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BEFORE THE DEPARTMENT OF WATER RESOURCES OF THE STATE OF IDAHO

IN THE MATTER OF DISTRIBUTION OF WATER TO WATER RIGHTS NOS. 36-07210, 36-07427, AND 36-02356A **Blue Lakes Delivery Call**	**THIRD AFFIDAVIT OF DANIEL V. STEENSON RE. IGWA's MOTIONS IN LIMINE AND FOR PARTIAL RECONSIDERATION**
IN THE MATTER OF DISTRIBUTION OF WATER TO WATER RIGHTS NOS. 36-04013A, 36-04013B, AND 36-07148 (SNAKE RIVER FARM) **Clear Springs, Snake River Farm Delivery Call**	

STATE OF IDAHO)
) ss
COUNTY OF ADA)

DANIEL V. STEENSON, being first duly sworn upon his oath, deposes and says that:

1. Attached hereto as **Exhibit A** is a true and correct copy of the deposition transcript of Karl J. Dreher, Vol. I.

2. Attached hereto as **Exhibit B** is a true and correct copy of the deposition transcript of Karl J. Dreher, Vol. II..

3. Attached hereto as **Exhibit C** are true and correct copies of the *Affidavit[s] of David R. Tuthill, Jr.*, and the *Report[s] Regarding IDWR's Recomendation of Fish Propagation Facility Volume* filed in SRBA subcases involving water rights owned by Blue Lakes Trout Farm ("Blue Lakes") and Clear Springs Foods Inc. ("Clear Springs").

4. Attached hereto as **Exhibit D** is a true and correct copy of the North Snake Ground Water District's ("NSGWD") *Reply Brief in Support of Motion to Alter or Amend* filed in the SRBA subcase involving Blue Lakes' water rights.

5. Attached hereto as **Exhibit E** is a true and correct copy of the NSGWD's *Brief in Support of Notice of Challenge (Consolidated Issues)* filed the SRBA consolidated subcases on IDWR's recommendations to include facility volume in the decrees for fish propagation water rights

. 6. Attached hereto as **Exhibit F** is a true and correct copy of the *Affidavit of Brett Rowley*, a Texas fish propagator, filed in the SRBA by NSGWD in support of its Notice of Challenge on the facility volume issue.

7. Attached hereto as **Exhibit G** is a true and correct copy of portions of NSGWD's *Reply Brief in Support of Notice of Challenge (Consolidated Issues)*, filed in the SRBA Subcase on the facility volume issue.

8. Attached hereto as **Exhibit H** is a true and correct copy of the SRBA District Court's *Order on Challenge (Consolidated Issues) of "Facility Volume" Issue and "Additional Evidence" Issue.*

9. Attached hereto as **Exhibit I** are true and correct copies of the following email correspondence between counsel in this proceeding regarding discovery:

(1) an October 1, 2007 email from Candice McHugh, with attached schedule;
(2) an October 15, 2007 email from Candice McHigh;
(3) an October 22, 2007 email from myself to Candice McHugh;
(4) a November 5, 2007 email from Randy Budge, and
(5) a November 6, 2007 email from Randy Budge.

10. Attached hereto as **Exhibit J** is a true and correct copy of the News Release by the Idaho Department of Water Resources dated April 30, 2007.

11. Attached hereto as **Exhibit K** is a true and correct copy of IGWA, MVGWD and NSGWD's *Complaint for Declaratory Relief, Writ of Prohibition, Temporary Restraining Order and Preliminary Injunction* dated May 7, 2007.

12. Attached hereto as **Exhibit L** is a true and correct copy of the Jerome County District Court's *Order Dismissing Application for Temporary Restraining Order, Complaint for Declaratory Relief, Writ of Prohibition and Preliminary Injunction* dated June 12, 2007.

Further your affiant sayeth naught.

Dated this 27th day of November, 2007.

Daniel V. Steenson

Sworn to and subscribed before me this 27th day of November, 2007.

KATIE R. MOSER NOTARY PUBLIC STATE OF IDAHO

Notary Public for Idaho
Residing in Boise, Idaho
My Commission Expires: 2/20/08

CERTIFICATE OF SERVICE

I hereby certify that on this 27th day of November, 2007, I served a true and correct copy of the foregoing by delivering the same to each of the following individuals by the method indicated below, addressed as follows:

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Daniel V. Steenson

EXHIBIT A

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF DISTRIBUTION OF)
WATER TO WATER RIGHT NOS.)
36-02356A, 36-07210, AND 36-07427)
(Blue Lakes Delivery Call).)
_____)
IN THE MATTER OF DISTRIBUTION OF)
WATER TO WATER RIGHT NOS.)
36-04013A, 36-04013B, AND)
36-07148 (SNAKE RIVER FARM);)
(Clear Springs Delivery Call).)
_____)

DEPOSITION OF KARL J. DREHER, P.E.

October 31, 2007

Volume I, Pages 1 - 157

REPORTED BY:

COLLEEN P. KLINE, CSR No. 345

Notary Public

DEPOSITION OF KARL J. DREHER, P.E. was taken on behalf of the IGWA, Inc., at the offices of the Idaho Department of Water Resources, located at 322 E. Front Street, 6th Floor, Boise, Idaho, commencing at 9:05 a.m., on October 31, 2007, before Colleen P. Kline, Certified Shorthand Reporter and Notary Public within and for the State of Idaho, in the above-entitled matter.

APPEARANCES:

For the Twin Falls Canal Company and North Side:
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For United States Bureau of Reclamation:
Office of Attorney General
Deputy Attorney General
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Chief Water Resources Section
BY MR. PHILLIP J. RASSIER
BY MR. CHRIS M. BROMLEY
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APPEARANCES (CONTINUED):

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For Idaho Ground Water Appropriators, Inc.:
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BY MS. CANDICE M. McHUGH
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For the Blue Lakes Trout Farm:
Ringert Clark, Chartered
BY MR. DANIEL V. STEENSON
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P.O. Box 2773
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EXHIBITS

DESCRIPTION PAGE

KARL J. DREHER, P.E.,
first duly sworn to tell the truth relating to said cause, testified as follows:

EXAMINATION

QUESTIONS BY MR. BUDGE:

Q. Good morning. Will you state your name, business address, and phone number for the record.

A. My name is Karl, spelled with a K, middle initial J, last name Dreher, D-r-e-h-e-r. My business address is 1697 Cole Boulevard, Suite 200, Golden, Colorado 80401, telephone number is area code (303) 239-5476.

Q. And your current employment?

A. I'm a vice president with Brown and Caldwell. They are a consulting firm on environmental issues and engineering, relating primarily to water.

Q. You are the former Director of the Idaho Department of Water Resources?

A. I was.

Q. And what was the period of time that you served in that capacity?

A. I served as the Director from May 1995 through the end of December 2006.

Q. And would you just briefly summarize the circumstances under which you left the Department?
A. Well, I can only tell you what I know. I was an appointee of the Governor subject to confirmation by the Senate. Idaho elected a new Governor, who chose not to reappoint me.
Q. Well, at the outset, Mr. Dreher, let me tell you that we all appreciate your willingness to come and have yourself deposed and be able to explain the orders, and your willingness to appear at the hearings on both the spring case and the delivery call case.
And I think my feelings are shared by all Counsel, that we're appreciative of your willingness to do that. We consider you to have the most knowledge of what's going on, and why the orders were rendered. And it's most important that you have an opportunity to describe and explain it.
And from talking with other Counsel, I'm sure they share my feelings. So let me express that for even those that may not be here at the moment. And also, to Phil and others at the Department for helping with those

arrangements.
I did have a question on that. As far as testifying at the hearing on the spring users case, which is scheduled to commence on November 28th, and go for a number of days, do you anticipate any difficulty in being able to make yourself available during that hearing process in order to present live testimony?
A. It starts towards the end of November?
Q. I think it's November 28th, and would go for -- it's scheduled for a couple of weeks. And I think, as I understand it, there would be considerable flexibility as to when you testified. It's just that the parties anticipated the importance of you testifying live. And the Hearing Officer, Justice Schroeder, indicated the same thing, that he had hoped to have opportunities for both existing and former Department personnel, who may have knowledge about this case, to be able to come and explain the reasoning.
A. Well, I have no plans to be traveling out of the country, but I do have commitments out of -- well, not in Idaho, and not in Colorado, that I have some flexibility around. But I'm

thinking in particular, that I've got meetings in Las Vegas the week of the 26th of November, and then, again, sometime around December 12th, that I would have a hard time changing.
Q. That's fine. We'll bring that up probably at the pre-hearing scheduling conference, and try to schedule it a day certain so you can plan on it, and we can plan on it.
And you are appearing for purposes of this deposition voluntarily, and as an independent witness?
A. I am.
Q. And you are appearing at the request of the Department, as I understand it?
A. I am.
Q. You are a licensed engineer in good standing?
A. I am.
Q. Do you have other areas that you will consider yourself to be an expert in?
A. Well, "expert" is a relative term, I suppose. But I have expertise in public policy, application of water law, construction management, economics, financing, but whether that expertise would rise to the level of being

an expert, I will leave that to others to judge.
Q. Did you bring any documents with you today?
A. I did not.
Q. What did you do insofar as reviewing documents and other efforts to prepare for your deposition?
A. All that I did is I reread the orders that I wrote and issued in the Blue Lakes delivery call matter, in the Clear Springs delivery calls for the Snake River Farms, and the Crystal Springs.
Q. And those would be the orders starting in 2005 in each of those cases in response to those parties' delivery calls that were made that year?
A. That's correct.
Q. If you began with the Department in May of 1995, that would have been not too long after the Conjunctive Management Rules were enacted. I believe the enactment date on the copy of the rules I had, indicates October 7th, 1994?
A. That's my understanding.
Q. And do you have any knowledge whether those were amended or changed at any time after

you were the director?
A. They were not.
Q. Do you have any knowledge of the parties that were participating in the rule-making process that gave rise to the enactment of those Conjunctive Management Rules?
A. Not, specifically. When I first started in May of 1995, I had discussions with attorneys -- two attorneys, one representing surface water interests, and one representing ground water interests. But I don't know specifically which entities those attorneys represent.
Q. Who were those attorneys?
A. John Rosholt was the attorney that represented surface water interests, and Jeff Fereday was the attorney that represented ground water interests.
Q. So from those conversations, you just had a general understanding that those respective surface and ground water interests had been involved in some fashion in the rule making?
A. That's correct, but I didn't have any idea to what extent, or what the process was.
Q. Have you had an opportunity to read

that decision entered by the Supreme Court in March of 2007 in the AFRD#2 versus the Idaho Ground Water Resources case?
A. I have, but not recently.
Q. It may be unfair if you haven't read it recently. But is there anything that comes to your mind now that was said in that decision that you think would cause you to change your view of how the Conjunctive Management Rules should be applied to these two delivery call proceedings?
A. No.
Q. For purposes of this particular hearing, the two delivery call proceedings have been consolidated, being the 2005 delivery call by Blue Lakes, and also the 2005 delivery call by the Clear Springs entities. Let me ask you about those particular facilities.
Have you personally inspected either of those facilities on the ground?
A. Not in detail.
Q. You have been to their locations?
A. Yes.
Q. So as far as being generally familiar based on an on-the-ground inspection, you could say, yes, to that?

A. I wouldn't say I performed an on-the-ground inspection. I visited the location of the facilities.
Q. And the purpose of that visit was what?
A. To develop some level of familiarity with the facilities, and how they were laid out.
Q. And what else would you have done to familiarize yourself with those facilities?
A. Well, I relied on the employees that I had here to do a more detailed inspection and evaluation. In particularly, Cindy Yenter, the Watermaster for Water District No. 139, and Brian Patton, who was a licensed professional engineer who was employed here.
Q. While we're on that subject, insofar as the orders that you wrote and what was done by the Department in response to those delivery calls, who were the employees that you knew were involved in that process of evaluating the water rights, and responding to the delivery call, assisting in the writing of the order? Who were the key folks that were involved that we might want to be aware of?
A. Well, to begin with, you know, I wrote the orders myself. I did not delegate that work,

because of what I thought would be the precedent-setting nature of what needed to be done. But I, obviously, didn't do all of the work myself.
I just mentioned that I did assign the responsibility to do a detailed field investigation of the facilities to both Cindy Yenter and Brian Patton. And, again, the word "detailed" is relative. I'm not going to say that they performed an inspection that would have identified every little aspect of the operation of those facilities. That wasn't the point of their work. The point of their work was to fulfill the investigation to the level that was contemplated -- maybe not contemplated, but set forth in the Conjunctive Management Rules.
The orders are also based upon a number of simulations using the current ground water model for the Eastern Snake Plain. And those model simulations were done by Allan Wylie, who is an employee of the Department.
In terms of the water rights investigations, I did those myself, relying on records that were here at the Department.
Q. Would you have anything, other than

just a general knowledge, of how those businesses operate, insofar as the production of fish and processing of fish?

A. No.

Q. There was a special master's report that was issued on the date of March 18th, 1998, which gave indications that the EPA and DEQ would not allow any net increase in effluents in the Milner to King Hill reach of the river from those fish farm operations.

Do you have any knowledge of those water quality requirements of EPA or DEQ on those facilities?

A. I do not.

Q. Are you aware that DEQ regulates the discharge standards that reflects aquaculture?

A. I am.

Q. What's your knowledge of their regulation?

A. Only that they do it.

Q. Would you agree that neither water quality or water temperature are elements of a water right as defined by Idaho Code?

A. I would.

Q. When it comes to licensing a particular

water right, or making a recommendation in the SRBA, would it be true to say that neither water quality or temperature are a factor that is considered by the Department?

A. Well, it's not considered in terms of recommending the elements of a water right for decree in the SRBA, that's correct.

Q. And would you consider those aquaculture rights that these entities have, Blue Lakes and Clear Springs, to be nonconsumptive in nature?

A. Yes.

Q. Is the extent of that --

A. For the aquaculture portion. I mean, there are some uses that are not part of the fish production. But, for example, there is some amount of irrigation of landscaping associated with Snake River Farms. Those uses, those are consumptive.

Q. And I suppose there is some evaporation that would exist with respect to the operation of the holding ponds and facilities?

A. There is, but we don't consider that.

Q. That's considered minor, diminimous, I suppose?

A. Yes.

Q. You indicated you did the analysis of the water right once these calls were made. Can you just describe what analysis you did, and how you did it?

A. Well, I asked for all of the water right files that the Department had, some of which were housed in this facility that we're in this morning. Most of which, however, were housed at the Idaho archives, Idaho State archives.

And in each delivery call and for each water right that was involved, I went through all of the files from beginning to end looking at the history of how the water rights were established; any measurements of water use; water diversion that had been made historically for the rights; how the Department formulated -- if there was documentation to that extent, how the Department formulated its recommendations in the SRBA; how the rights had been decreed in the SRBA. I looked at ownership changes. The full range of anything that was in those files, I looked at. Now, it wasn't necessarily all pertinent, but I looked at it.

Q. If my memory serves me correct, partial decrees were entered by the SRBA Court of these particular rights in 2000.

And do you know what the basis would be for the quantities that were entered in those partial decrees? Was there anything different about the rights as licensed as to when they were partially decreed?

A. I would have to look back into the files to be sure. But nothing comes to mind that I would recollect indicating that the rights were decreed differently than they had been licensed.

Q. What period of records were available on these particular rights when you examined them?

A. It varied, depending upon the right, and I don't recall the specific dates.

Q. Was there a need for you to request additional flow information or data from any of these users that were making the call?

A. One of the things that I asked Cindy Yenter and Brian Patton to do when they did their field inspections was to make measurements of current diversions, current water use. And, of course, one of the watermasters assigned duties

is to make sure that the measurements are taken on an ongoing basis. And I would have looked at the most current measurements that the watermaster provided, beyond what was already in the Department's files.

Q. And would you have had a need, or did you request any additional water right data or records from either of these entities making the call; Clear Springs or Blue Lakes making the call?

A. I don't recall the specifics. But in the initial response to their delivery calls, I wrote letters asking for some information, but I would have to look at the letters to see exactly what it was I asked for.

Q. For the most part, would your recollection be that you relied upon data and records that the Department had available?

A. As supplemented by whatever additional information would have been submitted in response to the letters that I initially wrote.

Q. I'm handing you what is a copy of the direct testimony of Dr. Brockway filed on behalf of Clear Springs in this case, dated September 7th, simply to give you a quick reference of the

water rights that were a part of the Snake River facility that are listed there on Table 2. I think those are the same rights that were identified in Finding 36 of the order, if you'd prefer to look at it there. But I hand you that just to give you an opportunity to quickly review those six rights. And you'll note that there were priorities that range from 1933 to 1971, and they show a cumulative total of 117.67.

A. I think I would like to look at the order.

Q. Okay. Let me pull that order out. It would be Finding 36 on page 9 of the July 8th, 2005 Clear Springs order. Do you have that?

A. I do.

Q. Also, handing you Figure 13, which was an attachment to Dr. Brockway's direct testimony, where he graphically depicted the flow levels from those particular springs, the Snake River Farms Hatchery of Clear Springs Food, in relationship to the total of those particular water rights, which was 117.67.

A. Okay.

Q. When Dr. Brockway testified about this on Monday, he indicated the only records he had

been provided by Clear Springs Food as a part of his evaluation would be from 1988 on, and you'll note that's all that he reflected on Exhibit 13. And where their rights were partially decreed for those full amounts that you find on Finding of Fact 36 in the SRBA Court, you'll note that that appears to be less than the flows that were available at any time, at least since 1988, when Dr. Brockway graphically depicted those flows.

So with that background, would it be accurate to assume that the quantities established for those particular rights would be based upon some historic flow record in existence back from the time they were licensed sometime forward, not based on the flow level that would have existed in 2000 when the partial decrees were entered?

A. I believe that's addressed in the order. Finding No. 58 in the order refers to a memorandum describing measurements made in July of 1972, showing that the total diversion of water to the Snake River Farms was 118.86 cfs.

Q. So that sets the backdrop for a few general questions. I wanted to ask you about the quantity. And the reason that has become

significant, is some of the spring user parties to this proceeding have asserted that a decreed amount is not simply an authorized maximum, but is a guaranteed entitlement that asserts that they are entitled to have at all times during all years, and they want curtailment to achieve that. So I have some questions to propose to you on that particular subject.

A. Okay.

Q. The first one would be is: How would a quantity be established for purposes of a decree? And maybe I better phrase that question: How would the Department make a recommendation to the SRBA Court for purposes of establishing a quantity, such as the ones we looked at here for Clear Springs, when you can see that the quantity decreed in 2000 had not been available at least for some period of time?

A. For rights that the Department had licensed prior to the Snake River Basin Adjudication, the recommended amount for decree would have been identical to the licensed amount, unless there was something else that had changed.

But in these particular rights, for the Snake River Farms, nothing was identified as

having changed since the time that the license had been issued. And so the recommendation was based upon the amount that was in the license. The amount that was in the license was the maximum amount that had ever been measured as being diverted and applied to beneficial use. But it certainly was not the amount that was consistently available in all cases.

Q. And for purposes of administering a water right in response to a delivery call, how is the quantity relevant?

A. Repeat the question for me, please.

Q. So for purposes of establishing a licensed water right, or obtaining a decreed water right from the court, if the quantity had ever been applied to beneficial use, that would be the amount recommended and ultimately stated on the decree?

A. That's correct.

Q. And if I understand it correctly, that quantity would be considered an authorized maximum?

A. That's correct.

Q. And so the water right holder could divert up to that maximum amount as long as the

water was available.

A. And the right holder made beneficial use of that amount.

Q. So is it your testimony that just because a partial decree in the SRBA Court established a maximum amount, that did not necessarily guarantee the right holder that that quantity would be available at all times during all years?

A. That's correct.

Q. And so when you discuss in your order inter-year and intra-year variations, is that the reason you discuss that topic in your order, to distinguish between a quantity that may be established for the purposes of a license or decree, and how that right may be delivered and viewed for administrative purposes?

A. In part. But the other reason for describing these intra-year variations and inter-year variations is to try to demonstrate the complexity of administering ground water and surface water as contrasted to surface under the implementation of the prior appropriation doctrine in Idaho and other western states.

Q. This same topic of discussion was

addressed in what's entitled, Third Affidavit of Karl J. Dreher, which was on the date of March 23rd, 2001, in Sub Case No. 91-00005 Basin Wide Issue No. 5.

And on paragraph 14, page 6 of that affidavit, you make the statement, "Under the prior Appropriation Doctrine a water right defines the maximum entitlement to a water right; however, the amount of water that may be diverted under the right at any point in time is limited to the amount necessary to achieve the beneficial use authorized under the right." That's the point you've explained?

A. That is correct.

Q. And similarly in paragraph 15, you make the statement, this is on page 7, again, of that same affidavit. "In administering water rights, the Department of Water Resources cannot simply look at the quantity element of a water right as decreed. The quantity element sets the maximum limit for water distribution under the right. The Department must have the ability to determine what quantity of water is reasonably necessary for the authorized beneficial use without undo waste at the time when the water is distributed

to a particular right." That further explains the concept?

A. That's correct.

Q. Now, you make a statement in paragraph 17, and I'll let you read that first. Maybe you can just explain what was going on that gave rise to this affidavit in Basin Wide Issue 5 that you filed, and what paragraph 17 was about, if you can remember?

A. I would have to look at what's referred to here as the first paragraph of the Trout Company's proposed general provision. I don't recall what that was.

Q. Okay. As far as those prior statements that I read in your affidavit, you don't have any reason to believe that those are not accurate, and further illustrate the point that you've described, insofar as the difference between a decreed quantity for right purposes, and how that might be treated for administrative purposes?

A. That's correct.

Q. Would there be any question in your mind that the source of the water that supplies these particular spring rights, which are the subject of this call, is the identical source of

water relied upon by the ground water pumpers who were subject to the curtailment?
A. Would you repeat that again?
Q. The aquifer discharge, Eastern Snake Plain Aquifer, is clearly the source of the water discharged into the springs that supply these Blue Lakes and Clear Springs water rights; would that be correct?
A. The aquifer is the source for the springs, but that does not make the aquifer the same source as the springs as you would deem the source to be the same in purely a surface water system.
Q. Okay. Well, what would be the source for those ground water pumpers up on the rim to the north, who were subject to the curtailment order in these proceedings?
A. Well, the source for the ground water pumpers is the aquifer. But the aquifer discharges at numerous locations, not just a single location. And that's why in a surface water sense, the aquifer is not the same source as the springs. The springs only represent one discreet discharge from the aquifer.
Q. When you reviewed the records of Blue

Lakes and Clear Springs, did you gain any knowledge of the improvements that were constructed by those facilities in order to capture the flow from the springs that they utilized?
A. Which facilities?
Q. Blue Lakes or Clear Springs.
A. Yes.
Q. And do you have any knowledge of what construction they have undertaken with the time their rights were established, or any subsequent improvements that were made by them to capture the springs or increase of water that was available to them?
A. Only what's documented in the water rights files, and what was identified from the field investigations that Cindy Yenter and Brian Patton undertook at my direction.
Q. Anything that comes to mind as being remarkable to you that you can recall about improvements that they may have made over time in an effort to enhance the flows available from the aquifer discharging to their respective springs?
A. Well, nothing stands out. But, you know, as I recall, there has been some

reconstruction of the diversion facilities at the Blue Lakes Trout Farm.
Q. Do you have any knowledge or recollection about that specifically?
A. I would have to look back in the files to see what it was. But something sticks in my memory that there was some reconstruction there.
Q. Anything that you are aware of relating to recirculation, or reuse of water at either of those facilities, that come to mind?
A. Well, as I recall, there is another hatchery that reuses the discharge from Blue Lakes.
Q. That would be Pristine Springs?
A. Pristine Springs. But I don't recall any recirculation at Blue Lakes or Clear Springs, although there could be. Certainly, that's within their right to do.
Q. Just as a general question, again, on this issue of recirculation. Looking at Dr. Brockway's Figure 13, again, which is reflecting the Snake River hatcheries' spring discharges. If you took a period of time, as reflected for a number of years in the '90s to about 2000 on this particular Figure 13, you'll

see that the water available is something in excess of 100 to 110 cfs at peak during those years.
A. Yes.
Q. Which is perhaps as much as 10, to as much as 15 cfs short of their authorized maximum of 117. Do you see that?
A. Yes.
Q. Would it be possible, simply from a physical standpoint, to make up that 10 or 15 cfs shortfall by simply recirculating water discharged from the end of those facilities?
In other words, it would seem that if 10 to 15 percent of the water discharged in that facility were recirculated from their discharge to the intake, it would make up any shortfall.
A. Hypothetically, that's true. But there would be a question as to whether the water quality utility of the water would be adequate, which is not part of the water right. But it is part of their consideration and recirculation, I would think.
Q. And I recognize these orders were entered on an emergency situation without full hearing or full presentation. But absent any

questions with respect to water quality, it would be something that hypothetically would be feasible to do?

A. Yes.

Q. And was any evaluation on investigation done by the Department, as far as you know, as far as the feasibility of recirculation of water for any of these aquaculture facilities?

A. There was none.

Q. When you look at this same table, Figure No. 13 on the Snake River Farms discharge, it's pretty similar to Figure 11, which is depicting over roughly the same time period, 1985 through 2007, the springs from the Crystal Springs hatchery of Clear Springs over that same time frame in relationship to their total authorized right, which is the red line. And I had some questions that I wanted to ask you about these annual flow variations.

Could you tell me just generally, why is it that variations in flow, both annually and seasonally, are relevant to your administering the delivery call by these spring users against ground water pumpers?

A. Well, this begins to illustrate the

complexity of administering ground water under the prior appropriation systems that were developed largely around surface water. When you are administering just surface water, it's visually evident what the effects of curtailing a junior-priority surface water right would be, and it's also visually evident how much water is available to the senior.

So if you know that the senior is entitled to, and can beneficially use a certain amount of water, and that water is not reaching the senior, and there is a junior upstream on the same stream, the same source that's diverting that water, absent some loss of the water between the point of diversion of the junior to the point of diversion to the senior, it's immediately clear what the benefit would be to the senior of curtailing the junior.

That same simplicity does not exist in a ground water system. With the diversion of a ground water right from the aquifer system some distance away from the, in this case, the discharge of springs, the depletion caused by the ground water diversion is not immediate. And it is not immediately evident whether that depletion

will cause injury.

And so what happens is, the effects of the depletion don't occur for months, years, or decades, depending upon the location of the ground water right. And so you don't know at a particular point in time, when a ground water diversion is made, whether or not the depletions from that diversion will, in fact, cause injury when those depletions affect the discharge and the surface water source.

Now, superimpose on top of that, the variations within the year, and the variations between years, and that further complicates the determination of whether or not injury will, in fact, occur from a current diversion of ground water.

It is not evident at the time that the diversion occurs. And the determination of whether, when those depletions are expressed to cause injury, I mean, it becomes very complicated, because of all of these variations that are occurring, coupled with the nature of the depletion caused by the ground water diversion. It's dispersed in time. It's dispersed spatially. And it simply is not the

simple setting where you have two rights diverting from the same surface water stream. It's not the same.

And so because it's not the same, you have to take into consideration all of these other factors that are occurring that could affect the water availability to surface water users that rely on spring discharge.

The absence, or the reduced availability of water, may or may not be the result of ground water diversions, or it may be in part the result of ground water diversions, and in part the result of other causes, not the least of which could be these inter-year variations. Or in the case of within a single year, the variation within that year itself.

Q. When one looks at the pattern reflected on Figure 11 and Figure 13, it would seem to indicate that the discharges from the springs are increasing during the very irrigation season when irrigation pumping would be going on.

Do you generally see that? Or how would you interpret that to be? My question is: Does that not illustrate the very testimony that you've described, but it's not so simple to look

during the irrigation season and be able to immediately see at a spring the impacts of the well going on? There are other factors that seem to be causing these discharges to go up at the very time pumping would seem to indicate they should be causing them to go down.

A. Well, again, the effect of the pumping is delayed, and the rising limb, if you will, of the spring discharge in a given year is the result of many other factors, including incidental recharge from surface water irrigation, precipitation. There is a number of factors that contribute to that. And the depletion caused by ground water diversions may or may not be expressed at that same period of time.

Q. Can you describe some of the factors that would cause seasonal variations? You mentioned ground water pumping, obviously, and incidental recharge, another.

A. Probably the two most significant factors are the incidental recharge and ground water pumping. But, you know, when you look at a particular year, you can have variations that could be, in part, the result of unusual

precipitation patterns.

Q. What about annual flow variations? What are some of the factors that would impact annual flows?

A. You mean, between year variations?

Q. Between years.

A. Again, probably the single biggest factor that addresses between year variations is water supply availability, because it affects other things. You know, for example, between years you can have significant differences in precipitation. And precipitation is a significant source of recharge for the aquifer system. It's not the largest, but it is significant.

But varying water supplies also affect how much water surface water users divert for their purposes. And generally, when more is available -- this is a generalization, of course -- when more is available, they'll divert more. I'm speaking of surface water irrigators. And that can result in larger amounts of incidental recharge.

And so that can vary from year to year based upon, again, water supply availability.

But there is also other factors that come into this. The amount of depletion from crop evapotranspiration can vary from year to year, depending upon the length of the growing season. It can also vary based on the preexisting availability of soil moisture.

Q. When you examined the Department's files with respect to these particular delivery calls, did you see anything, or do you have any other personal knowledge whether or not Blue Lakes, or Clear Springs, or any other spring users in the Thousand Springs area, filed objections when the ground water rights were established on the rim, either at the time of permitting, or licensing, or subsequently when they were claimed and decreed in the SRBA Court?

A. Those objections, if they were filed, would not have been in the water right files for the spring rights. They would have been in the water right files for the ground water rights, and I did not look at that when I was preparing these orders.

Q. So you have no knowledge then, based on what you've reviewed, that any objections were filed?

A. That's correct.

Q. Just a couple very general questions on the model. Can you describe how that was utilized to respond to these delivery calls?

A. In general, it was used in two different ways. The first general application was to look at various scenarios involving curtailment of ground water rights, and what the resulting effects from that curtailment would be.

And the second general area would be to look at proposed actions from the ground water users to potentially mitigate the effects of the depletions associated with their diversions.

Q. What do you consider to be the strengths of the use of the ESPA Model?

A. At this point in time, or at the point that these orders were written, it really was the best available tool that the Department had available. And, in fact, the ground water model -- the current ground water model was developed in part anticipating the need to use it in response to a delivery call from the holder of a senior surface water right.

And when I say that, when I first came to the Department in the position of Director in

1995, the Department was in the latter stages of publishing results from the prior ground water model. I believe it was in a study called the Upper Snake River Basin something.

And early on, I had looked at that. I think that report was eventually published in December of 1995, if I recall. But when I looked at the report early on, and the model that had been developed at that point in time, I felt that that model was not sufficiently calibrated, not sufficiently developed to be used in water rights administration. And because of that, I wrote an epilogue in that report that highlighted my concerns.

And based upon those concerns, then I went back to the legislature, in collaboration with a number of the ground water and surface water interests, to seek additional funding from the legislature to reformulate and recalibrate the ground water model to where, at least when I was in the position, I was comfortable using it for the purposes of water rights administration.

You know, the difficulty is, again, going back to the complexity of ground water versus surface water, in the simple example that

I provided of a senior diverting from a stream, and a junior diverting from the same stream upstream from the senior, you can see surface water. You can visually assess what happens when one right is curtailed in favor of another right.

But with ground water, you can't see it. And you have no choice, but to rely on -- in my opinion, you have no choice, but to rely on suitably calibrated tools that simulate what is occurring in terms of the effects of ground water diversions and the associated depletions.

Q. What would you consider to be the inherent weaknesses or uncertainty for the use of the model for purposes of the ground water/surface water administration call such as this?

A. The weaknesses really come down to, how certain is the calibration? And that's why the reformulation of the Eastern Snake Plain Model, most of the effort was not put in the development of the model. Most of the effort was put in in obtaining data and performing the calibrations.

And we looked at something on the order of, it was over 100 different configurations of the Eastern Snake Plain Model, different

configurations of hydraulic conductivity, for store-activity, and other factors seeking that configuration that would produce the most reliable calibration. And when I say "calibration," I mean, the most reliable back-casting, if you will.

Does the model adequately replicate what we've measured has happened in the past, both in terms of ground water models, as well as spring discharge, and reach gains and reach losses to and from the Snake River?

Also, another source of uncertainty, I suppose, in the model is it's an idealized representation of a less than ideal system. What I mean by that is, the Eastern Snake Plain Aquifer consists largely of fractured basalt in layers that are separated by various rubble zones and other geologic features. And the model does not discreetly represent those types of discontinuities. Instead the model provides an idealized representation of what those -- of the characteristics of those discontinuities. So, you know, there is assumptions involved in putting together the model, and you tests those assumptions, the viability of those assumptions

during the calibration.

Q. When you say, "the model is an idealized representation of aquifer characteristics," do you mean the model treats the aquifer that it's all homogeneous, when, in fact, there are lots of layers of variations and flow paths, and the like? Is that what you mean?

A. The model doesn't treat it as all being homogeneous. But in a particular cell, it's treated as being homogeneous. Whereas, in reality, the aquifer that's represented by that particular cell, is not homogenous -- or I shouldn't say it's not. It may or may not be homogenous. It could be, but it may not be.

Q. If I understand, the model is able to back-cast, if you will, or predict a quantity that would be developed to a particular reach of the river resulting from some curtailment scenario, but can't predict the quantity flowing to a particular spring that might serve one of these rights?

A. That's correct.

Q. Can you elaborate and explain that to me.

A. Well, in part, the reason for that is

that, you know, the springs discharged from particular fractures in the basalt system. Those fractures are not specifically modeled in the model. They are idealized in the model.

Q. Okay.

A. And in a particular cell, you could have a number of springs discharging fractures that are not discreetly represented by that cell. And so, again, thinking that -- remembering that the model is an idealization. The more that you look at results across a series of cells, the more accurate is going to be the representation on a larger scale than on a smaller scale.

Q. How is the model used to address the timing of a response from a particular curtailment, and to address the quantity of a response from a particular curtailment?

A. Well, what the model provides is a time history of response from a particular action. So in using the model to look at curtailment, for example, we can use the model to isolate that time history of response in the aquifer system to a particular curtailment scenario. And the model will give us simulated results of reach gains to the Snake River, or really, changes in reach

gains to the Snake River, or changes in spring discharge over time. And it gives us both in terms of quantity, as well as the time frame that the quantity changes, until it reaches, essentially, what we call steady state conditions.

Q. You are familiar with the 1984 Swan Falls Agreement between the State and Idaho Power from your work as a Director, I assume?

A. Generally. I have not read it lately. But certainly, during my time here, I looked at.

Q. And I know that preceded your time in when you started as Director in '95 --

A. Yes.

Q. -- like some nine years or so. Would it be accurate to say that you were not involved in any capacity in those negotiations that gave rise to the Swan Falls Agreement?

A. I was not involved.

Q. Would you agree that once the legislature approves and adopts a State Water Plan Policy enacted by the Idaho Water Resource Board, that such would then be binding upon the Department?

A. Maybe, yes. Maybe, no.

Q. Explain what your thought is on that.

A. Well, in the spectrum of what's binding on the Department, a policy probably has the lowest degree of enforcement. You know, the Department's actions are bound, first, by the Constitution; and secondly, by statutes that are specifically enacted by the legislature; third, administrative rules that are properly promulgated pursuant to statutes; fourth, I'll lump them together, policies and guidelines.

But the Water Board being a separate political entity, can't bind the Department in a way that would be inconsistent with statutes that are promulgated by the legislature, for example. However, when the legislature essentially confirms what the policies of the Water Board are, that begins to take on a color of statute that you certainly can't ignore.

And so, you know, in trying to develop actions that are responsive to the policies that have been enacted by the Water Board, you do it in a way, or you try to do it in a way that doesn't contradict the Constitution or other applicable statutes.

Q. So maybe I should qualify that

question. So to the extent that the policy adopted by the board becomes enacted or adopted by the legislature, and maybe ratification becomes the term, and to the extent that does not conflict with a rule of law established Constitutionally or by specific legislation, then would you consider that to be generally binding upon the Department?

A. That's correct, yes. An example of maybe the difference. You know, the legislature concurs with, or ratifies, whatever word you want to use, with the state-wide plans that the Board develops. But they are not necessarily codified. Whereas; you know, you were talking about the Swan Falls Agreement. There is an example where the legislature specifically codified that agreement in statute. And the legislature generally does not go that -- generally, does not codify the state water plans in particular statutes.

Q. In the Swan Falls Agreement, the minimum flows were established at the Murphy gage in the summer of 3,900 cfs, and in the winter of 5,600 cfs. What's your knowledge of the source of the water that would be in the river at that

location to supply those minimum flows? Would it primarily be foraging from spring discharges in the Thousand Springs Reach?

A. That would be the primary source, would be spring discharges in the Thousand Springs Reach. But there could also be return flows from irrigation downstream of the Thousand Springs Reach.

Q. The question has been raised in this proceeding regarding the applicability of the use of a local ground water board to curtail ground water pumpers under the Code Section 42-237(B). And it didn't appear to me that that had been enacted, or those ground water boards had been used in any way in these delivery call procedures; is that correct?

A. That's correct.

Q. What's the position that you and the Department had on that particular local ground water board statutory requirement?

A. In my opinion, that's a mechanism that potentially could have been used before the ground water rights were decreed. But once the ground water rights were decreed, they are subject to administration in water districts

under the supervision of watermasters, which are under the supervision of the Director of the Department. And, again, in my opinion, once the ground water rights have been decreed, the ground water board is not, in my opinion, the appropriate mechanism to seek administration.

Q. And that's the reason you didn't convene one in either of these delivery call proceedings?

A. That's correct.

Q. Is there any authority that you are aware of in the Idaho Ground Water Act for the position that you've asserted by statute? I'm just wondering -- I appreciate your position on it, and I'm wondering if you are looking at some statutory provision, or if you are aware of that would provide support for your position?

A. I'm not recalling anything specifically, but I would be happy to look at the Ground Water Act, again, and see if something stands out. I have not read it for some time now.

Q. Maybe we'll have an opportunity during the break over the noon hour to take a quick glance. I'm not saying there is. I have a

difficult time finding anything in the act that would support the position you are stating, and it may be that you are reading an interpretation of that is different than ours.

A. Well, the conclusion that I reached, or the determination that I made, likely is the result of a combination of what's in the Ground Water Act, and what's in the statutes that govern the establishment and operation of water districts.

And let me maybe add something to that. As I recall, there is nothing really in the statutes dealing with the establishment and operation of water districts that limit them to surface water. They are written in a way that they apply -- I construed them to apply to surface water and ground water.

Q. So is it your interpretation that the director has discretion in choosing whether or not to establish a local ground water board to respond? Or is it your view that once a water district has been established, that that particular option is no longer available?

A. That's my view. I don't believe it is a matter of discretion for the director.

Q. I wanted to ask you a few questions on the Conjunctive Management Rules.

MR. BUDGE: And do you have that copy available, Phil?

MR. RASSIER: Yes.

Q. (BY MR. BUDGE) And you have available a copy of those, which are Exhibit 37?

A. I have.

Q. Initially, let's take a look at Rule 20.3. And Rule 20 deals with the "General Statements of Purpose and Policies for Conjunctive Management of Surface Ground Water Resources." That's the title.

If you look at the last sentence of 20.3, it states that, "An appropriator is not entitled to command the entirety of large volumes of water in a surface water or ground water source to support his appropriation contrary to the public policy of reasonable use of water as described in the rule."

The question I have is: How does maintaining a method of diversion that requires the aquifer at a full, or near full level, be balanced with this particular requirement under Rule 20.03, of reasonable use of the water? How

does one balance those conflicting interests?
A. Well, maybe an example would be what I determined regarding the Crystal Springs facilities. The springs discharge not at one location, but through a whole series of spring complexes. And, you know, as the Crystal Springs facility developed, and the water appropriations will confirm this, the facility developed over time.
And initially, when the facility was put on-line, perhaps a sufficient amount of water for the initial development could be obtained by some relatively short length of a collection facility that would be capturing the discharge from one or more springs.
But as that facility was enlarged, it presumably was necessary to extend the collection system to capture additional springs in order to support the appropriation of additional water rights.
Now, you enter the situation as we have it today, with these complexities of inter-year variations and intra-year variations, and the spring discharge being in part the result of actions of third parties, namely surface water

irrigators over which the spring users don't have any control, and the state can't make the surface water users use more water than they need, and all those other complicating factors.
Is it reasonable to demand that the water be delivered through just those springs? Or is it reasonable to require that when water supplies are short, that the right holder improve his or her diversion works to capture additional water that would be -- that's available under the priority of their rights? In other words, it isn't reasonable, in my view, to insist that the water has to be delivered at a certain point in a certain way, regardless of anything else. That's not reasonable.
And to put it in the context of a surface water system, you know, we have a number of surface water irrigators that divert from alluvial changes in the Snake River. And those alluvial channels change with time, because of variations in river flow.
For example, a high-water year will produce flows that may move those alluvial channels. And so the surface water irrigator, who constructed a diversion works on one of these

alluvial channels, may find that the river moved away from him. And because of high flows, now the river is flowing in a different alluvial channel, and that surface water irrigator's diversion is high and dry.
Is it reasonable for that -- maybe that surface water irrigator has the senior-right on the system. Is it reasonable for him to demand the curtailment of upstream juniors so that some water will flow back into that channel where he's constructed his diversion works? Or should the senior be required to extend his diversion works to the new alluvial channel where the river is currently flowing? In my view, those are somewhat analogous and relate to this issue of reasonable use.
Q. This concept of "a reasonable means of diversion," seems to be embodied in Rule 20.03, is one that you believe gives a director some discretion in exercising sound judgment in making that determination?
A. Yes. But beyond that, there is also -- when I listed these various levels of law, I failed to include case law. And case law would sit between below the statutory laws

enacted by the legislature, and the policies and guidelines. So we need to assert another level of law in there that governs.
In this particular provision, I believe, as I read it, it is consistent with the case law listed in the Shoddie (phonetic) case.
Q. Now, let's look at Rule 42.01.h. It should be at the bottom of page 10. Rule 42 lists various factors for "Determining Material Injury and Reasonableness of Water Diversions." And 42.h states, "The extent to which the requirements of the senior-priority surface water right could be met using alternate reasonable means of diversion or alternate points of diversion, including the construction of wells or the use of existing wells to divert and use water from the area having a common ground water supply under the petitioner's surface water right priority."
Would you agree that that particular factor listed under Rule 42.01.h, is another means of looking at whether or not one making the call is utilizing a reasonable means of diversion?
A. Well, I believe this provision goes one

step further than just looking at whether the senior-right holder is making -- is exercising a reasonable means of diversion. I think this goes to the point of, is there something else that the senior-right holder should be expected to do as being reasonable to obtain the needed water supply.

So this goes a step beyond just having a reasonable means of diversion. This talks about reasonable alternate means of diversion.

Q. And don't these particular provisions we've been discussing, regarding reasonable means of diversion, essentially, put the director in a position that he can preclude, in a delivery call such as this, a senior spring holder from using a point of diversion where a spring comes out way high on the rim, to essentially gain control of the entire use of the aquifer?

A. Potentially. The reason I say, "potentially" is, you know, that the example that you used with the high-elevation spring, that may be the only means of diversion available to that right holder. So it would be hard to say that that's not reasonable if that's his only means of diversion.

Q. In Rule 42.01.a, it discusses whether or not it might be reasonable to divert to a well. Was there any consideration done, when you responded to these delivery calls, as to whether or not either of these spring users could reasonably drill a horizontal well, for example, to access the shortfall they have under their rights in the aquifer itself in the same way as the ground water pumpers?

A. I had already made that determination at the time the delivery calls were made. And I'll take you back to the discussion we had about the reformulated ground water model. You know, I could see this coming. I mean, it was inevitable that it was going -- the conflict was going to occur, and that delivery calls would be made as the rights were decreed.

And all it took was -- and maybe it would have occurred anyway. But certainly, the prolonged drought, in my view, was the trigger. So I had been thinking about these various issues for years before the delivery calls had been made. And I had considered the reasonableness, if you will, of requiring or encouraging spring users to construct horizontal wells or vertical

wells. And my determination was that wasn't reasonable for two reasons.

The availability of water from the springs discharging in the Thousand Springs area, if you don't do something to increase the supply -- and I won't go into the various things that could be done to do that. Obviously, curtailment could be one potential.

But if you don't do something to increase the supply, what one spring user takes, reduces what would otherwise be available potentially to another spring user. So in other words, if we would have required a spring user to construct a horizontal well to capture additional water -- somewhat analogous to the discussion we had about the surface water irrigator moving his point of diversion -- the difference there is that, potentially the surface water user moves his point of diversion, and he doesn't -- he takes his water in priority, but he doesn't change the regime under which other users divert.

Whereas, if a spring user would construct a horizontal well, that's going to capture water that would otherwise have discharged through another spring. And,

essentially, that is taking water away from another spring user -- and this is hypothetical, of course -- but is hypothetically taking water away from another spring user who may be senior or junior in priority.

And so if that was the determination, that we're going to require spring users to construct horizontal wells to capture the water needed under their rights, essentially, what would have occurred, in my view, was a whole series of horizontal wells being drilled. And it sort of is the guy with the biggest well and the biggest pumps wins. He gets the water, and the others don't. And that was not, in my view, an acceptable outcome.

And so based upon the premise that these horizontal wells would have simply captured water that otherwise would have gone to another spring user, that wasn't going to solve anything, and I didn't think was reasonable.

The second factor is that, although this provision is in the rules, and I agree it's consistent with the common-law prior appropriation doctrine as I understand it. There is a question of whose responsibility it is to

construct the alternate point of diversion. If the need for the alternate point of diversion arises because of the diversions and use of water under junior-priority rights, to the extent that the water supplied to the senior could be provided through an alternate point of diversion, that constructing and operating that alternate point of diversion may be the responsibility of the junior, not necessarily the senior.

And so that, too, was a consideration that -- you know, to the extent that a junior-right holder wanted to -- in order to mitigate for their depletions and provide for their ongoing out of priority diversions, to the extent that there was a means to construct an alternate means of diversion to provide the water, maybe that's something that should have been part of the mitigation proposed. But it doesn't necessarily arise to the -- to become the responsibility of the senior.

And, you know, this -- I realize that people don't necessarily like this particular outcome, but it all depends upon what's reasonable. And at least under Idaho law, that seems to be under the sound

discretion -- hopefully, sound discretion of the director. And in some instances, it may reasonable for the senior to be required to develop additional means of diversion, as I did in the case of Clear Springs. In other cases, it may be reasonable for the junior to provide alternate means for diversion. It depends upon the facts and the circumstances.

Q. If we were having the same discussion relative to a bunch of ground water pumpers, and if the supply were adequate, there wouldn't be any concern about allowing a ground water pumper to deepen his well in order to secure a supply if due to drought circumstances; correct?

A. Correct.

Q. And if there were a shortfall there, the priority system, would it not, deal appropriately with shortfalls that may affect one pumper over another, assuming that they were all at reasonable pumping levels?

A. Correct. But there is one other factor that enters in potentially between ground water users, and that's direct well interference, which is another factor that doesn't exist in the surface water system.

Q. And to the extent the aquifer had sufficient water for these ground water pumpers, if there were a pumper that was not getting water, you would have the discretion, as director, would you not, to see whether or not their means of diversion is at a reasonable level?

A. Correct, or that their well was constructed in a reasonable fashion.

Q. So if the spring users hypothetically were all treated as ground water users, where they have the same source or supply, would not the priority system protect them, one against another, if one were to drill a well into the aquifer, whether it be a vertical or a horizontal well? Wouldn't the priority system protect them in the same way it protects different ground water pumpers?

A. To a point. But now, to bring into the analogy, you have to -- the element that you raised in the ground water system was the reasonable ground water level. So where is the equivalent reasonable ground water level in looking at possibly requiring spring users to advance horizontal wells?

Q. So in applying this reasonable pumping level principle, and reasonable means of diversion principle, you would consider one that's largely fact driven, it has to be analyzed on a case-by-case basis?

A. That's correct.

Q. And ultimately, that requires the exercise of sound judgment by the director in determining whether or not some improvement in the means of diversion needs to be made or not?

A. That's correct. All of which is subject to review by the district court, if one party or another believes that the determination was not reasonable, was not based upon sound discretion. There is opportunity for recourse.

Q. From a factual standpoint, do you consider the source of water utilized by Blue Lakes and Clear Springs to be ground water, or spring water, or surface water?

A. Well, given the way the rights were established -- given the way the rights were established by the Department, in my view it's clear that they are diverting from surface water sources where the water is derived from ground water, but they are diverting from surface water.

Q. What if you viewed it solely from a hydrologic perspective without regard to how they were licensed?
A. Well, as complex as all of this is, to me, it becomes fairly simple on this question. If it's above ground, it's surface water. If it's below ground, it's ground water. So in my view, unless -- but again, I'm, you know -- the person in that position is constrained by how rights have been legally established, and had they been established as ground water, whether they were above ground or below ground. That's how they would have been treated. But, you know, absent that, my view would be they are surface water, because they are diverting from a water source that is above ground.
Q. And then how would you treat an artesian well?
A. Even in the case of an artesian well, even where the water is being expressed above the surface, the point of diversion is below the surface.
And when I say, it's above the surface, it's surface water, even if it's deriving the water from ground water. That's not unlike a

surface water diverter diverting from the Snake River from using water that's supplied by reach gains.
So, you know, if you are diverting from the reach of the Snake River that's clearly a gaining reach, the gains are coming from the aquifer. That's where the gains are coming from, but the diversion is still surface water.
Q. Okay. So if the ground water pumper is diverting, because his pipe is below ground, that would clearly be ground water?
A. In my view, yes.
Q. But if the flows were coming out by reason of artesian pressure because it emerges at the surface, you would consider that surface water?
A. No, because the artesian well was completed in ground water.
Q. I guess you consider an artesian well ground water, then?
A. Yes.
Q. In your view, does the Department have discretion in administering hydrologically connected ground water and surface water in a manner that makes hydrological sense, or

hydrogeological sense?
A. Yes.
Q. When you administered these calls, how did you give consideration to the applicability of the principles under the Ground Water Act that state that reasonable pumping levels must be established?
A. That really wasn't, in my mind, a factor that I considered in administering these calls. In my mind, that would be more of a factor in administering calls between ground water to ground water rights. And in addition to that, as you know, there are no reasonable ground water levels that have been established.
Q. So when a surface water user then, such as the spring users, considered to be surface water users, make a call against the ground water users, is the Ground Water Act applicable that deals with maximum beneficial use, full economic development --
A. Of course --
Q. -- is it considered in that regard?
A. Of course it's applicable to the extent it's not in conflict with other law.
Q. With respect to these reasonable means

of diversions of the spring users, the determination, as I understand it, is one that you made in advance, that they shouldn't be required to have to drill wells and improve their diversions?
A. Yes. But when I say, I made it in advance, it's because I considered the outcome of what would happen. And I tested that with, you know, other employees here at the Department that had hydrogeologic expertise in terms of what would be the result.
Q. So was that made simply as a general conceptual policy/procedure, or was there some kind of analysis of the costs involved in drilling wells, or anything of that nature?
A. No, it was really conceptual policy level determinations.
Q. And with respect to the feasibility of recirculating water in the analysis of the costs and feasibility of that, that had been performed by the Department, that you know of?
A. Not that I know of.
Q. In the course of responding to these delivery calls, did you make any attempt to try to compare the inflow records of water into these

facilities with their discharge records?
A. Well, in some cases, the measurements are made at the discharge location, not the inflow location. Now, I don't recall exactly which facilities those are. But because the uses are nonconsumptive, other than diminimus evaporation, these rights are administered as though inflow equals outflow.
MR. BUDGE: Do you want to take a ten-minute break?
THE WITNESS: That's fine.
(A recess was had.)
MR. BUDGE: Let's go back on the record.
Q. (BY MR. BUDGE) So before we leave this reasonable means of diversion topic, would you agree that it may be physically feasible for the spring users to drill a well, either vertical or horizontal, to improve their supplies, and that's not a matter that you investigated or analyzed as to whether that was economically feasible, because you had made a previous decision not to go down that road?
A. Yeah, I had decided previously that it was -- that such a course was not reasonable.

Q. But you wouldn't disagree that it may be physically feasible to drill a well of some sort to improve their supplies?
A. Well, hypothetically, it's physically possible. Whether it's physically feasible, we didn't look at anything that specifically.
Q. As I understand, you made an analysis of the changes in the spring discharges that supplied Blue Lakes and Clear Springs, comparing the pre-development discharges with the post-development discharges?
A. Whose development?
Q. Well, take your choice, either Blue Lakes or Clear Springs. And I was talking, generally. You made a general analysis of spring discharge in the Thousand Springs Reach to try to compare discharges in that reach with the pre-development period as contrasted with the post-development period?
A. I don't think that's accurate. What I did was I looked at the documented measured diversions to beneficial use that had made through -- in some cases, the development of the permit period but certainly up to the point of licensing, but I wouldn't call that

pre-development.
So we did an analysis of spring discharge during the period of development up through licensing, and we contrast -- we compared, or I compared, those measured discharges with what had happened since licensing.
Q. And why did you consider that to be important?
A. Well, it was, and still is my view, that the maximum quantity authorized to be diverted under a water right has to have been diverted and applied to beneficial use. And when you look into the history of how these spring rights were being licensed, many, if not most of the holders of these rights, sought to have the rights licensed at the time that the spring discharge was a maximum, because they were trying to -- I mean, presumably, they were trying to maximize, or get the largest authorized maximum diversion rate that they could, that they could demonstrate that they diverted and applied to beneficial use, and that's perfectly appropriate.
But I was looking to confirm that the quantity that was licensed had actually been

diverted and applied to beneficial use. And then I wanted to see how that had changed with time subsequent to being licensed.
Q. And from your evaluation, was it your view that they had been licensed based upon an actual quantity diverted and applied to beneficial use, as opposed to some projected expansion of spring facilities that would enable them a use of supply?
A. In these particular calls, I was convinced that they had actually diverted the quantity that had been licensed, and applied that quantity beneficially.
Q. And I believe you also made an analysis that gave rise to Attachment A to both orders, which is the average annual spring discharge to the Snake River Thousand Springs Reach looking at a 1902 to 2004 period?
A. Yeah, that graph in Attachment A was generated from USGS data that is collected and evaluated -- I'll say, evaluated. It's collected and processed annually, and it has been for a long period of time. And it provides a useful indicator of what the total spring discharge is in the Thousand Springs area, which comprises

many different individual springs in a number of specifics, what we call, spring reaches, which is an assimilation of various spring complexes.

Q. So was Attachment A something you had generated, or was that simply reproduced from something that USGS or the modeling folks generated?

A. I generated Attachment A using a plot that was provided to me by one of the hydrologists here at the Department, who had obtained the data directly from the USGS.

Q. And why was the time period, commencing with the time period of 1902, selected as opposed to some earlier date?

A. To my knowledge, that's the earliest date that these cumulative spring measurements had been determined. I'm not aware of any data, other than perhaps some qualitative data that may exist in some of the USGS reports. But this is the first quantifiable data that I'm aware of.

Q. And would irrigation have been occurring on the East Snake Plain Aquifer prior to 1902?

A. Yes.

Q. And when would that have commenced,

approximately, if you know?

A. Oh, boy. The mid -- I don't recall the exact priority date of the earliest right for irrigation on the Eastern Snake Plain, but it's in the mid 1800s, 1850s, more or less.

Q. So was it your opinion that Attachment A and the discharge levels in the Thousand Springs Reach depicted the early use of this graph in 1902 would have already been exhibiting some influence from flood irrigation practices on the plain?

A. Potentially, but we don't know.

Q. Would you have reason to believe, or could you form an opinion as to whether or not the discharges in the Thousand Springs Reach would have been likely lower or higher in the years prior to 1902 as a result of the influence of incidental recharge from irrigation?

A. I don't have a basis to form such an opinion. In the public statements that I've made on this subject, you know, I presumed that the early years of this sequence provided total average spring discharges of about 4,200 cubic feet per second. And that, you know, to the best that I know, that's probably close to what the

pre-irrigation condition would have been. But that's not to say that there couldn't be some influence from early irrigation. There could be. But in 1902, the surface water irrigation on the Eastern Snake Plain had not been fully developed.

Q. In looking at this Attachment A, that reflects the flows' increase over time from 1902 up until 1952. Can you describe what you would believe to be the cause of that increase reflected in Attachment A?

A. Let me look at this for you for a minute. When you look at the sources of recharge to the Eastern Snake Plain Aquifer, which then becomes the source of water for the springs discharged in the Thousand Springs area, the orders that I had issued in these matters define the source of recharge for the aquifer as being in order of magnitude, incidental recharge associated with surface water irrigation, precipitation, underflow from tributary drainage basins, and losses from the Snake River and tributaries.

So when you look at which of those factors could vary so significantly to cause the spring discharge, the accumulative spring

discharge increased from around 4,200 cubic feet per second to somewhere around 6,800 cubic feet per second in the early 1950s.

There was no indication that precipitation was changing that much. Underflow from tributaries is subject to both precipitation and irrigation practices in those tributary drainage basins. And there is no reason to believe that the losses from the Snake River were changing that much.

So the only factor by process of elimination that this increase could reasonably be the result of, is incidental recharge from surface water irrigation.

Q. And if you look at the period from the early 1950s on forward, where you see steady declines in those discharges, what would be the factors that you believe were causing those declines?

A. Well, again, there is no indication that precipitation was varying that significantly across that entire time period. And, again, by a process of elimination, you are left with two things that were happening.

First, beginning in the early 1950s,

the data that the Department has shows that the development of ground water began increasing dramatically, very dramatically in the early 1950s. And the second thing that began occurring at that period of time, is that the surface water irrigators began converting from flood irrigation to sprinkler irrigation.

So two things were occurring. There was a reduction in incidental recharge associated with surface water irrigation, because the amount being diverted for surface water irrigation decreased, because of the use of sprinkler systems.

And then secondly, the amount of ground water being withdrawn for irrigation was also dramatically increasing based upon the numbers of permits for ground water appropriations that the Department was issuing. And so those two factors combined to reduce the amount of water that was going into the aquifer, at the same time that the amount of water that was coming out of the aquifer for ground water irrigation was increasing.

Q. And when you talk about conversion to sprinklers, some of the records produced in the

Surface Water Coalition calls indicated that the North Side Canal Company had converted from being 100 percent flood irrigator at one point in time to now, where they are 85 percent sprinkler irrigation. Would that be the factor you are referring to?

A. That would be correct. I can't speak to whether it's 85 percent, or something less than that. I don't know.

Q. And during this same time period, 1950 on, was there a significant reduction in the diversions by all the canal companies, or most of the canal companies throughout the Eastern Snake Plain into their systems as well that would be a contributing factor to that reduction?

A. Well, the canal companies began converting to sprinklers at different points in time. I mean, for example, the canal companies in the uppermost portion of the Snake River, some of them did not convert to sprinklers until after the Teton Dam failed.

And when those irrigation systems were replaced following the damage associated with Teton Dam, they went back in -- many of them went back in as sprinklers. So I don't think you can

say that all of the canal companies began converting to sprinklers at the same time uniformly during that time period. There were different factors that were causing it to happen in different systems. But it was happening.

Q. And after Palisades Dam was built in the late '50s, there is indication in the records that all or most of the canal companies, a number of them, entered into these so called winter water savings agreements, where they ended the practice of running water in their canals in the summer. And by contract agreed to store them in the reservoir system. Would that have also been a factor?

A. That also would have contributed to the decline in reducing the time period that water was diverted in these canal systems. It would have reduced the incidental recharge associated with the canal losses. However, even though that is a factor, I think the two larger factors are the development of ground water during that time period, coupled with the loss of incidental recharge associated with conversion to sprinkler systems.

Q. I think you made the comment earlier,

something to the effect that the Department would not have any authority or right to compel the resumption of those inefficient irrigation practices that existed prior to 1950. Can you explain what you mean by that?

A. Well, first off, I would characterize them as not necessarily being inefficient, but less efficient, because the standards -- certainly, what's efficient changes with time.

The rights that had been established for surface water irrigation, many of them had already been decreed by a court. And the Department does not have the authority to go behind the decree and determine that something has -- basically, the Department can't come in and unilaterally change the quantity that's been decreed as the maximum amount that's authorized to be diverted.

But having said that, regardless of whether a right has been licensed, or decreed, or for what quantity, the right holder is not entitled to divert water to waste. In other words, they can only divert, under my understanding of the prior appropriation system,

they can only divert what they need. They are not allowed to divert substantially beyond the need for purposes of waste.

But at the same time, so long as the irrigator is not employing a wasteful practice, the Department doesn't have the authority to require an irrigator to implement a more efficient means.

So in today's context, sprinkler systems are generally viewed as an efficient means of irrigation. A more efficient means of irrigation in some instances could be a drip system. But the Department does not have the authority to compel use of a drip system. And on the other side of the issue, just as we can't compel a more efficient use of a drip system, we can't compel an irrigator to go back and use a less efficient means of irrigation based upon how that right was originally established. That's not within our authority to do.

All that we can look at is determine whether or not the diverter is diverting the water for a beneficial use, and whether or not there is an unreasonable amount of waste associated with that. But in terms of requiring

an irrigator that's converted to a sprinkler system to readopt flood irrigation, that's not within the discretion or the authority of the Department.

Q. So if I understand your earlier comments, although one may have an authorized a decree of quantity of water right, the concepts of wastes and beneficial use would still be considered limiting factors?

A. Absolutely. You know, generally, in the west, including Idaho, you know, generally followed Colorado's implementation of the prior appropriation system, that statement is correct.

Q. You indicated earlier that you had actually looked at the individual rights for the Blue Lakes facility and also for the Snake River Farms' facility owned by Clear Springs to determine to what extent their discharges may also have changed from the time their rights were established. And I think some of those findings of that analysis would be reflected in your findings of fact in the order?

A. Correct.

Q. And generally, would it be accurate to say that the discharges from those springs

diminished over time consistent with the pattern of the overall discharges in the Thousand Springs area shown in Attachment A?

A. More or less, that's correct. But the pattern shown in Attachment A reflects the cumulative discharge from all spring complexes, and not all spring complexes diminished or changed in discharge to the same extent. It depends on the particular spring complex, and the geologic factors associated with that spring complex, coupled with the other things that were changing/affecting the amount of recharge to the aquifer system.

Q. Looking at Attachments C and D, which is a graphic depiction of flows of Snake River Farms in C, and Crystal Springs Farms in D. Can you explain the significance of the period analyzed, which only went back to 1988 in these attachments?

A. Well, Attachment C goes back to 1988, and Attachment D goes back to 1978. There really is no significance to the time periods, other than this is all of the data that we had available at the time that these orders were issued. This was all that we had. And most of

these measurements were self-reported by the spring user. So it reflects when they began -- I won't say maintaining -- but when they begin at least submitting their measurement records to the Department.

Q. Would it be a more accurate way to analyze what had happened to their flows, if you had this same information going back from the day each right was established?

A. That would be a more complete picture. But I don't know that it would be more accurate. I mean, it's limited, because of the data that's available. But it's not less accurate. It just isn't as complete of a picture.

Q. You considered the information you had available on this particular time period to be sufficient for purposes of the findings you made and the conclusions you made?

A. Coupled with the additional measurement information that was available in the water right records upon which licensing was based.

Q. We talked about various factors that would cause a decline in the spring flows at these particular discharges at Snake River Farms and Blue Lakes, as well as the Thousand Springs

area as a whole, was there any attempt made by the Department to quantify what portion of the diminished flows would be attributable to one factor or for another?

A. Only in general terms. We did do some work, and I don't have it with me, and I can't tell you exactly where it's located in the Department's files. But there was some analysis done of the relative magnitude of the changes that were occurring.

And our conclusion at that time was that the largest change, in terms of quantity of water, was associated with the loss of incidental recharge. But having said that, that may have been the largest. But that certainly didn't render the amount of depletion that was occurring from ground water withdrawals to be insignificant. They were both major factors.

Q. And the reason that the quantification of the impact of ground water pumping was analyzed on the model was because that was the one factor you would have control over?

A. Correct.

Q. Did you see any reason --

A. Let me qualify that, though.

Q. Okay.

A. It's correct to a point. I mean, although the Department can't control and require less efficient use of surface water to increase incidental recharge, certainly recharge is a beneficial use in Idaho. And we certainly can use the model to evaluate the effects of intentional recharge conducted pursuant to water rights for that purpose.

Q. Would you agree that junior ground water pumpers should only be responsible for the depletion they cause that results in material injury to a senior user?

A. Yes.

Q. And so you would agree that the water right holder making a call should not be able to, by curtailing ground water pumpers, a supply of water that would be greater in quantity, or greater in certainty than they had at the time their right was established?

A. Well, in general a right holder is -- the principle in the prior appropriation system, is that a right holder is not entitled to enhanced hydrologic conditions, or an enhanced water supply of conditions beyond what existed

when they made their appropriation.

But to the extent -- I have to qualify that -- to the extent that ground water depletions are reducing the quantity available to a senior-right holder, and that quantity is within the authorized maximum use authorized, and that quantity, if it were available, would be beneficial used, then the junior ground water right holders would be responsible that their depletions would be construed to be injury.

Q. Well --

A. But only up to the extent of the depletions. The ground water users can't be responsible for the amount of water available beyond what's being removed from their depletions.

Q. And doesn't that underscore the importance of and significance of going back and looking at these supplies that were available when their water rights were established to understand intra-year variations and inter-year variations, to make sure that you aren't trying to curtail ground water pumpers to supply some quantity, or some level of certainty, that they wouldn't have under conditions unaffected by

ground water pumping?

A. Well, not necessarily. I mean, I don't think it -- these other factors that make this so complex, the inter-year variations, the intra-year variations, those go to the difficulty in determining whether ground water depletions are or are not causing injury.

But if the ground water depletions are causing injury, that's the level of responsibility that resides with the right holder. And if their depletions are causing injury, they either need to mitigate that injury or curtail. And that's regardless of what other factors are affecting the water supply available.

Q. What you described is essentially the bottom line of the difficult issue you had to decide in this case. That being, exactly what portion -- well, I suppose the threshold question: Is a material injury occurring? And if so, what portion of that is attributable to ground water depletions, if they are responsible?

A. I would probably phrase it a little differently. I would say, what's been the reduction in water supply available to the seniors? And what portion of that reduction is

attributable to ground water depletions, and would be then potentially determined as being material injury?

Q. Let's look at the futile call doctrine, which was defined in Conjunctive Management Rule 20.04.

A. (Witness complying.)

Q. The second sentence of that states that, "The principle futile call applies to distribution of water under these rules."

And I suppose you've spent considerable time analyzing the definition of "futile call," which I think is in 10.08 of the rules back on page 3?

A. That's correct. And this definition of a futile call is consistent with the Department's and with my application of the doctrine in other settings. The Big Lost River being probably the one where this has come up, at least during my time here, the most frequently.

Q. And when you look at that definition in 10.08 of "futile call," it talks about after being satisfied within a reasonable time of the call by immediately curtailing diversions.

The time factor becomes pretty

significant under that definition. And would you agree? Meaning, the time factor in the response to the call?

A. I would. But I would point you back to Rule 20.04, after the sentence that you were referring to. Where it says, "Although a call may be denied under the futile call doctrine, these rules may require mitigation or staged or phased curtailment of a junior-priority use if a diversion and use of water by the holder of the junior-priority water right causes material injury, even though not immediately measurable."

And how I would characterize that provision, and I agree with it, is that in a surface water system, just surface water rights to surface water rights, if a call is futile, there is no injury.

Q. Okay.

A. But in a ground water system that's hydraulically connected to a surface water system, the call could be futile, because of the time period in which water would be made available to the senior. But because of the time delay in depletions, there may still be injury, even though the call is futile.

And that's why I believe my predecessor crafted the rule the way he did. Okay. The call may be denied under the futile call doctrine, but that doesn't mean that there is not injury that requires mitigation.

Q. So in responding to these particular delivery calls, how did you apply that futile call doctrine in arriving at the priority date, the trim line drawn, all those factors, which I assume came into consideration?

A. The orders that I issued did not focus on futile call. They focused on injury. And so to the extent that ground water depletions were causing injury that had not been mitigated, then the options that were laid out were curtailment by priority irrespective of the futile call, replacement of water directly to the ground holder, mitigation to the spring reach in general, or substitute curtailment.

Q. When you read under the Rule 20.04, the call may be denied, you were interpreting that you may have the discretion to deny it on the ground of futile call, or essentially, look at what the impacts might be, and then require some mitigation of those impacts?

In other words, that was a discretionary decision that you made not to apply the futile call doctrine?

A. I'm not sure I would say it was entirely discretionary, because I made the determination that injury was occurring; and therefore, it didn't matter whether the call was futile or not. The injury had to be mitigated. And absent mitigation, curtailment was the only course that could be implemented.

Q. Then how do you explain the trim line that was drawn? That if pumpers were outside the trim line, they were not subject to the call. And if they were inside the trim line, they were not subject to the call. That doesn't consider the futile call doctrine in the sense that you have to look at the time delay of water being delivered from some remote distance.

A. Time delay was not the issue in the trim line. The trim line was established based upon the uncertainty in the simulated depletions resulting from model calibration, the uncertainty in depletions from those ground water diversions. I didn't say that very succinctly. Let me try that again.

The trim line was based upon the uncertainty and the simulated depletions associated with ground water diversions given the uncertainty in the calibration of the ground water model. It had nothing to do with time. Because the uncertainty was evaluated at a steady state, not under transient conditions.

Q. On that particular subject then -- and we'll get to it later in your findings -- was this plus or minus ten percent certainty?

A. Correct.

Q. And that's what you considered to be the calibration of uncertainty?

A. Correct.

Q. And would that be based upon the lack of procedure, or uncertainty, or preciseness of the ability to measure the gages that were used for purposes of calibration of the model?

A. Correct. The model can't be -- the certainty of the model can't exceed the certainty of the data to which the model was calibrated. And the determination that we made was the most uncertain components of what we were calibrating to, were the measured reach gains based upon USGS stream gages. That while those gages are rated

as good by the USGS, that the uncertainty in a good gage is plus or minus ten percent.

Q. So when that calibration occurs, is it occurring to multiple sets of data from multiple measuring points?

A. The calibration sought to match the model simulations to 20 years -- 22 years, I believe, of recorded reach gains determined from these USGS stream gaging stations, and ground water levels, thousands and thousands of ground water levels across the plain. And more importantly, perhaps for this -- well, not more importantly. Just as important for this is the measured spring discharge, which we were very interested in having the model replicate.

Q. So if these gages that we're using in the calibrations, were considered to be a "good rated gage" by USGS, that meant that they would have an accuracy of plus or minus ten percent?

A. Yes.

Q. So they could be off anywhere from a plus ten to a minus ten, that would be the range?

A. That's correct.

Q. And does it make any difference if you have multiple gages, or a single gage that's plus

or minus ten percent when you try to determine that accuracy level?

A. Well, this was not based upon a single gage. I mean, the determination of a reach gain or loss requires two gages. So what we're saying is that when you are looking at the mass balance between two gages, the results of that mass balance could be off ten percent in either direction just because of the inability to measure it more precisely in the natural environment that these gaging stations are located.

Q. Now, if the futile call doctrine was not considered, is what you are saying, when you made the decision where to curtail, you didn't give consideration to the time factor of when water from a particular curtailed well might arrive at a springs?

A. We did.

Q. Was that through the model's replication of when steady state would occur?

A. No. I don't remember which rule it is. I probably can find it here.

Q. Are you talking about the phased-in?

A. Correct.

Q. That's 40.01.a.

A. Okay. 40.01.a does allow the phased-in curtailment over a period of not more than five years. So when we looked at -- when we determined this clipped area, based upon the ten percent uncertainty in the gaging, essentially, clipping out ground water uses and diversions where less than ten percent of the depletion was expressed in the hydraulically connected surface water sources, clip those out.

Q. Okay.

A. Then we looked at what would happen if ground water use within that remaining area was curtailed, how much water would accrue to the hydraulically connected surface water sources after one year, after two years, after three years, after four years, and after five years, as well as at steady state. And, actually, it was primarily at steady state. The transient condition was not given as much weight as the steady state was.

Q. Okay.

A. So then we said, okay. That's the most that the senior surface water rights would realize from administration of their delivery

call. We clipped the ground water use down to the area where we're certain injury is occurring. The most it could -- that could -- that the surface water users could realize is water that would accrue from curtailment in that area where we're certain water would result, and that can be phased in over five years.

So then we went in terms of replacement water or mitigation, at least -- yeah. In terms of replacement water mitigation, we said, okay. If the ground water folks can provide a like quantity of water to the spring reach, through whatever -- whether it be conversions from ground water irrigation to surface water irrigation, intentional recharge, substitute curtailment, whatever they can provide, as long as at steady state it would equal the amount that would accrue during that phase of curtailment, they would be allowed to continue to divert out of priority. So even in that instance, we did not focus on the futile call. We focused on the depletions at steady state.

Now, having said that, I want to go back and look at a provision in the order to make sure that I've stated this correctly.

Q. Go ahead.

A. I'm looking for the order of Blue Lakes, and I'm not finding that.

MR. SIMPSON: Karl, I think that would be somewhere in the thirties.

THE WITNESS: Okay. Well, let me continue looking at the Clear Springs. Phil's got it.

MR. RASSIER: It's Exhibit 33.

THE WITNESS: Okay. I won't ask you to read back what I said. I think what I said was right. It was based upon, in all cases, steady state conditions.

Q. (BY MR. BUDGE) I apologize for being slow in understanding this trim line. But did I understand you correctly that you were looking to determine if ten percent of the curtailed water was going to show up in the reach within one year, then they would be subject to curtailment?

A. No. Ten percent in steady state conditions.

Q. Ten percent at steady state conditions. Okay. And what would those steady state conditions be? What kind of a time period is that?

A. It depends on the proximity of the well. I mean, steady -- if the well is close, located very close to the springs, steady state conditions could occur very quickly in a matter of a year, or a few years. But then the further back away from the springs or any connected reach of the Snake River you go, then it takes longer to reach steady state conditions, and that could take 30 years if you get far enough back.

Q. So any well, which if curtailed, resulted in ten percent of that amount showing up at the reach based on the model at steady state, would be subject to curtailment?

A. State that again for me, please.

Q. Well, I'm trying to understand. If a well is to be curtailed, your decision would be made based upon whether or not the model would show -- ten percent or more of the depletion from that well would show up in the reach at steady state, that would be subject to curtailment?

A. Correct.

Q. And if it was less than ten percent would show up at steady state, they would not be subject to curtailment?

A. That's correct. And let me describe

the principle involved with that. You know, the senior water rights clearly have the first opportunity to use the available water supply if they can use it beneficially without unreasonable waste.

And the juniors have, if you will, secondary rights. You might characterize them as secondary rights. But even though they are junior or secondary, they are still real rights. And when I say, "real rights," they are real property rights.

And although government has the authority to regulate real property, it cannot do so carelessly without certainty. And so the reason that this trim line was used was to focus on the ground water rights that were causing -- that we were certain were causing injury, not those that may or may not be causing injury.

And so we were willing to defend our determination, that within that area clipped with this ten percent, the remaining rights in that area, we believed we could defend were causing injury with certainty.

In the gray area -- not the gray

area -- not a good characterization. In the area that comprised this area that was clipped out under this ten percent criteria, curtailing ground water in that area, whether or not it would produce any meaningful supply at steady state conditions, notwithstanding the futile call, was uncertain. And beyond that area, we were certain that curtailing ground water would not provide a meaningful supply at steady state conditions.

And then the flip side of that is that we applied the same criteria to mitigation actions. And we were not willing, or we didn't believe it was appropriate -- I shouldn't say "willing." That implies discretion. It wasn't appropriate to give credit for mitigation, unless we were certain it would produce water.

And so, again, in this ten percent zone, mitigation in that area, we couldn't be certain that it would produce meaningful water at steady state conditions to the senior-right holders.

So on the one hand, we clipped out the potential for curtailing real property rights where it was not certain that there would be any

meaningful benefit to the senior. And on the same token, we clipped out mitigation areas where we weren't certain that it would provide a meaningful benefit to the senior-right holder.

But, you know, it goes to the simple principle that you don't curtail rights that you are not certain will produce results. You don't give credit for mitigation that you are not certain will produce results.

Q. I think you answered the question, but I'm going to ask it another way. The consultants -- I think all the consultants for the spring users have criticized the ten percent principle, and have asserted that the ten percent principle and the trim line is arbitrary and capricious.

What would you say in defense of that principle? Maybe what you've already said, but I wanted to ask you from that kind of question --

A. Well, it wasn't arbitrary. It was based upon analysis and evaluation and professional judgment conducted by myself and Allan Wylie, and I relied heavily on Allan Wylie, as a -- well, he has a Ph.D. in hydrology, and I can't recite the specifics of his academic

training. But he certainly would have to be considered an expert in this whole area. And I relied on his recommendations, but applying my own professional judgment.

So is it arbitrary? No. Is it a judgment? Yes. But to do otherwise would have put us in a position where we would have -- were potentially going to curtail rights, where we weren't certain it would produce results, and I think that action is contrary to law.

You don't curtail junior-priority rights to see if it might make a difference. That's not the standard. You curtail junior-priority rights when it will make a difference.

Now, how can I say that so definitively? That's what the futile call doctrine is based on. It's exactly what it's based on. Under the futile call doctrine, you don't curtail a junior just because he's junior, just because he's diverting from the same source, or just because he's diverting from a hydraulically connected source.

You curtail the junior if it will make a difference to the senior, a substantial or a

measurable difference. I'm not sure what right -- maybe substantial isn't the right level. But certainly measurable is the right level, and if it doesn't make a measurable difference. Or if the senior is not in a position of using the water beneficially without waste, you don't curtail the junior. Because if you do, what you end up doing is wasting the resource.

And, you know, it's not necessarily directly applicable. But, you know, in Colorado this past year, junior-priority well owners in the South Platte River were curtailed. And something on the order of 40,000 acre-feet of water went down the South Platte, out of state, unused, because these juniors were curtailed.

And, you know, you have to ask the question: Why? Because that 40,000 acre-feet under the applicable laws in Colorado and under interstate compacts was available to be used in Colorado, but it wasn't, because the wells were curtailed.

Q. And that would be an example that you would say, the principle of wastes would be violated?

A. Not wastes. No, not wastes.

Q. Of beneficial use?
A. Well, no. Let's go back to the -- to some of the -- to a central principle in the prior appropriation system. Certainly, the core principle that everybody points to is first in time, first in right.
But an equally important principle is the principal of what in Idaho law is called "optimal use." In Colorado law, it's called "maximum utilization." In the Ground Water Act, it's referred to as "full economic development."
And the idea, or the principle involved is that water in the West is scarce. And we're going to give -- we're going to provide a system that provides certainly for the seniors, but yet allows for the full, or optimal, or maximum use of this limited resource.
And as a result of that principle, we allow juniors to come in to the system and appropriate water that's been unappropriated, or is otherwise not being used. If it weren't for this principle of optimal, or maximum, or full economic development, you would reach a point where you wouldn't let the juniors in. Why? Well, because the seniors might need the water

someday.
But that's not how the system works. We don't preclude a junior from appropriating unappropriated water, because the senior might need it. We allow the junior to appropriate the unappropriated water, recognizing that that junior may, under some set of circumstances, be curtailed, so that the senior is able to divert the water to which he was entitled to first.
Q. And what you just described seems to be exactly what Rule 20.03 is trying to embody, using the concepts of what you said, optimal development of resources in the public interest, it's reciting -- Article 15, Section 7 of the Constitution, cites, "full economic development," and we have public policy of reasonable use in the water.
So all of those Rule 20.03 factors are what you are describing, and what you were giving consideration to when you made your decision and adopted the ten percent trim line at steady state?
A. That's correct.
Q. And would that be to the extent that you gave consideration to this concept of full

economic development?
A. No, I wouldn't say the trim line was the only expression of that. I mean, the whole approach that was outlined in the order was attempting to provide for optimal use or full economic development.
Again, you go back to the alternatives that the junior ground water holder will get. You're junior. You are causing injury; so therefore, you face curtailment. Unless what? Unless you can replace the amount of water associated with your injury directly to the senior-right holder, or you can provide an equivalent amount of water to the reach through mitigation activities, whatever those might be, or you employ subsequent curtailment, rather than have the state curtail strictly based upon priority.
Ground water districts that were created largely for the purpose of mitigation, if you are able to reach agreement amongst yourselves on which acres will be curtailed that will produce an equivalent amount of water at steady state conditions to what would have been achieved through curtailment by priority, fine.

And the concept of replacement water, mitigation, or substituting curtailment, those were all founded on this principle of making optimal or maximum utilization of a resource.
Q. In 40.01.a in dealing with this same concept, response to delivery calls, it indicates that the director has discretion in phasing in a curtailment over not more than five years to lessen economic impacts to meet incomplete curtailment.
And I believe that's the rule you relied upon in providing for the five-year impact?
A. That's correct.
Q. And the economic impacts would have been to those curtailed ground water pumpers, who essentially, have no supply at all once the curtailment occurs?
A. It's not just them. It's not just the ground water irrigators. It's third-party impacts.
Q. Explain all those economic impacts that you believe would be relevant.
A. Well, I mean, certainly, there are direct economic impacts to an irrigator that's

curtailed and not able to raise irrigated crops, and has to look at dry land crops or no crops as an alternative. But then there are third-party impacts to that -- resulting from that economic impact. The loss of purchasing power by the farmer, potentially the loss of -- well, not potentially, the loss of tax revenues. Eventually, if the land is no longer deemed to be irrigated land, there is a loss in property value, and there is an associated loss of property tax revenues.

And, again, I don't have to go very much farther than where I currently reside to see those impacts firsthand in the South Platte Basin. There are the irrigators there, they are junior in priority. Remember that. But they are on the verge of going under, because it's been a couple of years, several years -- a couple or several years since they've been able to irrigate.

And those communities are suffering. Those farmers aren't buying fertilizer. They are not buying seed. They are not buying new implements. School teachers are moving out. Property values are plummeting. And, you know,

and it's on a smaller extent than what we were looking at here. There is something on the order of 1,300 wells more or less involved in the curtailment in Colorado. But the consequences are real.

But having said that, those right holders are still junior, and they do have a secondary right. But there are economic impacts of curtailing those junior users in preference to the senior. They don't overcome the seniority of the right. That's not the point.

But in this particular rule, this five-year phase-in, I think that's what it was aimed at. If curtailment was necessary to protect the senior-priority rights, that it was given the delayed impact from ground water depletions, or conversely, the delayed impact from a lack of those depletions, or the delayed benefit from the lack of those depletions, it was reasonable, at least under the crafter of the rule, that curtailment be phased-in to allow both the right holders and their communities time to prepare and adjust.

Now, some could argue -- and you didn't ask me a question, but I'll go on here a little

bit.

Some could argue that there is no such provision in the administration of a surface water source. And they are right. Why isn't there? Because surface water has always been administered this way. They knew it going in when they got their secondary right.

And although Idaho law has recognized the potential for hydraulic connection between ground water and surface water dating back to the enactment, the first enactment of the Ground Water Act of the 1950s, the truth is, before these delivery calls were made and I issued these orders, ground water in Idaho was treated as a separate source and not administered that way.

Now, you can argue, should it have been? Could it have been? You know, from my perspective, that doesn't matter. I wasn't here. There wasn't anything I could do about it. You know, when faced with the need to take action, I did. And, of course, one can see what happens when you do your job.

Q. Let me just ask one more question before we leave this economic issue, and then maybe we can take a lunch break.

A. Sure.

Q. In your attempt to give some considerations towards the economic impacts required by this Rule 40.01.a we've been looking at and other rules, did you rely upon any of the economic studies that have been presented as to what the economic impacts would be on those communities who were faced with curtailment of acreage?

A. I'm going to say, no, based upon my recollection that the economic study that the State commissioned was done after these orders were issued.

Q. Okay. You wouldn't disagree that if you had that information available at a full hearing, that you would consider it to be relevant?

A. I would consider it to be relevant. But I have to say that, had I had that information available at the time that I wrote these orders, I wouldn't have done anything differently. You know, from my perspective, I went as far as I could on the economic issues by allowing for the five-year phased-in curtailment. That's as far as I could go.

The rights were still junior. If they couldn't mitigate, the only option for the State was curtailment, unless -- you know, I mean, obviously, the State took over other courses of action attempting to provide other alternatives for the ground water users, the CREP program. The CREP program was a form of voluntary curtailment that could have replaced the need for involuntary curtailment.

MR. BUDGE: Let's go off the record.

(A lunch recess was had.)

Q. (BY MR. BUDGE) Back to our rules. There are a number of rules that deal with the concept of material injury, 20.01, 30, 40, 42. Do you consider that determination of what constitutes material injury to be a factual issue, or a legal issue, or some combination of both?

A. Depending upon what you mean by "legal injury."

Q. Material --

A. Subject -- excuse me. Yeah, depending on what you mean by "legal material injury."

Q. Okay.

A. Subject to what you have in mind, I

would say, it's a combination of both. But having said that, you know, I don't differentiate between material injury and injury.

Q. Okay.

A. If the injury isn't -- if there isn't -- if there is injury, it's material. And if the injury isn't material, then there is no injury. So I just -- to me, they are -- it's an unnecessary distinction. There is either injury or there isn't. And if it is, it's material.

Q. Do you consider this determination of whether a material injury has occurred under the rules to be the first or threshold decision you have to make in response to a call?

A. Let me look at the rules.

Q. Maybe look at Rule 20.01, Exhibit 37. I asked that based on -- so you can look at these first. 20.01, it's on page 4, which is the "General Statements of Purposes and Policies for Conjunctive Management Rules."

And then you can then look at 30.01 that deals with responses to calls. It states, "When a delivery call is made by the holder of a surface water or ground water right alleging that by reason of diversion of water by the holders of

one or more junior-priority ground water rights a petitioner is suffering material injury, the petitioner shall file with the director a petition," so on and so forth.

I think the next rule would be 40.01 in the responses. It talks about, "And upon a finding by the director as provided in Rule 42 that material injury is occurring, the director through the watermaster, shall:" And then describes what has to happen. Am I jumping ahead of you on that?

A. Well, let me start with 21. That really is a general statement of purpose of policy. It doesn't really provide any indication as to how to appropriately respond.

Rule 30 doesn't apply, and I didn't apply it, because it only applies to areas in the state that are not in organized water districts, and these calls didn't involve such rights.

Rule 40, I think makes it clear. Rule 41, that the threshold issue -- the initial threshold issue is a finding that there is injury. It says -- it uses the term, "material injury." But, again, from my perspective, there is no difference.

But then Rule 42 sets forth the factors that have to be considered -- well, that may be considered. I shouldn't say have to be -- factors that may be considered in making the determination whether injury is or is not occurring.

So, yes, the initial issue, the threshold issue is whether or not there is injury. But in making that determination, at least in my orders, I considered all of the factors enumerated in 42.01. The amount of water available in the source, the effort or expense of the holder of the water right to divert water from the source, whether the exercise of junior-priority ground water rights individually or collectively affects the quantity and timing of when water is available.

The irrigation rate of diversion compared to the acreage of land served. The amount of water being diverted and used compared to the water rights. The existence of water measured in recording devices, and so on.

And if you look at the order, you'll see that I addressed each one of those factors, A through H, in making the determination as to

whether or not there was injury.
Q. And I read in 42.01, the factors seem to indicate that you can look at all the factors, but you are not limited to doing that. And then as I read the order, it appeared, as you described, that every factor had been addressed.
Are there other factors in addition to these that went into your consideration or thought process in entering the order?
A. I don't believe so, because I was sticking as closely as I could to directly applying the rules. And, you know, as we talked about earlier, the rules certainly embody to varying degrees and in different ways, various principles of the common-law of prior appropriation. And I -- you know, I think they generally cover all of the various principles and factors that one ought to take into consideration.
Q. When these orders were entered, they all appear to have pretty much a common thread with some of the paragraphs, either identical or very close to each other, subject to whatever right or factual variations they may have.
My understanding is that all of these

orders were entered on an emergency basis as provided for in the statute. Can you explain to me the basis of which you chose to enter these orders on an emergency basis prior to having an evidentiary hearing?
A. Well, I guess there were two factors that went into this. And before I address those, let me backup a second and address what you identify, that the orders all appear to be similar. That was by design. I mean, I wasn't going to treat one party differently than another party.
There were a number of delivery calls that were before me. And I wanted -- whether people agreed or disagreed with what I had done, I at least wanted them to understand that they were treated equally with everyone else. So it was no accident that much of the basis for the orders is identical for the various delivery calls.
Now, in terms of the emergency basis, I'll talk about the junior users first. But that doesn't mean that they had the higher consideration, because they didn't. But if you consider the timing of this, of when these

delivery calls were being made, the calls were submitted after most of the junior ground water folks had made decisions about what they were going to do the coming irrigation season.
And I thought it was important and appropriate to get these orders entered on an emergency basis, so that the holders of the junior-priority rights that were subject to curtailment, knew what was -- knew what was going to happen. That if they didn't come up with mitigation or replacement water or substitute curtailment, there would be involuntary curtailment, and they better be making plans accordingly.
On the other side of the token, it wasn't so much a factor in these calls, but it was still a factor, that the holder of the senior-priority right, having had a determination that injury was occurring, I think they needed -- that they were entitled to some certainty as to what was going to happen.
I mean, was it just going to continue as it was? And if not, then what was going to be done, and what could they count on? So that was really the basis for entering them as

emergencies. It was really for the well being of both the junior rights and the senior rights to provide some degree of certainty as to what would happen while the evidentiary hearing sorted itself out.
I mean, look how much time has gone by, you know. And here we are in 2007, and we're still in the process. And, you know, I understand that the holders of junior-priority rights probably feel that they weren't given the benefits of the process to which they might have been -- which they undoubtedly feel they were entitled, and they've been asked to do things that maybe in the end didn't have to be done.
Okay. I understand that. But on the other side of the coin, I can understand folks with the senior right saying, you didn't do enough. You know, prior to a hearing, there should have been more that was done.
And, again, I was trying to properly apply the facts and the law with the balance between protecting the priority of a senior right, giving them the first preference on the one hand. And on the other hand, providing for optimal use of the resource and full economic

development. It's not easy to do.
Q. So that none of us anticipated that we'd be heading into 2008 without having that -- I'm sorry -- that we would be heading into 2008 still operating under the order that was entered in early 2005.
Let me, if I may, ask you a couple of questions, a few questions about the order itself, and where they are similar. Maybe we can just focus on the Blue Lakes order, and then I will be able to identify if there is a corresponding number in the Clear Springs order that is either identical or nearly identical.
It would be the May 19th, 2005 Blue Lakes order.
MR. STEENSON: Exhibit 11.
Q. (BY MR. BUDGE) Looking at Finding of Fact No. 5, which is the same on both the Blue Lakes and Clear Springs order. That is the one that discusses changes, and some of the changes occurred that we talked about earlier. And I think you've indicated that the data that was used to produce that graphic depiction of those changing spring flow discharges is Attachment A, based on USGS data.

I wanted to just ask you another question or two on that Attachment A --
A. Okay.
Q. -- which is referred to in Finding of Fact 5.
A. Okay. One clarification. You said "pre-irrigation conditions"?
Q. Yes. I'm just looking at that top line, "pre-irrigation conditions of the 1860s until the 1950s."
A. Okay. But the pre-irrigation conditions went up to the 1860s, in the early 1860s, certainly various rights became established. But between the 1860s and 1950s, that would not be the pre-irrigation condition. That surface water irrigation was being fully developed during that time period.
Q. Right. And I think you would probably -- and I think you've described this before, that there was not a lot of irrigation even in 1902. So Exhibit A that starts in 1902 would, for the most part, capture the development of sprinkler irrigation, even though you explained to us there was some in the late 1800s?
A. Not sprinkler irrigation, early flood

irrigation.
Q. Flood irrigation, yes.
A. Yes.
Q. Looking at Attachment A, one would try to quantify what was there around the turn of the century was somewhere in the 4,100 cfs range; correct?
A. Correct.
Q. And would that represent -- if you disregarded whatever impact the minor impact might have been from some flood irrigation prior to the turn of the century. But for the most part, would that discharge level be approximately equivalent to what you believe would be naturally discharging from the aquifer?
A. I believe so.
Q. And if one used the word "unnatural" to describe the results of man-made activities, irrigation, if you would, occurring after 1902, the rises in the discharge levels depicted on this Attachment A, if we characterized that as being the artificial increase in spring discharges, would you accept that as a characterization, unnatural?
A. I probably would use the

characterization of, you know, man-induced, or I don't know that -- I mean, the process of recharge, which is what was responsible for that, is not unnatural. But the recharge wasn't naturally occurring. It was induced by the activities of the surface -- largely induced by the activities of the surface water irrigators above the springs.
Q. If one goes over to the last year depicted, which appears to be 2003, or '04?
A. 2004.
Q. It would appear that the discharge level at that time is still something in the 5,200 cfs range?
A. Correct.
Q. And would it be your opinion and conclusion based on Exhibit A then, if the natural discharge level from the springs or pre-development discharge levels would still be in excess by some thousand cfs or so, greater than what was there from the pre-development period?
A. Yes. And that's actually addressed in Finding No. 3, where it identifies that at least during the 22-year period on which the ground

water model was calibrated, it was on average, 3.4 million acre-feet of incidental recharge occurring associated with surface water irrigation. And, of course, that No. 3.4 million is presumably in excess of what smaller amount of incidental recharge was occurring at 1902 and prior.

Q. While we're right there on Finding of Fact 4, which is the same under both orders. The very last couple of lines talks about the discharge of two million acre-feet annually in the form of depletions from ground water diversions?

A. Mm-hmm.

Q. Is that two million acre-feet number there, in fact, a depletion number and not a diversion number?

A. That's correct.

Q. And how would that have been calculated?

A. It would have been calculated as the aggregate of the ET values on a cell-by-cell basis across the model, less the amount of affective precipitation. You know, actually, I would have to go back and look to see whether it

was less affective precipitation or not. The reason I'm thinking that through again, is because it talks about depletion from the aquifer -- the precipitation would have -- had it not been for ground water irrigation, that precipitation would have been an addition to the aquifer. So this depletion I'm thinking is, as I think this through, that it probably is ET, period. It's probably just the ET aggregated across all the cells of the model.

Q. Okay. So it would be a mathematical calculation of how many irrigated acres you have from ground water, times whatever the ET factor that's ran through the model to come up with that?

A. Well, the ET would have been run through the model. It would have either been determined using the standard analytical methods that had been developed, or the metric method that has been developed by the University of Idaho using land sat. thermal base.

Q. Let's turn to Finding of Fact No. 10 in both orders. That finding appears to address the time factor concept in that you discussed the time required for depletionary effects to first

be expressed in proximity of the well at the end of the period of time over which ground water is pumped from the well over time factor type items.

And would it be accurate to say that the ground water model relies on a porous media paradigm that does not accurately reflect the geological characteristics of the aquifer?

A. No, I don't think that would be fair to say that. It depends upon the scale that you are looking at. If you want to look at the discharge from a single spring, the model doesn't represent that. What the model does conceptually is it represents this fractured geologic material with these various zones with an equivalent porous media, but on a larger scale than an individual spring-by-spring scale, is equivalent in terms of its response as the fractured media would respond.

And that's in part why the model -- it would be inappropriate to use the model to look at the effects of either ground water withdrawals, or recharge, or mitigation on an individual spring, because the model doesn't represent the individual springs.

It takes the character of this

fractured material, and it represents it as an equivalent porous media that responds in this larger scale in the same manner. And the reason that we know it's in the same manner is based upon the calibration.

Q. When you use that term "preferential pathways," can you just describe what you mean by that, and how does that get represented by the model, if it does?

A. I don't know that I used the term "preferential pathways." But water is going to follow the path of least resistance, that's for sure. So it tends to follow the less restrictive fractures and zones through the aquifer.

And so as long as you look at the response on a scale that's sufficiently larger than these individual fractures, it can be adequately represented with an equivalent porous media that has the same response.

Q. Let's look at Finding of Fact 11, and particularly the very last sentence of that finding, which is the same in both orders. It says, "However, essentially all depletions of ground water from the ESPA cause reductions in flows in the Snake River and spring discharges

equal in quantity to the ground water depletions over time."

So basically, you are simply saying that at steady state, once all the depletions work their way through the system, whether it's five years, or ten years, or 20 years, 100 percent of them are going to show up in the river itself?

A. Somewhere, that's correct. Because the aquifer system is unconfined in that there is not a confining layer that presents discharge from the river or through the springs. But it is a system that has the final boundaries.

So in simplistic terms, you've got something that takes water in, and you've got something that discharges water out at various points. And in the end what comes in is going to go out, either through springs or returns to the river, or partially through depletions from ground water withdrawals.

So if those ground water withdrawals aren't taking place, then an amount equal to the depletion associated with those draws would be expressed somewhere else in the river system or in the springs.

Q. You may have already answered this, but let me ask it, again. How would you respond to arguments of the spring users, that since it states here, since all ground water pumping takes water from the springs when they are hydraulically short, curtailment has to occur without any regard to time factors, or distance factors, or quantity factors?

A. Well, absent everything else that we've been talking about, the fact that these depletions reduce spring discharges in and of themselves doesn't equate to injury. If the depletions occur, but the water that remains is sufficient to meet the rights of the seniors, there is no injury.

Q. So depletion alone does not equal injury. And would impacts alone equal injury?

A. No.

Q. We'll go on Finding of Fact No. 45; actually, 45 through 51, which have an equivalent reference to Finding of Fact 51 through 56 on the Clear Springs order. All discuss in various ways inter-year variations, intra-year variations. And I think we've discussed this perhaps already in too great a length.

But if I understand correctly, you did state that ground water users would not be responsible for seasonal variation to spring discharges that are not caused by ground water depletion?

A. Correct.

Q. And similarly, the spring users should not be in a position as a result of their delivery calls of enlarging their water right beyond what it was at the time the appropriation was originally established?

A. Correct. I guess an example of that would be the fact that this variation that occurs within years is largely the result of surface water -- incidental recharge from surface water, and perhaps to a lesser extent, precipitation.

That variation within years would occur with or without ground water depletions. And there is nothing that the junior-right holders can do anything about the fact that these within-year variations occur.

And unless they are responsible for some part of that variation, they shouldn't be required to provide a constant water supply that never existed before, and it wouldn't exist

with -- the constant water supply didn't exist before, and it wouldn't exist without ground water, ground water use.

Q. Let's look at Finding of Fact 48 in the Blue Lakes order, which is the same as 53 in the Clear Springs order.

A. (Witness complying.)

Q. The very end of that talks about these various factors on the discharge from individual springs are not presently quantifiable. Can you give further explanation of what was intended by that?

A. Sure. I think we know enough to identify both the regional and the local factors that affect these intra-year and inter-year variations. But the interaction and the effects of all of this when it's put together, we don't have sufficient information to be able to take those factors and predict in advance what kind of variation is going to occur next year or five years from now. At this point, its complexity is beyond our ability to predict, even though we understand generally what's occurring and why.

Q. So when you make that initial or threshold determination of whether injury has

occurred, and you model what quantities of water from a curtailed right will show up at the springs at some point in the future, which could be relatively short to as long as 20, 30 years, I suppose, do you feel that it's necessary to make a present determination of injury in anticipation of a future amount of water arriving at the springs? Maybe that's a bad question.

But do you have to decide today, can this spring user put to beneficial use in 30 years, 20 years, some water when it shows up at that future time?

A. Well, we can simulate what will happen from curtailment. We provided a framework for accepting replacement water mitigation or substitute curtailment equal to that, but that then was all predicated upon the injury continuing. It was with the idea that every year, we would continue to make a determination, is injury occurring? To the extent it was, then the curtailment, the substitute curtailment, the replacement water, the mitigation continues.

But if something else changed, so that the injury was no longer occurring, the curtailment, substitute curtailment, replacement

water mitigation would no longer be necessary.

Q. So that annual review process would essentially be a means of re-evaluating if the facts had changed. And if they had changed, enable you to adaptively manage --

A. Correct.

Q. -- whatever plan had been put in place?

A. Yes.

Q. Finding of Fact 49, which is the same as Clear Springs Finding 54. The last sentence talks about, "There are no known measurements, nor any other means, for reasonably determining the intra-year variations in the discharge from the springs comprising the source for these water rights on the days of the appropriation for these rights."

Is this information that the Department doesn't have, or are you referring to Blue Lakes's inability to provide you additional records?

A. Well, this actually is the next step following Finding of Fact 48, which we talked about is, we're not in a position of predicting these inter-year and intra-year variations. Which in 49 goes on to say, and there is

insufficient information or any other means for determining what those variations were, and what factors contributed to those variations, and to what extent at the time that these spring appropriations were made.

Which then leads you to the conclusion that, you know, unless there is something that we're missing at the Department, unless there is something that we're missing, we don't see any way to identify whether the variations have been somehow made worse by the appropriation of ground water.

Q. So if we had records now, that I think there is some indication in the records of -- at least Blue Lakes' discharge records come out of their facility going back to 1950, those would be relevant in examining the pattern of variations that existed previously in preparing those with what was happening more recently?

A. Potentially, correct.

Q. At the bottom of Finding of Fact 50, towards the bottom, you make the statement in the last full sentence at the beginning. "Blue Lakes Trout is not entitled to a water supply that is enhanced beyond the conditions that existed at

the time that such rights were established."

That's the same concept that we discussed earlier, that ground water users are not responsible for spring flow reductions that occurred due to conditions, other than ground water pumping?

A. I'm not sure I -- can you state it again? State the question again.

Q. Yes. I think this is the concept that we've been discussing. But the question would be, that you are trying to say here in Finding of Fact 50, and you do say, that ground water users are not responsible for reductions in spring flows that occur for naturally, or for reasons that are unrelated to ground water pumping?

A. That's correct.

Q. And in the very next Finding of Fact 51, which is the same as 56 in the Clear Springs order. Is this concept that you describe in this finding really a way to describe the law regarding futile call?

A. Not entirely. We've already talked about the difficulty of applying futile call in the ground water system when the call may be futile, but there is still injury occurring by

depletions caused by prior ground water diversions. So this is taking a broader look at the time element, which we've been talking about.

And we talked about how the curtailment, replacement water, subsequent curtailment mitigation would continue until and unless there no longer is injury. So this is related to that in that over that time frame, that's all that, in my view, that Blue Lakes Trout can demand, is for administration of water rights that over that time period will result in a usable amount of water reaching the Blue Lakes points of diversions when they need it. And when depletions that are causing -- and I see I actually used material injury here, I should have just said injury -- unless those have been adequately mitigated.

But, you know, I guess the point of all this -- well, not -- I mean, of this particular aspect of this, is that the ground water folks could replace 100 percent of their depletions to the aquifer, and there still may not be, and likely would not be, sufficient water to fill Blue Lakes' rights.

Q. And that's because of that ten percent

factor?

A. No. No. It's because of the loss of incidental recharge associated with surface water irrigation compounded by the effects of what appears to be prolonged periods of drought.

Q. Well, and how do you respond to the argument of Blue Lakes that in those circumstances, you continue to curtail more and more acres permanently, until we get our full supply, period, at the beginning and end of the gage.

A. Well, even though they may not realize a full supply of water with the ongoing curtailment of ground water use, that doesn't mean that they are not entitled to that increment of increased supply that would occur through curtailment of ground water use within that area of known certainty where curtailment would produce water.

And in that setting, the only way that the shortages are continued, and ground water depletions are causing injury by contributing to those shortages, the only way that those junior-priority ground water uses could continue is if they are mitigated. And if they can't be

mitigated, or sufficient replacement water can't be provided, then there has to be curtailment.

Q. And does their mitigation have to be the amount of their depletions, or simply the amount of the water that they are impacting the spring that would show up in the spring?

A. No, it's -- I'm not sure if you are talking about mitigation or replacement water. But if it's mitigation to the reach that contains the spring, then it has to be equal to -- an amount equal to what would have occurred with curtailment by priority.

Q. And when you use the term "usable amount" in Finding of Fact 51, is that any quantity would be considered to be a "usable amount"?

A. No.

Q. That has to be balanced against this reasonable use, beneficial use, waste concept, optimum beneficial use?

A. Yes, it's balanced with what would be reasonable. If Blue Lakes is -- let's say they are short -- I'm just using a hypothetical number -- let's say they are short a hundred cfs, and widespread curtailment would generate a tenth

of a cfs. I think one could argue whether that one-tenth of a cfs represents an increase in the useable utility of the water that's available.

Q. And if we have a situation as we do now, with the full phase in curtailment, where you are looking at potentially curtailing 57,000 acres, so 114,000 acre-feet of water, at what point do you do such a curtailment if Blue Lakes only receives 10 acre-feet of the 114,000, or 100 acre-feet of the 114,000?

A. Well, it's a hypothetical that I didn't have to answer, I guess. I mean, I addressed it in here in with these specific facts and circumstances. But I'm not prepared to say there is a bright line beyond which it's no longer reasonable.

Q. Those are those fact-specific circumstances that you have to evaluate all the facts, apply them to the rules, and ultimately exercise sound discretion in coming up with an answer?

A. Correct.

Q. And so all of these responses to the questions of what material injury, what constitutes futile call, optimum use of resource,

all are pretty fact driven?
A. I believe so.
Q. Let's look at Finding of Fact 56, which talks about the Attachment C, which shows the time history of total measured diversions from Alpheus Creek under the three Blue Lakes rights.
A. You may have to show me Attachment C, because for whatever reason, it's not in the exhibit in this book.
Q. Okay.
A. Okay.
Q. At the end of your Finding of Fact 56, you say, the flows of Alpheus Creek generally peak from the period of October through December, with the lowest flows generally occurring during May.
Looking at this Attachment C, it seems to indicate that Blue Lakes' water rights, at times, went historically unfilled during the seasonal low period?
A. That's correct. But Blue Lakes had more than, obviously, one water right. And when the earlier rights were filled, the later rights were not.
Q. And if that were true, that would be

one of the instances when it is relevant and important in an administrative proceeding to look at the full period of record to see what was available to fill a right, not only during the high period, but also during the low period?
A. Correct.
Q. Okay. Blue Lakes has made the argument that once the partial decree is entered in the SRBA, and they have a quantity, that they are entitled to receive that entire quantity all the time, all the years, and throughout the year, and that you can't look behind that partial decree in 2000 to look at any kind of historic variations. Would you agree with that assertion by Blue Lakes?
A. If the assertion is as you've represented, I would say, no, I don't. Because, again, the quantity is the maximum amount authorized to be diverted when it's available, and when it can be applied to beneficial use. It's not a guarantee.
But on the other side, to the extent that that maximum amount is needed, and can be put to beneficial use, then a junior right does not -- can't interfere with that. But, you know,

I think it's important to note, that the quantity element in these rights did not address this inter-year variation, nor should it have if it was just an authorization to divert up to a maximum amount.
And the fact that the quantity element didn't address this seasonal variation, doesn't mean the seasonal variation doesn't occur, nor does it mean that the historic use of water under a right doesn't shape what the right actually is.
Q. For administrative purposes?
A. For administrative purposes, correct.
Q. Let's look at Finding of Fact 62.
A. (Witness complying.)
Q. The last statement there you say, "As shown on Attachment C, the flows in Alpheus Creek available for diversion by Blue Lakes have been stable since the seasonal low in 2003. And the pattern flows for 2005 expected to be similar."
In making that finding, is it your belief that the springs are at or near equilibrium?
A. Not necessarily. I was simply looking to the next year. The issue was raised by Blue Lakes in their delivery call. And clearly there

had been some reductions in spring discharge, oh, I'll say since the seasonal low of 2001, down to the seasonal low of 2003. But the seasonal low in 2004, to me, didn't seem to be any lower. And so absent some other significant factor that couldn't be foreseen, I didn't see any reason why you would expect the high or the low in 2005 to be different than it was in 2004.
Because it didn't appear that this trend, based upon the information that we had, which was limited, it didn't appear that this trend downward that began in 2001 was continuing.
Now, it would be interesting for me to see what happened in 2005 and 2006 and 2007. I don't know that. But certainly, I wouldn't have known it at the time, and all I could do is make the best assessment of what was likely in 2005 given the information that I had, only because Blue Lakes raised it in their delivery call.
Q. If you look at the effects of pumping on the aquifer as a whole, and consider where we are today, the moratorium has been on new wells since '92?
A. Correct.
Q. And prior to that, I suppose the Swan

Falls Agreement in '84 had a substantial impact on preventing much, if any, additional ground water pumping after that?

A. I don't know that. I would have to go back and look at our records to see how many permits were issued post Swan Falls, and I just don't recall offhand.

Q. But certainly from 1994 on, or from the '92 moratorium on, we have 15 years of no additional pumping?

A. Yes.

Q. And perhaps a little bit in a 10-year or 15-year period, but not a lot more. Do you have reason to believe that we are at or near equilibrium on the aquifer?

A. I'm not sure I have enough information to respond, because remember, it's not just dependent upon ground water depletions. It's also dependent upon the incidental recharge from surface water irrigation. Those are the two principal factors.

Q. And I should have phrased that differently. The impacts of ground water pumping would be pretty much fully realized by now?

A. I think they would have to be

approaching full expression at this point in time.

Q. So if we were at or near equilibrium, insofar as the impacts of ground water pumping, if changes in the aquifer occur in future periods, would that most likely be related to other factors?

A. It would. However, the occurrence of those other factors could increase or decrease the extent of injury caused by ground water depletions.

Q. Which is related to part is whether we continue into a drought cycle or into a wet cycle?

A. In part, that's true.

Q. Finding of Fact 63 and 64 all appear to be dealing with these particular identified rights of Blue Lakes that you found sufficient water to fill them and no shortage, and I presume the call being denied on those identified rights?

A. Correct.

Q. I'm jumping around a little bit. Can we jump back to Finding of Fact No. 9, which would be the same in both orders.

A. Okay.

Q. And here you give a general description of what happens when the well is pumped from the aquifer?

A. Correct.

Q. Is that basically an idealized description of what happens?

A. It is. Of course, I mean, it doesn't reflect what would happen if the well was placed immediately to an impermeable zone, or, you know, on the other hand, a fracture zone that may have a very hydraulic conductivity. It's more of an idealized conceptual description of what happens.

Q. And we know that the aquifer is not uniform. Is it accurate to say that a lot of the detailed characteristics are not fully known or fully understood?

A. I don't think it's accurate to say they are not fully understood. I'm not sure it's accurate to say they are not fully known. I think what would be accurate to say is that there is an insufficient amount of geologic data that would enable us to model the aquifer as the fractured zoned media that it really is.

But having said that I should qualify that by saying, that doesn't make our simulations

using an equivalent porous media invalid. It limits how those results can be used.

Q. So your view is using the model on the regional basis is still generally accurate despite that?

A. That's my view.

Q. But using it on a specific basis to specific spring discharge, for example, becomes less certain?

A. That's correct.

Q. Okay. Finding of Fact 16 talks about this uncertainty level of the model with ten percent, and I think we've pretty well covered.

Would it be accurate to say that this model certainly without question would be complicated?

A. Yes, that's fair to say. And in the time I had to do this, we didn't have sufficient information to do what would be considered a more comprehensive analysis of quantifying the uncertainty.

Q. If you were in a situation that we are now that you had ample time, what would you do to improve the results of the model?

A. To improve the results?

Q. To improve the certainty of the results of the model that you have some concerns with.
A. I don't know if we could improve the certainty. What we could do is improve the probable listing of the assessment of the listing. There is -- I'm not prepared today to talk about the details, but there are statistical methods that can be employed to address model uncertainty.
And what we did was a simple assessment. It was not the most complex assessment that could have been done, but we didn't have time to do a more complex assessment. So we're confident that the uncertainty is at least ten percent.
Q. Is it likely that it could be greater than ten percent?
A. I wouldn't say it's likely, but it could be.
Q. Possible. Okay. Look at Finding of Fact 66, if would you, please.
A. (Witness complying.)
Q. In the last couple of lines, you state that, "Blue Lakes Trout has expended reasonable efforts to divert water for right No. 36-07427

from its source for use at the Blue Lakes Trout facilities."
What were you referring to there when you described reasonable efforts of Blue Lakes were made?
A. Well, when I assigned Cindy Yenter and Brian Patton the task to go out and do these investigations pursuant to the various factors under the Conjunctive Management Rules, they wrote their findings up in a memorandum.
And I read that memorandum. I talked with Brian and Cindy about what they had found. And came to the conclusion, based upon their investigation and their documentation, that Blue Lakes had expended reasonable efforts to divert water for that water right.
Q. And then that investigation didn't include any analysis of whether or not it might be feasible to re-circulate water --
A. That's correct.
Q. -- over a good well?
A. That's correct.
Q. Over on Finding of Fact 70, where you discuss a pump-back system for Blue Lakes. And at the end you say, "It is not reasonable to

require Blue Lakes Trout to incur the costs for such a system."
This, again, relates back to our prior discussion where you had made an earlier determination for policy reasons, and conceptually not to require the spring users to drill a well in order to establish a reasonable means of diversion?
A. No, I think this is different. The prior discussion dealing with the horizontal wells, you know, we did some preliminary analysis of what would happen with that. And, you know, we concluded that that wasn't going to solve problems. It would further steepen the ground water gradient back away from the springs. And, you know, simply who could drill the horizontal well the furthest would get the water.
This was a different type of assessment. You know, I think I said earlier in one of my answers, that we did not do any kind of financial analysis of a pump-back system. But certainly, at least hypothetically, a pump-back system is technically feasible, again, subject to whether or not the water quality attributes of the recycled water would be suitable for use.

But we're simply saying, is it reasonable to require a senior-right holder to capture and recycle water for shortages that are being caused by junior-priority ground water uses? And even though this kind of a system may be feasible, I didn't -- my determination was it wasn't reasonable to require the senior to do that before seeking the administration of junior-priority rights.
Now, why would I put this in here? Because this is one possible type of mitigation. Or maybe I shouldn't characterize it as mitigation, because of the way I've used that term. But this is one possible source of replacement water that could be provided by the junior-right holders, but we didn't go any further than that.
We just, you know, technically, it's possible. Don't know if it financially makes sense. Don't know if the water quality would be adequate.
Q. You made it a point here, if there is cost that has to be incurred, it shouldn't have to be by the senior user, it should be by the junior user, who is causing the problem?

A. In my view, that's correct.
Q. On Finding of Fact 73, in the second full sentence, you discuss an agreement of 1993 between Blue Lakes Trout and Blue Lakes Country Club.
A. Yes.
Q. It's not clear to me from that comment there how this type of agreement might affect the shortages complained of by Blue Lakes.
A. Well, this likely has some affect on what would be expected from the junior. But we didn't pursue this particular aspect to the end, because of the small amount of water involved. And more importantly, it wouldn't have changed the outcome of the order. It wouldn't have changed what was ordered, in my view, in any way.
But the reason for raising it was that this essentially is a limited subordination agreement between Blue Lakes Trout and the country club. And if a senior-right holder subordinates a portion of its right, that senior then can't turn to other juniors to make it up. I mean, that's the general principle that would be applied. But we didn't apply it here, because it wouldn't have changed anything. But it was

possibly a pertinent factor that we wanted to make sure was included in the record.
Q. Finding of relevance on Finding of Fact 73 is to somewhat make a place holder that there is an issue here that may require further analysis?
A. Correct.
Q. I had a question of Finding of Fact 79. You discuss the various consumptive uses, irrigation, domestic, industrial, livestock, looking at various percentages. Should all consumptive uses be accounted for?
A. I'm not sure what you mean "accounted for."
Q. Well, should they also be subject to a call?
A. In principle, yes.
Q. And in practice or from a practical reality standpoint?
A. It may or may not be possible. Let me give you an example. In Idaho, domestic wells are exempt from getting a permit to appropriate water. They can simply -- if it meets the criteria in the statute, they simply get a well drilling permit and drill a well.

Does that mean that they don't have a water right? No. It means that they have a water right that was established as of the date that they first diverted ground water and applied it to beneficial use.
Those rights are all junior to anything, I mean, that we're talking about. I mean, many of them are. I don't want you to have the perception that I just said that all domestic wells are junior to that, because they are not. But generally, those uses are the most junior uses in the system.
And yet if we went out and sought to curtail those wells, how much water would it create? Not much. And we don't even -- we don't begin to have the resources to do it in the first place. How in the world would you enforce a curtailment order on domestic wells? I mean, there just aren't enough people to do it.
And so this was our explanation of why we weren't doing it. Because by focusing on irrigation, which is the largest consumptive use, we were going to address about 95 percent of the depletions that potentially could be causing injury. And, you know, if we can address the 95

percent, that's getting pretty good.
Q. What's the solution to this problem?
A. Well, when there is not enough water to go around, there is only three things you can do, and you've heard this speech before. You can look for ways to augment the supply. You can change the way you manage what you have. Or you can reduce demand.
And, you know, if it's not possible to increase the supply somehow, which we've not found a way to do. I mean, there is alternatives out there, of course, but nothing that's gained any traction. That means that you are either -- if you don't change the way you manage it, it will be curtailment, voluntary or involuntary.
Q. When the State passes the Ground Water Act in '51 or '52, and encourages full economic development, and maximum beneficial use, and making the desert bloom mistake, coupled with Idaho Power's low power rates, and issues all of these permits, do you think the State has some responsibility given the situation we find ourselves in today?
A. Absolutely.

MR. BUDGE: I'm going to go ahead and stop at this point, reserving the right to ask some additional follow-up questions, simply to give you guys equal opportunity to start today.

MR. SIMPSON: Let's take a break for five minutes.

(Deposition adjourned at 2:58 p.m.)

(Signature requested.)

CERTIFICATE OF WITNESS

I, KARL J. DREHER, P.E., being first duly sworn, depose and say:

That I am the witness named in the foregoing deposition, Volume I, consisting of pages 1 through 155; that I have read said deposition and know the contents thereof; that the questions contained therein were propounded to me; and that the answers contained therein are true and correct, except for any changes that I may have listed on the Change Sheet attached hereto:

DATED this _____ day of _____, 200___.

_____

KARL J. DREHER, P.E.

SUBSCRIBED AND SWORN to before me this ____ day of _____, 200___.

_____

NAME OF NOTARY PUBLIC

NOTARY PUBLIC FOR _____

RESIDING AT _____

MY COMMISSION EXPIRES _____

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REPORTER'S CERTIFICATE

I, COLLEEN P. KLINE, CSR No. 345, Certified Shorthand Reporter, certify:

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

That the testimony and all objections made were recorded stenographically by me and transcribed by me or under my direction;

That the foregoing is a true and correct record of all testimony given, to the best of my ability;

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

IN WITNESS WHEREOF, I set my hand and seal this 8th day of November, 2007.

_____

COLLEEN P. KLINE, CSR
Notary Public
P.O. Box 2636
Boise, Idaho 83701-2636

My commission expires September 17, 2011