Yes.  24 Q. And is that well depicted as 2412?  25 A. No.</p>	<p style="text-align: right;">Page 1717</p> <p>1 is present off to the north in the -- near  2 Payette, so that's our assumption, that there's a  3 mixing of the waters flowing in that direction.  4 We do dash the flow in this direction here  5 (indicating). So it is our best estimate, and we  6 do not have hard evidence in that area.  7 Q. Okay. And which -- what data -- maybe  8 you can describe on figure 9 the well represented  9 by an elevation of 2412.  10 Was there any more information than  11 that one well to help you develop your contours?  12 A. Was there more information?  13 Q. Yeah. Was there other wells used?  14 A. We used a number of wells that  15 recorded our earlier contour map. You can see the  16 locations and the water levels that we measured  17 and recorded for those wells.  18 Q. Okay. And then are those to the north  19 and west of the M3 property? How many -- let me  20 withdraw that question. How many wells --  21 information did you have to the north and west of  22 the M3 property?  23 A. I would have to refer to our contour  24 map to get the exact number. But there were a  25 number of wells.</p>
<p style="text-align: right;">Page 1716</p> <p>1 MR. THORNTON: Okay. In the interest of  2 time, I'll -- I'll change the line of questioning  3 a little bit. We'll be covering a lot of this  4 later in our case.  5 THE HEARING OFFICER: Okay.  6 Q. (BY MR. THORNTON): What I would like  7 to ask you on that same figure, though,  8 Mr. Utting, on figure 9, could you describe the  9 blue arrows and what they represent, the darker  10 blue arrows.  11 A. The blue arrows are our interpretation  12 of flow direction based on the potentiometric  13 surface or the water-level surface which typically  14 are at right angles to the contours in an  15 isotropic aquifer, which we believe those to be.  16 So those arrows indicate the direction of  17 groundwater flow in the Pierce Gulch Sand Aquifer.  18 Q. Okay. And could you describe on those  19 blue areas there going west and then somewhat to  20 the northwest and then fairly abrupt change to the  21 north, can you describe what hard information that  22 you have to direct the flow that direction?  23 A. Well, we found the intermediate well  24 that had levels showing the mixing of these two  25 zones. We see that the Pierce Gulch Sand Aquifer</p>	<p style="text-align: right;">Page 1718</p> <p>1 Q. And maybe we can get to that. And  2 I'll try to find it here too.  3 MR. LAWRENCE: Exhibit 18.  4 Q. (BY MR. THORNTON): And if I could  5 ask -- I could be incorrect on that.  6 MR. FEREDAY: Excuse me, Mr. Thornton.  7 Okay. Okay. We've -- I think we're looking at  8 not Exhibit 18, Mr. Thornton. I think it's  9 figure 6 of Exhibit 42A4.  10 MR. THORNTON: Yeah, of the 2007 report.  11 42A4, which is the second amended application.  12 THE HEARING OFFICER: Let's go off.  13 MR. THORNTON: Okay.  14 THE HEARING OFFICER: Let's go off for a  15 minute.  16 (Recess.)  17 THE HEARING OFFICER: We are recording  18 again.  19 Mr. Thornton.  20 MR. THORNTON: Okay.  21 Q. Mr. Utting, are you on figure 6 of  22 Exhibit 42A, tab 4?  23 A. Yes, I am.  24 Q. Figure 6 is identified as preliminary  25 regional groundwater level contours and flow</p>

<p style="text-align: right;">Page 1719</p> <p>1 directions; correct?</p> <p>2 A. That's correct.</p> <p>3 Q. And could you describe the information</p> <p>4 on wells to the north and west of the M3 property</p> <p>5 that you used, which ones you used?</p> <p>6 A. Well, we used a series of wells that</p> <p>7 we determined had the depth to probably, but not</p> <p>8 necessarily, tap the very top of the Pierce Gulch</p> <p>9 Aquifer, because it's deeper in that direction.</p> <p>10 Many of the wells don't penetrate deep enough.</p> <p>11 So we collected water levels from</p> <p>12 those wells, but these were not survey wells.</p> <p>13 They're wells we had elevation from a handheld GPS</p> <p>14 and topo maps.</p> <p>15 Q. And those wells you got handheld</p> <p>16 information from GPS and topo maps, is that the</p> <p>17 top of the well or the water table?</p> <p>18 A. Well, we would get the top of the</p> <p>19 well, and then we would measure the depth of the</p> <p>20 well.</p> <p>21 Q. And did you measure the depth of the</p> <p>22 wells?</p> <p>23 A. I wasn't part of that. We would have</p> <p>24 well logs on most of these wells that would</p> <p>25 indicate depth of the well. But I don't know if</p>	<p style="text-align: right;">Page 1721</p> <p>1 A. It's -- based on what I have seen of</p> <p>2 wells in the Treasure Valley area, it's probable</p> <p>3 that many of them have mixing.</p> <p>4 Q. Okay. And if you could go to -- back</p> <p>5 to Exhibit 47, Dr. Ralston's report. And on</p> <p>6 figure 9.</p> <p>7 A. I am there.</p> <p>8 Q. Okay. And as an example, you see the</p> <p>9 elevation 2477 --</p> <p>10 A. Yes.</p> <p>11 Q. -- on the well?</p> <p>12 And that -- I'm trying to read with my</p> <p>13 poor eyesight. That contour is somewhere around</p> <p>14 2477; is that --</p> <p>15 A. Well, it would be 2475 would be the</p> <p>16 contour.</p> <p>17 Q. Okay. Thank you.</p> <p>18 And then immediately to the north in</p> <p>19 what's called the Willow Creek Aquifer you see an</p> <p>20 elevation of 2355, right, or a contour line of</p> <p>21 elevation 2355 on that black dotted line?</p> <p>22 A. Yes.</p> <p>23 Q. And there are no flow arrows</p> <p>24 between -- or do you see any flow arrows between</p> <p>25 2477 to perpendicular and towards that contour</p>
<p style="text-align: right;">Page 1720</p> <p>1 the well depth was measured.</p> <p>2 Q. Do you know which of those wells</p> <p>3 actually were used to assist in directing -- or in</p> <p>4 placing the arrows for the groundwater flow?</p> <p>5 A. Well, in this figure all of those</p> <p>6 wells were used to place those arrows, because</p> <p>7 they were used to calculate the groundwater flow</p> <p>8 contours.</p> <p>9 Q. Did you just say that you didn't</p> <p>10 necessarily have all -- you didn't know if the --</p> <p>11 what those wells were representative of the Pierce</p> <p>12 Gulch Sand Aquifer?</p> <p>13 A. No. We had to use drillers' reports,</p> <p>14 which are not always reliable, so we didn't have</p> <p>15 so much confidence in what was going on in that</p> <p>16 western area.</p> <p>17 Q. And did you have firsthand knowledge</p> <p>18 of the well construction of those wells?</p> <p>19 A. Me? I don't have firsthand knowledge</p> <p>20 of that.</p> <p>21 Q. Do you know if those wells were sealed</p> <p>22 from top to bottom?</p> <p>23 A. I do not know.</p> <p>24 Q. Is it possible that there could be</p> <p>25 intermixing of aquifers between those wells?</p>	<p style="text-align: right;">Page 1722</p> <p>1 line 2355 coming out of the Pierce Gulch Sand</p> <p>2 Aquifer?</p> <p>3 A. I do not see any flow arrows.</p> <p>4 Q. Is that due to the -- what is depicted</p> <p>5 as a green line, that fault then?</p> <p>6 A. It's not a fault, but it's a no-flow</p> <p>7 boundary.</p> <p>8 Q. No-flow boundary. And then I see over</p> <p>9 to the north and west a well elevation of 2412.</p> <p>10 A. Yes.</p> <p>11 Q. What information do you have in terms</p> <p>12 of the well construction for that one?</p> <p>13 A. Give me one moment, please.</p> <p>14 Q. You bet.</p> <p>15 THE HEARING OFFICER: Let's go off the</p> <p>16 record again.</p> <p>17 (Recess.)</p> <p>18 THE HEARING OFFICER: We're recording.</p> <p>19 Now, I think the question had to do with</p> <p>20 information about a particular well, Mr. Thornton,</p> <p>21 of Mr. Utting.</p> <p>22 MR. THORNTON: Yes.</p> <p>23 Q. The well that is depicted on figure 9</p> <p>24 of Exhibit 47 as 2412.</p> <p>25 A. Yes.</p>

<p style="text-align: right;">Page 1723</p> <p>1 Q. And that 2412 represents the water 2 level -- 3 A. Water level. 4 Q. -- groundwater level? I'm sorry. 5 A. It's the elevation of the groundwater. 6 Q. The elevation of the groundwater 7 level. 8 And were you there during the 9 construction of that well? 10 A. No, I was not. 11 Q. Do you have information on how that 12 well was constructed? 13 A. We have a well driller's report, we 14 have some of the information summarized on a table 15 sent to IDWR, but not everything that's on the 16 well driller's report is included on the table. 17 Q. And do you have the year that well was 18 constructed? 19 A. July of 2004. 20 Q. And do you know what method was used 21 to construct that well? 22 A. I do not. 23 Q. Do you know who the well driller was, 24 the company that drilled that well? 25 A. I personally do not.</p>	<p style="text-align: right;">Page 1725</p> <p>1 10 miles, would that not potentially put the -- if 2 you're following that dip that we heard about, put 3 it between 800 or a thousand feet? 4 A. It would if we were going directly 5 down-dip. But in fact, we're going slightly 6 down-dip, but mostly across on the strike, in 7 which case the actual projection, if you were to 8 draw a 45-degree line at the end of the panhandle, 9 we would then see that maybe it was a mile or two 10 down-dip from the projection of that plain. 11 Q. What information do you have to show 12 the strike of that Pierce Gulch Sand Aquifer? 13 A. The strike of the aquifer in the M3 14 area is based on the contour map of the base of 15 the PGSA that we produced from the geophysical 16 analyses of the wells in that area. 17 Q. And what are the depths -- at the M3 18 property, what is the bottom and approximate top 19 in the M3 area of the Pierce Gulch? Excuse me. 20 Let me try to rephrase that. 21 What would be the top of the Pierce 22 Gulch Aquifer and, say, the bottom of it at the M3 23 site? 24 A. Well, it depends on where on the site 25 you are. Certainly out by the green line, it's at</p>
<p style="text-align: right;">Page 1724</p> <p>1 Q. Do you know if that well was sealed 2 from top to bottom? 3 A. I do not, but I suspect it was not. 4 Q. Do you know the depth of that well? 5 A. Yes. 6 Q. And the depth of that well is? 7 A. It's 421 feet. 8 Q. Okay. And that's below ground level; 9 correct? 10 A. That's correct. 11 Q. How many miles, approximately, to the 12 west of that is it from the M3 property from your 13 panhandle area where you had some of your very 14 good wells you put in? 15 A. I would say it looks about 8 miles, if 16 I'm measuring correctly with my fingers. 17 Q. Maybe we should -- 18 A. It could be 10. 8 to 10 miles. 19 Q. And over -- the aquifer -- as 20 identified, the dip of the aquifer, as I have 21 heard testimony, could be 200, 300 feet per mile? 22 A. It's approximately 100 feet per mile 23 beneath the M3 site. 24 Q. Okay. And if it was a hundred feet 25 per mile from the M3 site and if you went 8 or</p>	<p style="text-align: right;">Page 1726</p> <p>1 ground surface for the top of the aquifer. The 2 depth of it can be zero at the green line from the 3 bottom of the aquifer because it's reaching ground 4 surface. 5 If we want to look at the depth at 6 test well 1, for example, we can look at one of 7 the cross-sections, and we can see -- well, let's 8 just look at test well 4. Of course, there's a 9 higher elevation around there. 10 As I recall, it's going to be around 11 300 feet at the top. If we want exact numbers, 12 let's refer to a figure with the cross-section. 13 Q. And if -- it may be okay, just a 14 range. If you want to get exact, that's fine. 15 And if you think you need to, we sure can. 16 A. Well, depends on how much accuracy you 17 want in that estimate. 18 Q. I guess the question I'll ask, and 19 then maybe we can decide on the accuracy needed, 20 how certain are you that the well represented at 21 2412 is indeed in the Pierce Gulch Sand Aquifer? 22 A. I'm not entirely certain. 23 Q. So without being entirely certain 24 of -- if that is in there, if the well represented 25 by 2412 is in the Pierce Gulch Sand Aquifer, does</p>

<p style="text-align: right;">Page 1727</p> <p>1 that lend some uncertainty to your contour flow 2 lines? 3 A. Yes. In fact, you'll see that we're 4 getting dashed lines out of that area that shows 5 that we're not entirely confident with that. 6 Q. And then all the other wells that were 7 depicted in figure 6 of -- that we've been 8 discussing northwest of the property and into the 9 Pierce Gulch Sand -- or going up into the Emmett 10 Valley -- the Payette Valley, I should say, do we 11 know if those are in the Pierce Gulch Sand 12 Aquifer? 13 A. Which wells specifically? 14 Q. Ones -- ones that are northwest of the 15 M3 property, any of them, how many of those do we 16 know for certain are in the Pierce Gulch Sand 17 Aquifer? 18 THE HEARING OFFICER: Can we refer to a 19 document? 20 MR. THORNTON: Yeah. Figure 6, I'm losing 21 track, 42A, tab 4. 22 MR. ALAN SMITH: Tab 4, yeah. 23 Q. (BY MR. THORNTON): The one we were 24 earlier on when I asked you a question which 25 wells -- what well information did you have</p>	<p style="text-align: right;">Page 1729</p> <p>1 of the protestants, the area between Eagle, Star, 2 and the M3 site. And in that area we have a very 3 high degree of confidence. 4 In areas further away, we have less 5 confidence, and we're not trying to predict the 6 impacts in those areas. If in fact it was 7 important to predict the impacts in that area, 8 then I believe M3 would have us go out and drill 9 these hundred thousand dollar wells and do these 10 expensive studies. 11 But we looked at the area where the 12 impacts were going to be the greatest, where 13 people were the most concerned, and that's where 14 we concentrated spending the money to collect the 15 data and do the analysis. 16 Q. And then you identified just now that 17 you were looking at emphasizing areas where the 18 people have the greatest concern? 19 A. Sure. 20 Q. Did you not testify earlier in -- that 21 your model does not -- and was not developed to 22 evaluate the shallow aquifers, the effects of the 23 shallow aquifers? 24 A. It only gives an approximation, 25 because it's not calibrated to those shallow</p>
<p style="text-align: right;">Page 1728</p> <p>1 northwest of the M3 property. And I'll wait until 2 you get to that. 3 Are you on that? 4 A. Yes. 5 Q. I believe I heard you testify a little 6 while ago that the wells west and north are 7 probably but not necessarily in the Pierce Gulch 8 Sand Aquifer? 9 A. That's correct. 10 Q. And then again, you don't have 11 intimate knowledge on the well construction of 12 those; is that correct? 13 A. That is correct. 14 Q. Okay. And how much confidence do you 15 have in those wells overall for using those in 16 your modeling? 17 A. Well, I wouldn't say -- we use them in 18 the modeling to help us understand the geology in 19 that area and some of the water levels. But as 20 you can see from the dashed lines, that's the area 21 that we have less confidence in. 22 And in a way, it doesn't really 23 matter, because what we're really looking at would 24 be the impacts that pumping within 5, 8 miles of 25 the M3 site would have, basically, with the area</p>	<p style="text-align: right;">Page 1730</p> <p>1 aquifers. That's correct. 2 Q. Would you say that the number of 3 domestic wells constitute a number of people that 4 may be concerned about their water in their wells? 5 A. Yes. 6 MR. THORNTON: I think that's my last 7 question. Thanks. 8 THE HEARING OFFICER: Okay. Mr. Smith, do 9 you want to launch with Mr. Utting, or do you want 10 to -- 11 THE WITNESS: Mr. Utting would love to be 12 launched. I'd love to finish this up. 13 MR. ALAN SMITH: Do you want to finish? 14 MR. FEREDAY: Mr. Hearing Officer -- 15 THE HEARING OFFICER: I don't have an 16 objection to -- 17 MR. FEREDAY: We would like to finish, if 18 possible tonight, even if we had to go a little 19 late with Mr. Utting. 20 THE WITNESS: May I interject? 21 THE HEARING OFFICER: Let's go off the 22 record. 23 MR. FEREDAY: Let's go off the record. 24 THE HEARING OFFICER: Let's go off the 25 record.</p>

1 (Recess.)  
2 THE HEARING OFFICER: We are recording  
3 again.

4 Mr. Smith.

5 MR. ALAN SMITH: All right. Thank you.

7 CROSS-EXAMINATION

8 BY MR. ALAN SMITH:

9 Q. Mr. Utting, I'm going to try to recall  
10 some of your testimony here. And if I don't state  
11 it accurately, you correct me, please. I think  
12 you said, if I recall correctly, that the flow  
13 from the -- or the Pierce Gulch Aquifer was able  
14 to sustain a number of wells at 2,000 gallons per  
15 minute?

16 A. That is correct.

17 Q. What number do you have there?

18 A. Well, I was only looking at the amount  
19 that M3 has requested in their water rights  
20 application, which would be a total average  
21 withdrawal of 9.03 cfs. So I rounded that up to  
22 10 cfs, which would be three wells at 1500, or  
23 two-and-a-half wells or less producing at 2,000.  
24 The site can produce more, but that is not what M3  
25 needs or wants. So I did not address that.

1 Q. Well, we've heard testimony, I  
2 believe, from four wells to five or six, verbal  
3 testimony. And I believe Exhibit 42 states maybe  
4 as many as 15 wells.

5 A. Well, if we had 15 wells, we would  
6 have to have a smaller average pumping out of each  
7 well so that the total amount was the equivalent  
8 of pumping three wells at the slightly under  
9 1500 gpm.

10 So the number of wells is not the  
11 important thing here. What's important is how  
12 much water is coming out of the ground. If you  
13 have more wells, you have to pump less to stay  
14 within your water right allocation.

15 Q. But your water right application isn't  
16 only the 9.03, is it?

17 A. That is the average withdrawal over  
18 the year. That's really what determines the  
19 impacts to people in the area. You have a  
20 short-term pumping at a higher rate. As we saw in  
21 the pumping test, it takes awhile for those  
22 drawdowns to move outward.

23 So a day or two of peak pumping at  
24 your summer hot period, then you drop back down,  
25 you won't see that huge amount. M3 will be

1 limited to the 9.03 if this water right is  
2 approved for their average long-term pumping at  
3 full build-out.

4 Q. I believe you said the long-term  
5 impacts will result in some measurable effects on  
6 other wells.

7 What do you mean by "some"?

8 A. Well, we have used the computer model  
9 to predict the impacts in the Pierce Gulch Sand  
10 Aquifer. And in the area of the protestants'  
11 wells, we believe that those wells completed in  
12 the Pierce Gulch Aquifer could have measurable  
13 drawdowns of 10 to 15 feet.

14 What Mr. Dittus has testified, though,  
15 is that we may be overpredicting just because of  
16 what he has seen in his production wells that have  
17 been producing for 10, 15 years and longer.

18 Q. And I believe you said you calculated  
19 the flow rate of the PGSA, that that was only a  
20 calculation?

21 A. I made a calculation of the flow that  
22 is occurring now beneath the M3 site with M3 not  
23 pumping any supply wells.

24 Q. And I believe you said that multiple  
25 pumping wells were put into your model.

1 How many is "multiple"?

2 A. Well, we went through the water rights  
3 listed within the model area. And believe me,  
4 there were hundreds and hundreds and hundreds. So  
5 all those listed water right wells were put in.

6 We then looked at the number of  
7 domestic wells in there, and assuming that they  
8 were not in the water right database and assumed a  
9 pumping rate. So I guess the answer is thousands.  
10 I would say probably somewhere close to 3,000  
11 wells.

12 Q. And I believe you said you felt that  
13 monitoring was very essential.

14 My question to you is, who's going to  
15 do all that monitoring when M3 is gone and HLI is  
16 no longer being compensated to do it?

17 A. Well, right now the Department is  
18 monitoring wells. There's a program to monitor  
19 wells. The USGS has been monitoring wells. I  
20 personally don't know the answer to that question.  
21 M3 has got 30 years to build out this project.  
22 There will be a gradation as more and more water  
23 is needed.

24 So I'm guessing for the next 30 years  
25 it's going to be M3, at least monitoring some of

<p style="text-align: right;">Page 1735</p> <p>1 those wells, because they need both to protect  2 their water supply and other people making claims  3 that their wells have caused problems, when in  4 fact it may be related to something else.  5 Q. And again, I'm quoting from what I  6 recall your earlier testimony. I believe you  7 stated that overlying shallow aquifers in the  8 northeast near the Lexington Hills and west toward  9 M3 may be connected to the PGSA.  10 A. I believe there's a degree of  11 hydraulic connection. Our model demonstrated  12 that. The pumping test demonstrated that, yes.  13 Q. All right, then. Could this cause  14 some more of these senior water right holders to  15 have to lower their wells, lower their pumps,  16 drill their wells deeper?  17 A. Well, if there's a well that is just  18 tapping the top of that aquifer and it has flaws  19 in its construction or pump setting or a clogged  20 well screen, then that may occur.  21 Q. Suppose it doesn't have any  22 construction flaws?  23 A. Then a properly-constructed well  24 that's completed at -- within the aquifer at a  25 reasonable depth that has a proper well screen</p>	<p style="text-align: right;">Page 1737</p> <p>1 that being seepage from the Payette River.  2 So his geochemistry showed a different  3 chemical signature than the PGSA. And that's  4 good, because none of our analyses show that the  5 PGSA should discharge water to the area in those  6 wells that Mr. Glanzman had data from.  7 Q. Where is that water going, then?  8 A. Where is which water going?  9 Q. This PGSA water that --  10 A. I believe it's discharging further to  11 the west. Some of it into the groundwater system  12 beneath the Payette Valley, some of it beneath the  13 Snake valley, and some of it beneath the Boise.  14 Q. No hard evidence of that?  15 A. I suppose all the tools work together  16 to show that that's the situation. The presence  17 of the aquifer, the water levels that we've  18 measured, the previous maps by the USGS, all of  19 those show that we would have flow in these  20 various directions. So I believe it flows there.  21 And our analyses with the model shows  22 that even if the water can't make it to the  23 Payette from the M3 site, it really doesn't matter  24 in terms of the impacts, the area that we're  25 looking at from the predicted pumping that they</p>
<p style="text-align: right;">Page 1736</p> <p>1 that's developed and the pump is deep enough, I  2 believe they will not experience any noticeable  3 impacts.  4 Q. All right. I believe you stated in  5 your earlier testimony that it's your opinion that  6 the PGSA flows to the Payette.  7 A. I believe a portion of the water  8 within the PGSA does flow to -- beneath the  9 Payette Valley, yes.  10 Q. And I think Mr. Thornton asked you  11 this, but let me ask it again, my last question, I  12 believe: You heard Mr. Glanzman say either this  13 morning or yesterday or maybe both that he can't  14 find any evidence of PGSA water in the Payette  15 area?  16 A. I heard that.  17 Would you like me to comment?  18 Q. If you'd like.  19 A. Our analysis shows that the wells that  20 Mr. Glanzman analyzed in the Emmett area should  21 not be receiving water from the PGSA. That's an  22 area where if there's any upland aquifers  23 discharging water, it would be the Willow Creek.  24 But in fact, water flowing through the Payette  25 Valley has other sources of recharge, a lot of</p>	<p style="text-align: right;">Page 1738</p> <p>1 anticipate will do.  2 MR. ALAN SMITH: That's all the questions  3 we have. Thank you.  4 THE HEARING OFFICER: Okay. Mr. Edwards?  5 MR. EDWARDS: No.  6 THE HEARING OFFICER: Okay. Mr. Fereday,  7 redirect?  8 MR. FEREDAY: We have no redirect.  9 THE HEARING OFFICER: Okay.  10 MR. FEREDAY: And that concludes our direct  11 case.  12 THE HEARING OFFICER: Let's go off the  13 record for a minute.  14 (Recess.)  15 THE HEARING OFFICER: Okay. I'm not sure  16 whether it was on the record, I think it was,  17 Mr. Fereday, but you indicated that you rested  18 your presentation of evidence.  19 MR. FEREDAY: That's correct, Mr. Hearing  20 Officer. We do have additional witnesses whom we  21 may call on rebuttal or call back some of the  22 previous witnesses for rebuttal. But at this time  23 we do rest our direct case.  24 THE HEARING OFFICER: Okay. And I would  25 just add that I had some questions that I could</p>

1 have asked Mr. Utting, but I think in the interest  
2 of efficiency and the time, I don't think I'll go  
3 into it at this point. And I assume Mr. Utting  
4 will be offering some rebuttal testimony, and we  
5 can cover some of that during that rebuttal  
6 testimony.

7 Okay. Anything else at this point?

8 MR. THORNTON: No.

9 THE HEARING OFFICER: Thanks for your help.

10 MR. THORNTON: Thank you.

11 THE HEARING OFFICER: And we'll stop the  
12 recording and come back on the 11th.

13 (Proceedings concluded at 5:08 p.m.)

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1 REPORTER'S CERTIFICATE

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

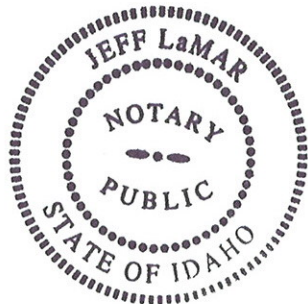
4 That the foregoing proceedings were taken  
5 before me at the time and place therein set forth,  
6 at which time the witness was put under oath by  
7 me.

8 That the testimony and all objections made  
9 were recorded stenographically by me and  
10 transcribed by me or under my direction.

11 That the foregoing is a true and correct  
12 record of all testimony given, to the best of my  
13 ability.

14 I further certify that I am not a relative  
15 or employee of any attorney or party, nor am I  
16 financially interested in the action.

17 IN WITNESS WHEREOF, I set my hand and seal  
18 this 13<sup>th</sup> day of May, 2009.



JEFF LaMAR, CSR NO. 640

Notary Public

Eagle, Idaho 83616

25 My commission expires December 30, 2011

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