BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

CALIFORNIA WATERFIX WATER RIGHT CHANGE PETITION HEARING	)))

JOE SERNA, JR. BUILDING

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

BYRON SHER AUDITORIUM

1001 I STREET

SECOND FLOOR

SACRAMENTO CALIFORNIA

PART 1 SURREBUTTAL

Thursday, June 15, 2017

9:30 A.M.

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Pages 1 - 266

Reported By: Deborah Fuqua, CSR No. 1248

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APPEARANCES:

CALIFORNIA WATER RESOURCES BOARD

Division of Water Rights

Board Members Present

Tam Doduc, Co-Hearing Officer:
Felicia Marcus, Chair and Co-Hearing Officer:
Dorene D'Adamo, Board Member

Staff Present

Nicole Kuenzi, Senior Staff Attorney
Conny Mitterhofer, Senior Water Resources Control Engr.
Kyle Ochenduzsko, Senior Water Resources Control Engr.

For California Department of Water Resources

William Croyle, Director
Tripp Mizell, Senior Attorney
Robin McGinnis, Senior Attorney
Cathy Crothers, Assistant Chief Counsel
Ken Bogdan, Senior Attorney

Duane Morris, LLP
By: Thomas Martin Berliner, Attorney at Law
By: Jolie-Anne Ansley, Attorney at Law

U.S. Department of the Interior, Bureau Reclamation,
and Fish and Wildlife Service
Amy Aufdemberge, Assistant Regional Solicitor

State Water Contractors

Stefanie Morris
Adam Kear
Becky Sheehan

(Continued)

APPEARANCES (continued)

Cities of Folsom and Roseville, San Juan Water District, and Sacramento Suburban Water District
Ryan Bezerra

Local Agencies of the North Delta
Osha Meserve

California Sportfishing Protection Alliance, California Water Impact Network, AquAlliance
Michael Jackson

Tehama-Colusa Canal Authority & water service contractors in its area
Meredith Nikkel

County of San Joaquin, San Joaquin County Flood Control and Water Conservation District and Mokelumne River Water and Power Authority
Thomas H. Keeling

San Luis and Delta-Mendota Water Authority
Rebecca Akroyd

Suzanne Womack
Suzanne Womack

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Thursday, June 15, 2017 9:30 a.m.

PROCEEDINGS

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CO-HEARING OFFICER DODUC: All right. Good morning, everyone, please take a seat.

Welcome back to this hearing on the Water Right Change Petition for the California WaterFix project. I am Tam Doduc. Joining us shortly and sitting -- and will be sitting to my immediate right will be Board Chair and Co-Hearing Officer Felicia Marcus. To my far right presently is my co-board member DeeDee D'Adamo. To my left today we have Staff Attorney Nicole Kuenzi and Mr. Ochenduszko.

Other State Board staff are also present to provide assistance as necessary, Ms. McCue and Mr. Hunt today.

All right. Let's do the usual general announcements. I think at some point during this hearing I'm going to hold a contest for people to submit creative ideas with respect to these general announcements, and we'll see if we can make them a little by more interesting.

But for now, please take a moment and identify the exit closest to you. In the event of an emergency, an alarm will sound, and we will evacuate this room.

We will take the stairs, not the elevators, down to the first floor and meet up at the park. If you're not able to use the stairs, please flag down one of the people who will be wearing orange fluorescent-colored clothing, and you will be directed into a protective area.

Second announcement is, as always, this is being Webcasted and recorded, and we have our court reporter here as well. So when you provide your comments, please come up and speak into the microphone and begin by stating your name and your affiliation.

And my very, very favorite announcement is please take a moment right now and put all your noise-making devices to silent, vibrate, do not disturb, or off if you really cannot resist the temptation to answer it. Please take a moment and check to make sure, even if you think it is.

All right. So let's get to some background here. As you know, this is the continuation of the evidentiary portion of Part 1 of this hearing. On May 24th, we concluded Part 1 rebuttal portion. And we received sur- -- written surrebuttal testimony and exhibits from several parties by the June 9th deadline.

So beginning today, the petitioners and other parties participating in Part 1 will have an

opportunity to summarize, to concisely summarize their written surrebuttal testimony. Cross-examination of the witnesses by other parties will then follow. Only parties who submitted notice of intent to appear in Part 1 may participate in this portion of the hearing.

I will remind everyone that surrebuttal is limited to evidence that is responsive to evidence presented in connection with another party's rebuttal testimony. And it does not include evidence that should have been presented during the case in chief or rebuttal. It also does not include repetitive evidence.

This hearing is being held in accordance with the October 30th notice and subsequent revised notices and rules addressing various procedural issues. Again, as in the rebuttal portion, any objections to the admissibility of surrebuttal testimony must be made either early or in writing during the hearing when the testimony and exhibits are offered into evidence or earlier.

We will now move on to the order of proceeding for surrebuttal. The presentation of each party's surrebuttal evidence will begin with a brief opening statement, if so desired, followed by an oral summary of surrebuttal testimony and then cross-examination.

In addition, we may allow redirect examination upon a showing of good cause, and recross-examination.

After each party's surrebuttal witnesses have been subject to cross-examination and any redirect and recross, the parties should move to have their surrebuttal testimony and exhibits accepted into the record. At that time, parties must clearly list the exhibit identification numbers of the exhibit they are offering into evidence.

Parties presenting surrebuttal testimony will have five minutes, up to five minutes, to present an opening statement prior to their surrebuttal testimony. Opening statements should briefly summarize the party's position and what the party intends to establish with it's surrebuttal evidence and identify the rebuttal evidence to which the surrebuttal evidence responds.

When called to testify, witnesses should begin by stating whether they have taken the oath, which I will administer before they testify if necessary. Witnesses should then proceed to identify their written surrebuttal testimony as their own and affirm that it is true and correct. I will emphasize, again, that witnesses should summarize the key points in their written testimony and should not be reading their testimony into the record.

The oral summary of written surrebuttal testimony is limited to 15 minutes per witness. Each party may distribute their total allotted time among their witnesses as they deem appropriate. And we expect the parties to adhere to these time limits unless we approve an extension.

Surrebuttal testimony will be followed by cross-examination. If panels are used, parties will be -- parties will cross-examine witness panels one panel at a time unless we approve a variation.

Please note that the scope of cross-examination on surrebuttal is limited to the scope of a witness's surrebuttal testimony. Each party will be limited to one hour of cross-examination per witness or panel of witnesses. We may allow additional time for cross-examination if there is good cause demonstrated and an offer of proof. We expect, as always, however, that parties will be efficient.

After completion of surrebuttal testimony and cross-examination for each panel, again, we may permit redirect and recross upon a showing of good cause. And again, any recross-examination will be limited to the scope of the redirect testimony.

All right. Parties will present their surrebuttal in the order provided. I think you all

have the chart. If not, please talk to Ms. McCue. And the parties will conduct cross-examination and any recross in the same order as earlier in Part 1.

All right. So unless anyone objects, I will skip reading the list of parties who are presenting surrebuttal testimony. But let me ask now if there are any errors in the revised order of presentation for surrebuttal.

(No response)

CO-HEARING OFFICER DODUC: Okay. Not seeing any.

All right. Again, we encourage all parties to be efficient in presenting their oral testimony and in conducting their cross-examination. Except where we approved a variation, we will follow the procedures set forth in the Board's regulations, the hearing notice, and our rulings.

Let's get to a couple of housekeeping items now.

So as a reminder, stated in our March 15th ruling, parties are permitted to submit written closing briefs at the conclusion of Part 1. Submitting closing briefs at this stage of the hearing is optional. At this time, we anticipate that written briefs will be due approximately 30 days after the transcripts are

available for entirety of Part 1 of the hearing. We'll provide more details on closing briefs later in the hearing.

Any other procedural matters or housekeeping issues that we need to address at this point?

Mr. Mizell?

MR. MIZELL: Good morning, Tripp Mizell, DWR. I believe that I was asked to provide some clarification as to the structure of our witnesses. As we have in our case in chief as well as rebuttal, we have broken them up by topic, and therefore, Doug Owen will be the first person to appear. We will then proceed to the CalSim witnesses, followed by the DSM-2 witnesses, followed by the ag, and then finally Al Davis with property.

CO-HEARING OFFICER DODUC: All right. Thank you. Any other issues? Ms. Womack, it's good to see Mr. Moore again.

MS. WOMACK: Yes, he's able to hear. He has new hearing aids. The VA, what can we say.

Since Al Davis is going to be last -- and, you know, that's obviously mainly our -- is that going to be today? My dad has rheumatoid arthritis as well, you know, joys of being old, so he doesn't like to sit for too long. But would it -- would it today? Should we

come tomorrow? You know, I just don't want to sit for hours on things that won't --

CO-HEARING OFFICER DODUC: I would expect that we will not get to Mr. Davis today.

MS. WOMACK: Okay. Should we come tomorrow?

CO-HEARING OFFICER DODUC: I think you should monitor the hearing, and we'll know better as soon as -- as the day goes on.

MS. WOMACK: Okay. That's great. But we can go today?

CO-HEARING OFFICER DODUC: Yes.

MS. WOMACK: Okay. Thank you so much.

THE COURT: All right. With that, then, I will ask the Department of Water Resources, the Department of Interior to bring your witnesses up or at least your first witness, Mr. Owen.

DOUGLAS M. OWEN,

called as a surrebuttal witness by the petitioners, having been previously duly sworn, was examined and testified further as hereinafter set forth:

CO-HEARING OFFICER DODUC: Mr. Mizell, do you have an opening statement?

MR. MIZELL: No, the Department does not have an opening statement at this time. I'll simply move on

to introducing Mr. Owen, and we'll get him going.

CO-HEARING OFFICER DODUC: Thank you.

DIRECT EXAMINATION BY MR. MIZELL

MR. MIZELL: So Mr. Owen, you have previously taken the oath; is that correct?

WITNESS OWEN: That is correct.

MR. MIZELL: And you have previously submitted and attested to your statement of qualifications; is that correct?

WITNESS OWEN: That is correct.

MR. MIZELL: Is DWR-930 a correct copy of your written surrebuttal testimony?

WITNESS OWEN: Yes, it is.

MR. MIZELL: Is DWR-945 a correct copy of your PowerPoint presentation for summarizing your written testimony?

WITNESS OWEN: Yes, it is.

MR. MIZELL: Thank you.

Mr. Hunt, if we could bring up DWR-945, please.

And with that, unless the Hearing Officers have any questions, I'll allow Mr. Owen to summarize his written testimony.

CO-HEARING OFFICER DODUC: Thank you.

Please begin, Mr. Owen.

WITNESS OWEN: Good morning. The focus of my surrebuttal is very specific. It is related to two items: one on the operation of water treatment plant intakes and the other on the impact of chloride on drinking water treatment operations.

I'm presenting this upon review as a result of the rebuttal testimony of Dr. Susan Paulsen and a report which she submitted on the report on the effects of the California WaterFix project on the City of Stockton in which she stated, "Because water intake operations are typically managed on an hourly or sub-hourly basis, hourly or sub-hourly chloride concentrations are needed for drinking water operators to understand the impacts of their operations."

I have only two slides with six total opinions regarding that statement. So if I may have the next slide.

The first is that drinking water intakes are not managed on an hourly or sub-hourly basis. And the reason for that is the treatment plants operate best at a steady state, and frequent changes in hydraulic behavior adversely affect the unit processes, particularly those such as sedimentation and filtration that affect particle removal.

The second opinion is there's nothing that can

be done by the City of Stockton to actually modify how they operate their intake in order to change the water quality that's coming in. It is not a deep intake, such as something that might be in a reservoir where the potential exists to search for a lens of different water quality. Even under those circumstances, no system would operate on an hourly or sub-hourly basis. But the bottom line here is there's no reason for them to operate on an hourly or sub-hourly basis because of the ability to affect water quality at the intake.

The third is is that chloride is not removed by processes at the water treatment plant, and at the concentrations that have been presented in Dr. Paulsen's testimony, those concentrations will not adversely impact water treatment plant performance. So there's no reason to change the intake operation based on adverse impacts to the water treatment plant operations.

Let me have my next slide, and this is my last slide.

My fourth opinion is that chloride is not regulated as a primary health-related standard. It is regulated as a secondary standard, which is related to aesthetics and, in this case, with chloride, often relating to taste.

There's no -- so my point on this is there's no reason to operate that intake on an hourly or sub-hourly basis from a regulatory perspective for health-related reasons.

My fifth opinion is Dr. Paulsen stated that the City of Stockton has an operational threshold for chloride of 110 milligrams per liter. And that may be based on customer preferences. It may also be based on a wastewater discharge permit that they have.

The important element of that is that operational thresholds sometimes are set at water treatment plants by the operators, but they're set for guidance on how to operate over time, not as absolute maximums that have to be met. So you wouldn't be operating on an hourly or sub-hourly basis at the intake in order to meet this operational threshold.

And my last opinion is that hourly or sub-hourly increases in chloride are going to be damp-- at the raw water intake are going to be dampened within the system. Water treatment plant systems and potable water systems have a great deal of storage in the distribution system for good reason -- for instantaneous demands, fire flows, things like that. And there's a lot of water in the pipes, and there's a lot of water in treatment plant. So when there might

be a short-term increase in -- on an hourly or sub-hourly basis, of any particular constituent, it's going to be diluted within the system over time.

So if the City were concerned about the chloride concentrations, it's my opinion that they would be monitoring in the distribution system. And they would be looking at what the impact of the intake was. They might monitor at the intake as well, but they'd look at what the impact in that intake -- how that was playing out in their distribution system as that intake concentration might change over time. And if the concentration in the distribution system were to elevate over a period of time and based on what they might have experienced over time in their expectations in the raw water, they might change their intake operation at that point.

But they certainly wouldn't do it on an hourly or sub-hourly basis. And they would do that after careful discussions, careful consideration and discussion with operation -- with the operational workforce at the treatment plant because you don't want to just be continually changing the input to the treatment plant in order to get your best overall health-related water quality.

That summarizes completely my opinion.

CO-HEARING OFFICER DODUC: Thank you, Mr. Owen.

Anything else, Mr. Mizell?

MR. MIZELL: No, I believe we're ready for cross-examination.

CO-HEARING OFFICER DODUC: All right. I'll ask parties that wish to conduct cross-examination of Mr. Owen to please come up, identify yourself by group number, and provide me a time estimate, please.

MS. TABER: Good morning, Kelley Taber for City of Stockton. I estimate 20 minutes. We are --

CO-HEARING OFFICER DODUC: For group.

MS. TABER: -- Group 22.

CO-HEARING OFFICER DODUC: 22, okay.

Mr. Emrick?

MR. EMRICK: Matthew Emrick, City of Antioch. I think we're Group 27 -- about five minutes.

CO-HEARING OFFICER DODUC: All right. Then seeing that's all, I'll ask Ms. Taber to come on up to do her cross-examination.

And as always, if you could begin by outlining for us the areas you will be exploring, although it may seem pretty obvious with Mr. Owen.

MS. TABER: Good morning. Thank you.

Yes. I will be asking Mr. Owen about the foundation for his opinion, his experience with wastewater -- or with drinking water treatment plants, his testimony regarding the City's chloride threshold, and the duration of water quality change that can lead to changes in drinking water treatment plant operations.

CO-HEARING OFFICER DODUC: Thank you.

CROSS-EXAMINATION BY MS. TABER

MS. TABER: Good morning, Mr. Owen. You state in your testimony that you were asked to provide an opinion regarding the frequency with which water treatment intake operations are changed to optimize performance in drinking water systems and the impact of chloride concentrations on water treatment plant operations. And you offered the conclusion that the City of Stockton would not modify its operations on an hourly or sub-hourly basis based on source water chloride concentrations. Is that a fair summary of your conclusion?

WITNESS OWEN: Yes.

MS. TABER: In preparing your opinion regarding the operation of Stockton's drinking water treatment intake and its water treatment operation, did you interview anyone at the City of Stockton?

WITNESS OWEN: I did not.

MS. TABER: Did you attempt to?

WITNESS OWEN: I did not.

MS. TABER: Have you any personal experience in operating a drinking water treatment plant?

WITNESS OWEN: I do.

MS. TABER: Could you briefly describe your experience operating a plant?

WITNESS OWEN: And I put that, a summary of that, in the DWR-930 testimony which says I've worked side by side with water treatment plant operational staff and with operational departments to assess, optimize, and improve water treatment plant performance with a specific focus on water quality. I've worked within drinking water treatment plants dealing with conventional processes such as those that are used here, with advanced water treatment processes, and have also worked with individual operational departments where they might bring particular issues and we go together at the treatment plants, work through things, and monitor how things are being operated, and we collectively come to a conclusion on the appropriate approach. I've probably -- I've done that at several dozen drinking water plants.

MS. TABER: Does that experience include a T5

drinking water plant?

WITNESS OWEN: It does not. Well, let me say I have worked with people who have a T5. I, personally, do not have certification.

MS. TABER: Thank you. So how did you go about gaining your information about Stockton's drinking water treatment plant operation?

WITNESS OWEN: Well, there were -- actually, interestingly, there are two items on the Internet. There is a very nice YouTube video that was made that -- for 30 minutes, that walks through the treatment plant. It was primarily focused around their -- I think the reason for it was because of their chloramine conversion.

But it was a very thorough -- that was done in 2016, early 2016, where they converted from free chlorine to chloramine in their distribution system. It was a very nice summary. And there was some surrebuttal testimony that was provided -- I have to make sure I'm correct. It was -- and I'm sorry about this. It was either rebuttal or surrebuttal from a Robert Granberg in which he states what the treatment processes are. It's in that testimony. And, I'm sorry, I do not -- in the top of my head, I do not know those exhibits.

MS. TABER: So you're not sure if it was the rebuttal testimony or surrebuttal testimony that you relied on to prepare your surrebuttal?

WITNESS OWEN: Well, what I relied on primarily was the discussion that was -- the YouTube video that went through each treatment process at the plant with people from the City of Stockton Municipal Utilities District.

MS. TABER: Okay. Did that YouTube video provide any information about the frequency with which the City adjusts its intake operations?

WITNESS OWEN: They did not.

MS. TABER: And did it provide any information about the City's water distribution system?

WITNESS OWEN: I don't remember that it did.

MS. TABER: Or the amount of storage in the City's system?

WITNESS OWEN: They did not specifically speak to that.

MS. TABER: Okay. On Page 8 of your testimony, you state that you've not had any conversations with the City of Stockton regarding the City's operational threshold for chloride; is that correct?

WITNESS OWEN: That is correct.

MS. TABER: At this point, I am going to move to strike Mr. Owen's testimony in its entirety on the grounds that it's irrelevant as it's not based on any information specific to Stockton's treatment plant operations or the City's chloride threshold.

CO-HEARING OFFICER DODUC: Mr. Mizell?

MR. MIZELL: I oppose that motion in that Mr. Owen has extensive experience, as he's outlined, in water treatment plants generally. And his testimony takes the information that has been made available by the City of Stockton and applies his knowledge and his expertise from that general experience to try and draw conclusions.

The Board can certainly weigh that against the specifics that Ms. Taber has indicated, but I don't believe that his testimony is so lacking in foundation that it should be struck at this time. He's a highly experienced individual with expert opinions in the matter.

CO-HEARING OFFICER DODUC: Ms. Taber, your objection is overruled, but we will consider your concern in weighing his evidence.

MS. TABER: Thank you.

Mr. Owen, in your opinion, you state that operators typically adjust the intake flow, at most,

once or twice per day based on the levels in the system's storage; is that correct?

WITNESS OWEN: That is correct.

MS. TABER: Are you aware of any drinking water treatment plants that adjust their operations in response to daily changes in water quality?

WITNESS OWEN: Daily? No.

MS. TABER: Is system -- are system storage levels the only factor that would cause an operator to adjust the intake flow in your experience?

WITNESS OWEN: On a regular basis, system tank levels are the only reason that a drinking water plant -- drinking water treatment plant operator would change it. And that was, as stated in my testimony, usually when shifts change. There may be two or three shifts -- two 12-hour shifts on a weekend, three 8-hour shifts during the day. The operators will come in; they'll look at the storage, and they'll change the flows in order to manage that storage based on how they know that water gets used over their shift period.

In terms of water quality, they may change something over the course -- my experience is over the course of a month, maybe, or two months, mostly seasonally as a result of the intake operations. It's primarily as a result of flow. And the only experience

I have for any daily change is based on flow.

MS. TABER: Okay. Thank you.

So you mentioned there that, with regard to water quality, in your experience, that changes might be made based on a monthly or seasonal basis? Did I understand that correctly?

WITNESS OWEN: Yes.

MS. TABER: Okay. So on Page 9 of your testimony, you state that, if the City of Stockton had reason to believe that the source water concentrations of chloride would be elevated for a -- and I'll quote the testimony, "an extended period, for example, a week or two or longer, it might either reduce its Delta pumping rate and increase the blend with other sources or close its intake and shift to another source for treatment as available.

This was on Line 14. So you would agree that increased chloride concentrations in source water over a period of a week could lead a drinking water treatment operator to cease or reduce diversion?

WITNESS OWEN: My opinion is it would be highly unusual, but they have the option to do that.

MS. TABER: Okay. Are you aware of any evidence presented by DWR or Reclamation in this proceeding that demonstrates the water quality changes

that would occur in the San Joaquin River at the location of Stockton's intake on a single week or two-week basis?

MR. MIZELL: I'm going to object to that as being beyond his surrebuttal testimony. He's not here to testify about the water quality results but, rather, about water treatment plant operations. And this statement about a week or two can be taken at face value without exploring water quality.

CO-HEARING OFFICER DODUC: Ms. Taber?

MS. TABER: Well, he has rendered an opinion about the City's ability to use its intake in light of his knowledge of treatment plant operations and water quality concentrations. And so I think it's a fair question.

He's opined that the City would not have to change its operations, but he has stated that changes of a week or two or longer could affect that. So I'm trying to understand what he considered in forming his opinion.

CO-HEARING OFFICER DODUC: All right. Overruled, Mr. Mizell.

Please answer, Mr. Owen.

WITNESS OWEN: My opinion related to this primarily had to do with the fact that, one, it isn't a

sub-hourly or hourly, that this would -- that some change on a weekly or, you know, most likely two-weekly or a month, as I said, that I've seen -- or monthly or seasonally, which is typically what you see at other treatment plants based on water quality, is based on variability and that, if the concentration, again, is elevated and remains elevated for that period of time, that's the amount of time it might see it -- it might take to be seen in the distribution system because of the dilution factor that goes on.

So that piece about -- I supposed that, let's say, the chloride concentration becomes elevated and it remains elevated. When would that start to be seen in the distribution system in a manner that it would affect customers or potentially a wastewater discharge permit?

And I thought it would probably take a week or two before you would see that consistent level in the distribution system because of the amount of storage that systems keep in their distribution system.

MS. TABER: Okay. Thank you. Thank you for explaining that.

You state elsewhere on Page 6 of your testimony that the extent of changes that operators may need to make to treatment plant flow is a function of

storage. Do you know what the storage availability is at the City of Stockton?

WITNESS OWEN: I don't. I know what typical approaches are in storage and distribution systems. I cannot specifically give you the value for the City of Stockton.

MS. TABER: Okay. Thank you. And, again, you did state in your testimony that drinking water intakes are not managed on an hourly or sub-hourly basis. Are you familiar with any drinking water treatment plants that are managed on an hourly or sub-hourly basis?

WITNESS OWEN: I am not.

MS. TABER: Are you aware of any California drinking water treatment plants that adjust their operations based on daily changes in the source water quality?

WITNESS OWEN: I'm not aware of any that would change it on -- based on daily changes on source water quality. But they may change it based on levels in the distribution system strictly in terms of a pumping rate.

MS. TABER: Okay. Is it -- would it be your opinion that a detrimental change in water quality that occurs over the course of a day can never result in a changes in drinking water treatment operations?

WITNESS OWEN: Could you repeat the question?

MS. TABER: Is it your opinion that a detrimental change in water quality that occurs over the course of a day can never result in a change in drinking water treatment plant operations?

WITNESS OWEN: If that detrimental change in source water quality were related to a health standard that was immediate and significant, then that might occur. And I will give you an example on that.

The City of Cincinnati, Ohio operates off the Ohio River. And --

CO-HEARING OFFICER DODUC: I don't know that we need to have an example.

WITNESS OWEN: Okay.

CO-HEARING OFFICER DODUC: I think you've answered Ms. Taber's question.

MS. TABER: Thank you. So you state that you were asked to provide an opinion regarding the frequency with which water intake operations are changed to optimize performance in drinking water systems, and your testimony focused on chlorides.

Did you consider the impact of other constituents, water quality constituents, on Stockton's water treatment plant operations?

WITNESS OWEN: I specifically focused on

chloride because of the discussion from Dr. Paulsen.

MS. TABER: All right. Would your opinion about the frequency with which drinking water treatment plants may need to adjust their operations based on source water constituents be the same with regard to disinfection byproduct precursors such as bromide or total organic carbon?

CO-HEARING OFFICER DODUC: I hear an objection coming.

MR. BERLINER: Beyond the scope. We're only talking about chloride, not any other constituents.

MS. TABER: Actually, his opinion addresses the broader scope of drinking water treatment plant operations. It does offer an opinion related to the City's 110-milligram-per-liter threshold for chloride. But he does talk extensively about the nature of operations in general, relative both to storage levels and response to water quality concerns. And he did just mention an example of where water -- daily water quality changes that might occur to address a health risk might cause a change in treatment plant operations.

So I feel like this is a fair follow-up question, both to his prior response and also the overall scope of his testimony.

CO-HEARING OFFICER DODUC: I will allow you just a tiny little bit of leeway on this, Ms. Taber.

MS. TABER: I have only this question.

MR. MIZELL: I'm going to renew Mr. Berliner's objection. What we're seeing here again is what we've seen in the past, where an answer to one question that was within scope is being used to launch into a line of inquiry that is well beyond the scope.

As Mr. Owen explained at the very beginning of his oral summary and is quite clear in his written testimony, he speaks only to chloride.

CO-HEARING OFFICER DODUC: So noticed, Mr. Mizell.

But, Mr. Owen, please answer the question if you can.

WITNESS OWEN: Could you repeat the question for me, please?

MS. TABER: Thank you.

Mr. Owen, would your opinion about the frequency with which drinking water treatment plants may need to adjust operations based on source water constituents be the same with regard to disinfection byproduct precursors, such as bromide and total organic carbon?

WITNESS OWEN: I don't think it would change

for disinfection byproduct precursors because those health effects are on a quarterly running annual average basis. I think the same would go that -- the same discussion I had before, that you would be monitoring, seeing the variability, making determinations in the distribution system, and -- over time, and then adjusting just as in chloride -- for chloride and then adjusting accordingly under those circumstances because of the nature in which they're regulated.

MS. TABER: Thank you. And then I have just one last area of inquiry, and that relates to your opinion on the chloride -- City's chloride threshold.

On Page 8 of your testimony, you offer an opinion regarding the City's operational threshold for chloride. And you state that you've not had conversations with the City of Stockton regarding the operational threshold for chloride. Quote, "Although it is clear that the 110-milligram-per-liter is lower than the allowable chloride concentrations that have been imposed on the California WaterFix alternatives, according to Mr. Berliner's cross-examination of Dr. Paulsen."

Mr. Owen, what is your understanding of the allowable chloride concentrations that have been

imposed on the California WaterFix project?

WITNESS OWEN: I don't have a personal opinion. It was strictly based upon the discussion that was in that particular cross-examination.

MS. TABER: Okay. And so would the same answer be true for your testimony on Page 4, Lines 10 through 12, where you state that the 110-milligram-per-liter is lower than the allowable chloride concentrations that have been imposed on the California WaterFix alternatives according to Mr. Berliner in his cross-examination of Dr. Paulsen?

WITNESS OWEN: It is specifically related to that discussion.

MS. TABER: Thank you.

I'm going to move to strike the portions of Mr. Owen's testimony that relate to Mr. Berliner's cross-examination as improper surrebuttal opinion and irrelevant. Mr. Owen offers an opinion that describes a question or a statement by petitioners' counsel during cross-examination which is not evidence.

CO-HEARING OFFICER DODUC: Mr. Owen, in that statement which is, I think, on screen right now, are you -- are you stating that Mr. Berliner made that statement, or are you stating -- or is it your testimony that Dr. Paulsen made that time?

WITNESS OWEN: Dr. Paulsen -- I don't believe Dr. Paulsen made that statement. I believe Dr. Berliner [sic] made that statement.

CO-HEARING OFFICER DODUC: All right. Mr. Mizell, Mr. Berliner?

MR. BERLINER: Yes, I should probably clarify, I asked a question of Dr. Paulsen referring to the legal requirements for chlorides. And she confirmed my question to her as to whether the standards were 250 and 500. You may recall that --

CO-HEARING OFFICER DODUC: I recall that, yes.

MR. BERLINER: -- series of questions.

So I said -- for instance it would be the same as if I said, "Are you required to stop at a red light?" And the expert said, "Yes, you are."

Well, I'm not the one who's saying the red light is require- -- the expert is confirming, yes, based on their expertise, that's the requirement. Same thing here with the 250 and 500. If Dr. Paulsen felt that 250 or 500 was incorrect, she would have so stated.

CO-HEARING OFFICER DODUC: I remember that exchange. However, it does seem that at least Mr. Owen at a minimum has misunderstood that exchange. So I am sustaining Ms. Taber's objection or granting your

motion, whatever the appropriate terminology is, with respect to striking this portion of his testimony.

MS. TABER: Thank you.

And so just to confirm, that testimony occurs on two pages of Mr. Owen's testimony, on Page 8 -- and I don't have the line numbers handy at this point, but I can provide those -- and on Page 4, Lines 10 to 12 in the last sentence of the paragraph that is numbered 5.

And thank you. And that concludes my cross-examination.

CO-HEARING OFFICER DODUC: Thank you, Ms. Taber.

Mr. Emrick.

Oh, and just to make sure, Ms. Taber, because I don't always use the correct legal terminology, with respect to the first objection/motion you made, if it was an objection, it was overruled; if it was a motion, it was denied.

MS. TABER: Thank you.

MS. McGINNIS: Robin McGinnis, DWR. I have a question about what is being struck. Is it the entire paragraph that those sentences were part of or just those two sentences?

CO-HEARING OFFICER DODUC: It was just the sentence referring to Mr. Berliner.

MS. McGINNIS: Okay. Thank you.

CO-HEARING OFFICER DODUC: Mr. Emrick.

MR. EMRICK: I'm going to --

CO-HEARING OFFICER DODUC: Microphone, Mr. Emrick.

MR. EMRICK: Thank you. Yes, Matthew Emrick, City of Antioch. I'm going to ask a couple of follow-up questions regarding Ms. Taber's line of cross-examination, and then I'm going to ask some questions to see if -- how Mr. Owen's testimony might relate or not relate to the City of Antioch.

CO-HEARING OFFICER DODUC: We usually frown upon cross of cross, but if it's relevant and --

MR. EMRICK: I think it is because I think it would also go to the City of Antioch.

CO-HEARING OFFICER DODUC: I'd rather you do that than repeat the question. So please go ahead, Mr. Emrick.

CROSS-EXAMINATION BY MR. EMRICK

MR. EMRICK: Yeah, so you testified in coming to the conclusions that you have today with respect to how intakes and water treatment plants operate, that you got that information primarily from a YouTube video; is that correct?

WITNESS OWEN: That's not correct.

MR. EMRICK: Okay.

WITNESS OWEN: The -- the information that I got relative to the specific treatment processes that are used at the Stockton Delta water supply water treatment plant was from that video. My impressions about -- and my opinion about how water treatment plants operate intakes are based upon 35 years of experience in dozens of water treatment plants and working with operational staff.

MR. EMRICK: Yes, and I understand that. I apologize. But I think your testimony was you never met with anybody at City of Stockton; is that correct?

WITNESS OWEN: That is correct.

MR. EMRICK: My question is why not?

WITNESS OWEN: The -- we had the information -- we had the information on how these operate. These are relatively short time frames.

MR. EMRICK: You don't think that you'd have a better understanding of water intake and water treatment operation if you were to visit the intake and the water treatment plant, talk to personnel operating those?

MR. MIZELL: Objection, relevance. Mr. Owens put forth his opinion. And at this point, Mr. Emrick is trying to provide hypothetical what-ifs to see if

there is a better way to form an opinion. I think Mr. Owen's testimony stands on its own. And this is an inappropriate line of questioning.

MR. EMRICK: Did DWR --

CO-HEARING OFFICER DODUC: Mr. Emrick, your response to that objection?

MR. EMRICK: Well, maybe I can have a better question. Let me ask a better question, a more direct question.

CO-HEARING OFFICER DODUC: All right. So you are rephrasing your question?

MR. EMRICK: Correct.

CO-HEARING OFFICER DODUC: All right.

MR. EMRICK: Did the Department of Water Resources instruct you not to contact City of Stockton?

WITNESS OWEN: No, they did not instruct me not to do that.

MR. EMRICK: I think you made a statement that municipal water intakes don't operate on an hourly or sub-hourly basis; is that correct?

WITNESS OWEN: That's correct, that's my experience.

MR. EMRICK: Okay. Do you have any knowledge about how the City of Antioch operates its intake?

WITNESS OWEN: I do not.

MR. EMRICK: Have you looked at any of the documents regarding the City of Antioch's agreement between DWR and the City?

MR. MIZELL: Objection, beyond the scope of his surrebuttal testimony.

CO-HEARING OFFICER DODUC: Mr. Emrick?

MR. EMRICK: Yes, where I'm going is the witness makes very broad statements that aren't just directed to the City of Stockton, such as "intakes aren't operated on an hourly or sub-hourly basis." So I'm asking him whether or not he knows whether Antioch operates on an hourly or sub-hourly basis.

CO-HEARING OFFICER DODUC: All right. Overruled, Mr. Mizell.

MR. BERLINER: In that case, I'm going to object to that question because treatment plants operate on a 24-hour basis. So the question is unclear as to what regarding operations because I think we were talking about changes to operations, not operations.

CO-HEARING OFFICER DODUC: Mr. Emrick, please clarify.

MR. EMRICK: I'm talking about the statement he makes with respect to intakes not being operated or managed on an hourly or sub-hourly basis, that he had no knowledge of any intake that was operated on an

hourly or sub-hourly basis.

CO-HEARING OFFICER DODUC: So repeat your question for me, Mr. Emrick.

MR. EMRICK: Well, my question is whether or not he has any knowledge of whether Antioch operates on an hourly or sub-hourly basis.

MR. BERLINER: Same objection. The intake operates as it operates. The witness was discussing changes in operations.

CO-HEARING OFFICER DODUC: Overruled.

Mr. Owen, if you do not know, then state so, but please answer the question.

WITNESS OWEN: I have never known any water treatment plant that operated an intake on an hourly or sub-hourly basis. I am not specifically aware of how Antioch operates their intake.

MR. EMRICK: If I could ask, Mr. Hunt, if we can put up DWR-310. And if we could scroll down to Article 4.

Article 4 of this is an amendment to the original agreement between DWR and the City of Antioch. And Article 4 states that DWR and the City have negotiated and agreed that such measurements -- and those measurements are chloride levels -- will be made at slack current, which shall be deemed to occur two

hours after daily higher high tide effective January 1st, 2013.

Would this seem to state or imply to you that the City of Antioch operates its intake at least on an hourly basis or at least based upon the daily high tide?

CO-HEARING OFFICER DODUC: I hear an objection coming.

MR. BERLINER: Yes, you do. Objection, beyond the scope of his testimony. The witness is not familiar with this agreement, or at least there's been no showing what the witness is familiar with this agreement.

MR. EMRICK: Well, it's going toward his statement he made that he was aware of no other city that operated on an hourly or sub-hourly basis.

CO-HEARING OFFICER DODUC: And he still is not aware of it, regardless of what you might show him. The objection is sustained.

MR. EMRICK: Thank you.

With respect to chloride levels and their impacts on drinking water, do you know what the thresholds for chloride levels are for DWR's diversions in the South Delta?

MR. BERLINER: Objection, beyond the scope.

MR. EMRICK: Okay.

Do you know what --

CO-HEARING OFFICER DODUC: Mr. Emrick, are you moving on and acknowledging the --

MR. EMRICK: I'm moving on.

CO-HEARING OFFICER DODUC: All right. Then I guess the objection is sustained.

MR. EMRICK: Do you know what the chloride levels are or the chloride requirements for any of the DWR municipal contractors that take water from DWR?

MR. BERLINER: Objection.

CO-HEARING OFFICER DODUC: Again, same objection?

MR. BERLINER: Same objection.

CO-HEARING OFFICER DODUC: Same ruling.

MR. EMRICK: Do you know or do you not know what the threshold is for the City of Antioch's agreement with DWR?

MR. BERLINER: Same objection.

CO-HEARING OFFICER DODUC: Sustained.

MR. EMRICK: Let me move back a little bit then. You stated that 250 chlorides doesn't necessarily reflect a harm or an adverse impact on people drinking that water, is that correct, or at least not a health impact; is that correct?

CO-HEARING OFFICER DODUC: I think his testimony was that it's not a primary standard.

MR. EMRICK: Secondary standard. Okay.

Do you know whether or not the Department of Water Resources has established a threshold for the City of Antioch of 250 parts per million as a level of harm?

MR. BERLINER: Objection, relevance, beyond the scope.

MR. EMRICK: Well, I guess my point is this, is that -- well, let me ask another question, and I'll try to clarify for you.

Are you aware of an agreement between the Department of Water Resources and Contra Costa Water District./

MR. BERLINER: Objection, relevance, and vague.

CO-HEARING OFFICER DODUC: Again, beyond.

Mr. Emrick, I need you to perhaps explain to me how your line of questioning or at least this line of questioning is responsive to his surrebuttal testimony.

MR. EMRICK: Yeah. What I'm trying to show is that, during his statement, that he's trying to minimize chloride levels over -- well, I guess the

point I'm trying to make is that although he may say it's a secondary standard --

CO-HEARING OFFICER DODUC: You are not testifying, but go ahead.

MR. EMRICK: Right, no. I'm just trying to clarify -- is that in fact DWR is making a number of agreements based upon -- on thresholds for lower chlorides. So if there isn't any impact from a -- from chlorides to health, why would DWR be making these agreements?

CO-HEARING OFFICER DODUC: That definitely is beyond the scope of his testimony as well as his expertise.

MR. EMRICK: Okay.

Let me ask whether or not, Mr. Owen, would -- would you -- if you were in a -- well, do you have any knowledge based on your experience as to whether or not the higher the chloride levels, the greater the impact to a city's economy, the ability to serve water?

MR. BERLINER: Objection, beyond the scope of his testimony.

MR. EMRICK: Sure. If you had two cities, let's say, a city receiving 30 parts per million chlorides from DWR and another city whose water quality was at 250 parts per million, would you expect that

there would be a difference in taste?

MR. BERLINER: Objection, beyond the scope, relevance, incomplete hypothetical.

CO-HEARING OFFICER DODUC: Sustained.

MR. EMRICK: Would you be willing to live in a city that serves water that --

CO-HEARING OFFICER DODUC: I'm hearing an objection already, and I'm sustaining the objection.

MR. EMRICK: Okay.

CO-HEARING OFFICER DODUC: Or at least, I guess, I will object and ask you to move on, Mr. Emrick.

MR. EMRICK: Do you know -- you testified a little bit about bromides to a question asked by Ms. Taber. Are you familiar with the thresholds for bromide levels set forth in the Final EIR for the WaterFix project?

MR. BERLINER: Objection, beyond the scope of this witness's testimony.

CO-HEARING OFFICER DODUC: Sustained.

MR. EMRICK: That's all I have. Thank you.

CO-HEARING OFFICER DODUC: Thank you, Mr. Emrick.

Any other cross-examination?

(No response)

CO-HEARING OFFICER DODUC: Any redirect? And if so, for what issues?

MR. MIZELL: No, there's no redirect.

CO-HEARING OFFICER DODUC: All right. In that case, thank you, Mr. Owen.

And I will ask you to bring up your next witnesses, Mr. Mizell.

MR. MIZELL: Very well. Is it proper at this time I enter into evidence --

CO-HEARING OFFICER DODUC: I would like you to wait until the completion of your entire surrebuttal.

MR. MIZELL: Very good.

CO-HEARING OFFICER DODUC: Sorry. Mr. Berliner, who are you calling up next?

MR. BERLINER: These will be the witnesses testifying about CalSim.

CO-HEARING OFFICER DODUC: Which includes Ms. Parker and her baseball analogy?

MR. BERLINER: That's correct.

Just a time check for the court reporter. We have -- so we have about 30 minutes of testimony. Would you want to take a break after the direct?

CO-HEARING OFFICER DODUC: Yes, we will take a break after your witnesses have presented their testimony.

MR. BERLINER: Thank you.

CO-HEARING OFFICER DODUC: Please begin.

NANCY PARKER and ERIK REYES,

called as surrebuttal witnesses by the petitioners, having been previously duly sworn, were examined and testified further as hereinafter set forth:

MR. MIZELL: Good morning. We have Ms. Parker and Mr. Reyes back before you. Both have taken the oath previously. I will have Mr. Reyes attest to his exhibits and then Ms. Aufdemberge will speak with Nancy Parker.

DIRECT EXAMINATION BY MR. MIZELL

Mr. Reyes, is DWR-931 a correct copy of your written surrebuttal?

WITNESS REYES: Yes, it is.

MR. MIZELL: Thank you. And have you previously attested to your statement of qualifications?

WITNESS REYES: Yes, I have.

MR. MIZELL: Thank you.

DIRECT EXAMINATION BY MS. AUFDEMBERGE

MS. AUFDEMBERGE: And, Ms. Parker, is DOI-37 a true and correct copy of your written surrebuttal testimony?

WITNESS PARKER: Yes, it is.

MS. AUFDEMBERGE: Is DOI-38 a correct copy of your PowerPoint presentation?

WITNESS PARKER: Yes, it is.

MS. AUFDEMBERGE: Please summarize your testimony.

MR. MIZELL: Mr. Hunt, if we could bring up DOI-38, please.

WITNESS PARKER: So before I start my formal presentation, I wanted to make folks aware that there is one organizational error in my written testimony. On Page 10, right above Figure 7, I say that data shows an example of actual inflow exceeding the May 50 forecast. What it really should say is that's an example of the May 50 forecast exceeding the actual inflow. So that is a correction in that one sentence.

Okay.

CO-HEARING OFFICER DODUC: Hold on, before you begin, Ms. Parker.

Mr. Bezerra?

MR. BEZERRA: Yes, thank you. Could I just ask that that be repeated so I can make sure to catch what that was?

WITNESS PARKER: Certainly.

CO-HEARING OFFICER DODUC: Just flip it

around. But, Ms. Parker?

WITNESS PARKER: So the error is on Page 10 of my written testimony. And it's in the paragraph that's directly above Figure 7, in the one sentence right above that, yeah.

So the sentence says the 1980 data shows an example of the actual inflow exceeding the May 50 percent forecast. What it should say is the 1980 data shows an example of the May 50 forecast exceeding the actual inflow.

MR. MIZELL: Thank you.

CO-HEARING OFFICER DODUC: All right.

WITNESS PARKER: I apologize for that.

Okay. So can we just bring up the PowerPoint then?

Okay. So Chair Doduc and assembled Panel Members, during rebuttal testimony and cross-examination, petitioners and other parties got well into the weeds on some of the CalSim details: What is perfect foresight? How is it used? In whose models? What are stressed conditions? Can CalSim model drought options -- et cetera.

And despite our best efforts, it seemed that the Board may have come away from that stage of the hearings perhaps more confused on some issues. It's

very important to petitioners that the Board has a really clear understanding of what CalSim is and what it isn't, what it does and what it doesn't do. And it's -- I just want to make clear that it's a really important and valuable tool for analyzing the CVP and the SWP. And we appreciate this opportunity to try to explain some of these key issues.

So Slide 2. So Walter Bourez indicated during rebuttal testimony that the WSI-DI curve generation process is a form of perfect foresight. I respectfully disagree, and I'd like to talk through that process to help the Panel understand why it is not perfect foresight.

Next. So there is a relationship between water supply and the ability of the CVP and the SWP to deliver water. And that much should be pretty clear. It's pretty foundational.

The WSI-DI curve approximates that relationship. That curve may need to be redeveloped any time something changes about the balance of that relationship. Climate change is a good example. That can change the water supply side of the equation.

So how do we decide what this relationship actually looks like? So a person could do this, but different people would do it differently, and that

might create opportunities for inconsistency.

From the early days of CalSim, we've used an iterative methodology for calculating what that relationship looks like. What we do is to start with a 50/50 relationship between WSI, the water supply index, and DI, the delivery index, which is a combination of delivery and carryover storage. And this is depicted, this 50/50 relationship, is depicted by the orange dots on that plot.

Given that, which we know it is not correct -- it's not very refined; it's 50/50, right? What we do is we run the model and we see what's actually possible for the model to achieve. We run the model through the whole 82 years, and then we look at for each year what the WSI in the model actually was and what the DI is that we actually achieved by the end of September.

We plot those points -- and those are the blue points on this curve -- and we use those points to draw a general curve, to fit a curve through those blue points. And that's what's depicted in the black line. There are points on the line -- we only do this for every 500,000 acre-foot increment of WSI. And this is our first approximation of the WSI-DI curve. So we've gone from orange points to blue points to a black line. All right?

Next slide, please. So in Step 2, that black line from Step 1 now becomes the orange dots that you're seeing in this slide. And now I get to say that black is the new orange -- you knew that was coming.

So the model is run again in Step 2 for the whole 82 years, and we produce a new set of blue points. And the new blank line is derived to fit through those blue points.

Next slide, please. There's a typo on the slide. This is really step three. In step three, the black line from Step 2 again becomes the new orange points. We rerun. We re-plot blue points, and re-plot the black line -- or redraw the black line.

And this does not look much different from that plot in Step 2, does it? Right? So those are very similar. What we have found through empirical testing is that three steps are fine; they're sufficient for sufficiently refining our depiction of the WSI-DI plot -- or the WSI-DI curve.

So, anyway, ta da, the black line in this plot is what goes into or what becomes the WSI-DI look-up table for model runs going forward with that configuration of water supply inputs and delivery or operational, you know, issues with the model.

So next, please. So the take home message

from this whole series of plots is that the process is about establishing a generalized rule. It would be perfect foresight if, instead of interpolating between points on the black line that we derive, we actually went back and used each individual blue point in that third step as inputs to the model, specific ones for specific years. But we don't do that.

And I'll mention again that this is a standardized, turnkey-type process that lends convenience, reproducibility, transparency, and consistency. But it would be fine if a person did it as well we just like to do it this way because it is just a normalized, standardized process. The point is that it's about developing a generalized rule.

Next -- next plot or next -- so the distinction that we'd like to draw, too, is between this process and the iterative one that MBK used to develop the export estimate time series they use in their modeling to inform South of Delta allocation calculations. They iterated -- just like we do when we develop our WSI-DI curve, they used iterations as well to define actual export capacity, not to refine a relationship that could be approximated by a curve. They used the dots; we are using a line.

Next slide, please.

So an extension of Mr. Bourez' complaint was that essentially WSI-DI is not enough like real-life operations and that a different procedure would help us get through droughts better.

Petitioners believe that the WSI-DI methodology is appropriate for planning analysis. And we'll go through the process using a specific example from the BA no-action alternative. We're just going to look at actually data from March 1980, which was a pretty random selection as to what we used.

The next slide, please. First let's make sure everybody understands what goes into the water supply index. And I'd like to give my staff a ton of credit for making sure that all of the hydrology elements in this slide are drawn to scale. We've learned our lessons from the last phase.

The water supply index is the sum of Trinity, Shasta, Folsom, and San Luis storage plus inflow forecasts for the Sacramento and American Basins. And these are shown on the figure as 1838 thousand-acre-feet in March 1 Trinity storage; 3292 thousand-acre-feet in Shasta, 457- in Folsom, and 792- in San Luis.

These are actual results from the BA no action alternative. The inflow forecasts are looked up from a

table. And in March, we're using a 90 percent forecast of March through September inflow. The values for the Sacramento runoff and the American runoff are 2175 and 1159 thousand-acre-foot respectively.

So that takes care of the first six elements, and they're numbered 1, 2, 3, 4, 5, 6 in the figure. We actually do -- oh, so I want to make sure everyone understands that none of these elements involve any look ahead. They are all either something that we know on March 1st, which is the storage, or a description of a water -- a water supply or a runoff forecast, not a look ahead into what the inflows actually are.

On the other hand, we actually do use perfect foresight for the component of James Bypass contribution to the Exchange Contractor deliveries. What we do is we look ahead into our inputs to see if any flows coming into Mendota Pool from the James Bypass can be used to contribute to Exchange Contractor deliveries. This is a pretty minor component to the overall WSI value. In this case, it contributes about 2 percent to the overall WSI of 10,145,000 acre-feet.

So before we leave this slide, please focus on the No. 2 and No. 4 elements of this figure, which is the Sacramento and American River runoff components.

And so we're going to go to the next slide,

please. So if the model looked ahead into input data to total up actual inflow through September, that would be perfect foresight. But these values are -- values are actual historical or derived values that reflect specific levels of uncertainty in inflow forecasting. What this slide shows is two examples: one for 1980 on the right-hand side and a second example, just for comparison sake, on the left-hand side of 1950, which is below normal year. The American River is on top. The Sacramento River is on the bottom.

The model uses a 90 percent forecast in March, a 75 percent forecast in April, and a 50 percent forecast in May reflecting improving certainty through the spring. This plot compares the inflow forecasts in each month with the actual inflow volumes from that month through September. And you can see that the gap between the forecast and the actual inflow comes down as you achieve more certainty in the inflow forecast.

In the case of May of 1980, you can actually see that the -- on the Sacramento side, you can actually see that the actual inflow is a bit lower than the forecast was before it -- and this was where there was a mistake in my written testimony.

So this is normal since the 50 percent inflow forecast means that there's a 50 percent chance that

the actual inflow could be above or below the forecast value.

Next slide, please.

Can we go to the next slide, please?

Okay. To Mr. Bourez' point that the WSI, quote, "is very different from what was actually done in actual operations," end quote -- well, I didn't say that correctly. "It's very different from what was done in actual operations," end quote. So of course it is. It's a modeling device. It is not an actual operation.

The WSI has to approximate an activity that take place in real life, but it has far less information -- the model has far less information available to it than actual operators do.

Actual operators have access to real-time indicators of things like biological conditions, seasonal inflow timing, watershed variability, and specific concerns about individual facility operations and dependencies. We have not built this kind of information in the CalSim. CalSim is not an annual operations model. It's a water supply reliability planning model. And we do maintain that the WSI approach is appropriate for use in achieving this purpose.

So next slide, please. So back to our example and kind of quickly here, the 10,145 WSI is used to derive a value of 9872 for delivery index from the WSI curve. Next, that delivery index is used to derive a target value of 5355 from the delivery carryover curve and this is our delivery argument that.

Next slide, please. That 5355 is the green bar in the upper right-hand plot on this slide. I went through a similar slide in my rebuttal testimony, you may recall. The green bar is the delivery target. The next bar to the right, the multi-colored bar, is a total of all the CVP demands in the system. And the difference between those two bars is what needs to be cut.

The cuts are done following contractual CVP logic, and in this example, we see that the ag allocation ends up at 66.6 percent, and the M and I cuts result in an allocation of 91.6 percent.

So by contrast, MBK's type of modeling for the Sac Valley Water Users enabled the same calculation process that still happened in their modeling, but what they would do is then run the model through September, look back at what happened, and identify opportunities such as unused conveyance capacity or perhaps additional water leftover in the storage and say,

"Well, gosh. We could have delivered more." So they go back, and say, "Let's just bump up that allocation to 100 percent."

But there are no do-overs like that in real life operations or in petitioners' modeling. Maybe the allocations in petitioners' modeling aren't perfect, but this is not a deal breaker for long-term operations -- or for long term planning modeling.

If one year is a little too conservative on allocations, another year may be a little bit less conservative. But on balance, petitioners think that this approach appropriately captures the project's operational philosophy.

Next slide. So this philosophy, which Ron Milligan explained in his rebuttal testimony, is reflected in and is consistent with petitioners' modeling for the WaterFix. And we can see it reflected in a full range of modeling that has been done for Reclamation studies.

Next slide. I'm going to spend a fair amount of time on this slide. So in response to other party's declarations about how the WaterFix would affect Reclamations operational philosophy, I thought it would be helpful to look at an historical perspective on CalSim planning analysis.

The plots on the left side of this slide show the exceedance distribution of CalSim operations for North of Delta and south of Delta CVP ag service contractors for a broad range of CalSim studies. The blue lines are all from studies which used historical hydrology, and the olive lines are all from studies done using climate change hydrology.

The range of blue lines -- they don't all lie on top of each other, right? There's a range of them. But that range indicates that these studies reflect various regulatory environments and operations projections that have happened over the last 15 years.

And I want to point out that two of those blue lines are from studies that were performed by Central Valley operations office. So these are the OCAP studies of 2004 and 2008. And surely we could agree that this affects their perspective.

Three of those blue lines are from studies that were performed by MBK for Reclamation analyses. I want you all to notice, too, that, in the South of Delta plot that's in the lower left-hand side, some of those blue lines are much lower than the others. The reason for this is that they reflect export restrictions under the RPAs. They were still done with the historical hydrology.

All of the exceedance relationships in those plots exhibit a fairly steady slope. It's not terribly aggressive on the wetter end, but it ensures a degree of water supply reliability in all but the most dire conditions. This is the perspective that Ron Milligan described in his testimony.

On the right side of this slide, I have kept all the blue lines from the historical hydrology studies and compared these to the results of MBK's studies. Those MBK studies also used historical hydrology, so it makes them comparable.

MBK's no action alternative shown by the red solid line -- and let's look at the North of Delta plot here in the upper right-hand corner. So MBK's no action alternative shown by the solid red line has more aggressive North of Delta ag allocations than any other CalSim study ever. And on the drier side, their allocations fall below those of Reclamation studies about 25 percent of the time.

South of Delta -- so lower right-hand corner now -- look at the red dashed line, which is MBK's Alt-4A ag allocation. I want to be clear that the projects do see the WaterFix as a facility that can help to overcome export limitations.

But MBK's allocation with the WaterFix

outshines anything that Reclamation had envisioned even before the RPAs. This isn't quite as dramatic as the North of Delta plot because that sharp drop from the hundred percent allocation doesn't fall -- doesn't extend quite as far over, but the message is still the same. That red dashed line is above all the other blue lines at the wet end.

An additional point to make here is that, given other RPAs like Fall X2 that can affect overall project water supply, it's really unlikely to achieve the full recovery and then some of pre-BO delivery levels that's demonstrated by MBK's allocation modeling.

So what we want to really convey here is that, over 15 years of planning analysis, Reclamation studies have depicted a pretty consistent trend in allocation. This is one that focuses on a reliable water supply for all customers through all year types while meeting regulatory standards. And we just continue to disagree with MBK's characterization of Reclamation's operational philosophy showing the Bureau favoring South of Delta delivery over all other obligations.

Next slide, please.

So now let's talk about what CalSim does in droughts, which has been the topic of a whole lot of

dialog in this proceeding. Petitioners do maintain the drought year CalSim results are reasonable for long-term planning analysis. Tom Gohring said in his testimony that, quote, "Reclamation and DWR witnesses had repeatedly said that their modeling cannot be trusted in the driest 10 or 20 percent of the years," unquote.

And Mr. Bourez says that, "Petitioners should prioritize meeting BiOp CVP and SWP storage specifications, avoid dead pool, and meet public health and safety requirements rather than unnecessarily making reservoir releases for exports or over-allocating water supplies to discretionary water contractor deliveries.

Mr. Gohring has misunderstood petitioners' witnesses, and Mr. Bourez is misrepresenting what petitioners' models are showing. What we have repeatedly said is that model results showing extremely low storage, including dead pool, are indicative of severe drought when CalSim does not have sufficient knowledge about specific local and unique situations that typically inform the collaborative decisions on how best to manage limited resources under challenging conditions. This is not synonymous with a lack of trust in the model. And these results do not reflect

an intent to operate at these low storage conditions.

So the next slide, please. So I'm going to walk you through the '30s drought. It won't take that long; don't worry. And we're going to look at decisions that CalSim does make. And in each of these slides, let's just orient ourselves to the -- the scale of what's shown on each of these six plots in each of these slides.

We've got a set of plots showing Delta outflow, CVP storage, San Luis operations, CVP allocation for the current and the previous year -- so it's good to know what happened before -- exports at Banks and Jones, and CVP delivery. And I've divided that --

Can you make that, the whole thing, a little smaller? Oh, we can scroll -- that's fine. I'm not going to get too far into the weeds, so just a broad look is fine.

So I've divided the bars for delivery into components that are -- the preceding year's October through February delivery and what is March through September in the year that we're really focusing on here.

Okay. So 1929, here in this first slide, is the first full year of drought. It's a critical year,

and it's a Shasta critical year. Allocations to CVP ag are 11 percent. Releases are made in May and June, we can see in the Delta outflow part of the plot, to meet a Delta outflow of 7100 cfs. That's for X2. And in July through September, we're meeting three D1641 flows in Delta outflow.

Shasta, Trinity, and Folsom balanced responsibilities to meet CVP obligations, and they finish September at storage conditions which are definitely a bit low. However, you can see in the lower right plot that delivery was really dominated by non-discretionary obligations, not the total of 208,000 acre-feet that was delivered to CVP ag service in March through September.

Next slide, please. 1930 is the second year of drought. It's dry. It's not Shasta critical. So even though the water supply forecast is a bit better than the previous year, the higher obligation to settlement and Exchange Contractors, because it's not a Shasta critical year, leads to a need to cut ag service allocations to zero.

Late summer hydrology enables North of Delta reservoirs to limit releases for delivery, and September carryover is a bit better than we did the year before.

Next slide, please. So 1931 is the first really hard year in this drought sequence. The reservoirs don't fill much beyond their fall carryover levels at all. Ag service allocations are zero. And the reservoirs operate through the whole spring and summer to meet Delta outflow and water quality standards and to deliver contact obligations.

Shasta and Folsom finished barely above dead pool, and storage has just been withdrawn to meet flow and delivery requirements, and this is a really good example of what we call stressed conditions. And this is what Mr. Bourez objects to, but logic would be needed to balance storage with other priorities.

When water supplies fall below those amounts that are needed to meet even critical year objectives in water rights and biological opinions, as may happen in multiple sequential severe drought years, the use of project water has to be approved by the Board and by fishery agencies to meet the unique needs and circumstances of these years.

So plain and simple, the results of CalSim in 1931 indicate that the system is not able to meet all obligations with the water supply that is available. The same low storage conditions are indicated in both the no action and the WaterFix scenarios. The system

is equally stressed in both scenarios.

1932, please, next slide. So I'll skip the details on this in the interest of time and just note that ag allocations are zero in this year for the third year in a row. And there were some substantial needs for meeting Delta outflow in the spring, in March and June. Those were driven by X2 requirements.

Next slide, please.

Okay. 1933, this was a particular focus of Mr. Bourez' rebuttal testimony. This is the fifth year of drought. And in petitioners' modeling, it's the fourth year in a row of zero percent ag allocations. The CVP certainly has not been frittering away reservoir releases on discretionary water contractor deliveries.

Mr. Bourez particularly takes CalSim to task for releasing water in August to export 4476 cfs at Jones which is only just stored in San Luis. But if we examine the reasons behind this result, we can see that the model is strictly adhering to COA and to other operational guidelines in doing that.

So Mr. Bourez' idea was that a better result would be to only export minimum health and safety pumping of 600 cfs at Jones instead of the 4476 and keep the balance of that release in CVP storage.

But it turns out that all of that inflow coming into the Delta is actually good for D1641 water quality. And if Jones were reduced to 600 cfs, we would need an additional 980 cfs more Delta outflow just to meet the D1641 standard for water quality.

In addition to that, Oroville, in this particular month, happens to already be at a very low storage condition, and it's only releasing for a minimum Feather River flow.

CalSim is pretty diligent in its adherence to the COA sharing formulas. With that 980 cfs of Delta outflow that is being released from Shasta or Shasta and Folsom for water quality, that 980 cfs becomes unused federal share under COA balance because we're not changing anything about Oroville.

CalSim encourages operation -- I should say CalSim's solution algorithm encourages operations that appropriately balance inflow, export, and Delta outflow.

Ah, I'm almost done, almost done. May have five more minutes?

CO-HEARING OFFICER DODUC: Please, go ahead.

WITNESS PARKER: So CalSim encourages operations that appropriately balance inflow, export, and Delta outflow to meet water quality through weights

and penalties that drive a linear programming solution. I know that sounds really mathematical.

But the need for a specific additional segment of Delta outflow above minimum required Delta outflow to meet water quality is penalized in this algorithm. The idea is that the need for that represents a less desirable balance in system operations. And using federal share is -- an unused federal share is also penalized. And the bottom line here is that CalSim determined a mathematically prudent outcome for the available water supply under these circumstances.

Under normal operating conditions, the system has flexibility to avoid these kinds of solutions. And it's pretty rare to have unused federal share that's not exported at Banks.

Under the stressed conditions that we experienced in August of 1933, however, five years into an extreme drought sequence, these generalized rules just don't enable the model to make the more realistic choice to preserve upstream storage over a larger export.

This extremely rare behavior in CalSim results under stressed conditions and does not reduce the level of confidence in the overall capability of the model to depict water supply reliability impacts of a proposed

alternative relative to a no action alternative.

Next slide, please. So here's the fundamental truth is that CalSim does not struggle in severe extended droughts because that darn WSI-DI-based allocation logic lead to poor discretionary CVP conditions. CalSim struggles in severe extended droughts because there's not enough water to meet all of Reclamation's non-discretionary obligations, even when its discretionary allocations have been zero for four consecutive years.

The reason why MBK shows better storage conditions in drought is mostly because they have more water in droughts in their simulation because they use historical hydrology. The climate change hydrology and sea level rise assumption used by petitioners is simply more challenging in drought years.

Next slide, please. And we're going to skip over that in the sake of time, so next slide, please.

I do want to respond to Mr. Gohring's remark that we don't trust the model to make good decisions 20 percent of the time.

This slide and the one after it -- you can barely see the shading in the background, but I have shaded the 20 driest years in CalSim's period of record.

What we can see here is that there are many very dry years where CalSim does make appropriate decisions. It reduces discretionary allocations and continues to make project obligation -- continues to meet project obligations. The majority of these years do not result in troubling storage conditions. It's only in those situations of extended extreme droughts.

Next slide, please. Go all the way to the end. Next one. Okay.

So in conclusion, I'd like to reference a discussion between Mr. Herrick and Mr. Bourez on May 12th. And the gist of that exchange seemed to be that CalSim is flawed because, for one example, WSI-DI is not capable of getting the model through droughts. So that's why MBK had to manually enter allocations to depict an operation that they think justifies terms and conditions on the WaterFix so that we won't throw up our hands in droughts anymore.

We don't agree with this apparent justification for MBK's predetermination of allocation. During droughts, with or without the WaterFix, there will be continued need for collaboration to manage limited resources. Reclamation's efforts in the surrebuttal phase are mostly to try to clarify misconceptions about CalSim and about CVP operational

philosophy.

The WSI-DI curve is not perfect foresight, neither in its generation nor in its application. Reclamation's longstanding operational philosophy is consistent with modeling that was done for the WaterFix. And drought year CalSim results are sufficient and reasonable for the long-term planning purpose that the WaterFix change in point of diversion petition analysis requires. Thank you very much.

Thank.

CO-HEARING OFFICER DODUC: Thank you, Ms. Parker.

Anything else at this point, Ms. Aufdemberge?

MS. AUFDEMBERGE: No.

CO-HEARING OFFICER DODUC: All right. Let's go ahead and take our break, and we will return at 11:15.

(Recess taken)

CO-HEARING OFFICER DODUC: It is 11:15, we are back in session. I see Mr. Bezerra ready, prepared for his cross-examination. But if I could get an estimate of whether there are any other planned cross-examination of Ms. Parker and Mr. Reyes?

MR. BEZERRA: And Ms. Doduc, just for clarity, I'm the lead questioner for Group 7.

CO-HEARING OFFICER DODUC: Okay. And how much time do you anticipate needing, Mr. Bezerra?

MR. BEZERRA: In light of that, my best guess is 75 minutes.

CO-HEARING OFFICER DODUC: Okay. Next?

MS. NIKKEL: Good morning. Meredith Nikkel on behalf of the Tehama-Colusa Canal Authority. I can't remember the group number -- 9, maybe, 10, 7? Approximately ten minutes.

CO-HEARING OFFICER DODUC: All right. Next?

MR. JACKSON: Michael Jackson on behalf of the CSBA parties. Perhaps 10 minutes. Mr. Shutes will be with me asking the questions.

CO-HEARING OFFICER DODUC: All right. Anyone else? And Mr. Bezerra, you mentioned you were the lead cross-examiner. Do we expect others from Group 7?

MR. BEZERRA: I don't at this point.

CO-HEARING OFFICER DODUC: All right. We'll try to find a good breaking point for lunch and -- for our lunch break. And I would expect, if you are close to that 75 minutes, Mr. Bezerra, we'll take our lunch break when you are done.

MR. BEZERRA: Okay. Thank you very much.

CO-HEARING OFFICER DODUC: And the topics you will be covering?

MR. BEZERRA: Yes. First -- first topic is the different modeling runs referenced in Ms. Parker's testimony. The second is various model results in her testimony, which has a few subparts because there's a few different model results. The third is Reclamation's operational philosophy. And the fourth is the WSI-DI.

CO-HEARING OFFICER DODUC: Please proceed.

MR. BEZERRA: Thank you very much.

CROSS-EXAMINATION BY MR. BEZERRA

MR. BEZERRA: Good morning, Ms. Parker, Mr. Reyes. My name is Ryan Bezerra. I represent the cities of Folsom and Roseville, Sacramento Suburban Water District, and San Juan Water District.

Mr. Hunt, could we please pull up Ms. Parker's testimony Exhibit DOI-37 and specifically turn to Page 2. And if you could scroll down to Figure 1.

Ms. Parker, this Figure 1 is an exceedance plot of end-of-September Folsom storage, correct?

WITNESS PARKER: That is correct.

MR. BEZERRA: And these model results are from the modeling that petitioners presented in their case in chief in this hearing, correct?

WITNESS PARKER: That is correct.

MR. BEZERRA: Mr. Hunt, could we please move

to Page 3? Thank you.

Ms. Parker, do you see Table 1 on this page?

WITNESS PARKER: I do.

MR. BEZERRA: And these model results are also from the modeling that petitioner presented in their case in chief in this hearing, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Mr. Hunt, could you please move to Page 4.

Ms. Parker, do you see Figure 2 on that page of your testimony?

WITNESS PARKER: Yes.

MR. BEZERRA: This figure displays results from the petitioners' modeling from the Biological Assessment, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And that is different modeling than the petitioners presented in their case in chief, correct?

WITNESS PARKER: I -- I don't think that that is different. That's not my understanding.

MR. BEZERRA: It's not your understanding? Do you understand that petitioners presented an H3-plus run in their case in chief?

WITNESS PARKER: Yes, that is my

understanding.

MR. BEZERRA: Mr. Reyes, do you understand that petitioners presented an H3-plus run in their modeling in their case in chief?

MR. MIZELL: I'm going to object to this line of questioning. Ms. Parker wasn't even a witness during our case in chief, and, therefore, that's clearly beyond the scope of her surrebuttal if she's now trying to reach back to testimony that she provided at that time.

If Mr. Bezerra has distinctions he'd like to draw between our response to his modeling and the modeling that the Department put on and DOI put on for our cases in chief, he can make that distinction in his own testimony.

But this goes well beyond the surrebuttal of Ms. Parker.

CO-HEARING OFFICER DODUC: Mr. Bezerra.

MR. BEZERRA: Yes, Ms. Parker just testified that Figure 1 on Page 2 of her surrebuttal testimony are modeling results from petitioners' case in chief. And she uses them to express the opinion on Page 2 regarding Mr. Gohring's testimony that she disagrees that the California WaterFix would exacerbate low storage conditions. So it's well within the scope of

her surrebuttal testimony.

CO-HEARING OFFICER DODUC: Now tie it to Figure 2, which I think is -- is what Mr. --

MR. BEZERRA: If I can explain where I'm going here?

CO-HEARING OFFICER DODUC: Yes, please.

MR. BEZERRA: Ms. Parker refers to three different -- entirely different sets of model runs in her surrebuttal testimony. And I'd like to understand what each of those are, where they come from, and how they relate to each other.

CO-HEARING OFFICER DODUC: Understood.

Mr. Mizell?

MR. MIZELL: And to the extent that her surrebuttal is in response to modeling used by Mr. Bourez, then the question really goes back to is the modeling be discussed sourced from their testimony, as it appropriately should be in surrebuttal form, or is it from our petition?

I think Mr. Bezerra is conflating the two. This surrebuttal testimony is not meant to repeat our case in chief. It is not meant to repeat our rebuttal testimony. It is responsive to modeling that his witness has put up before this hearing.

CO-HEARING OFFICER DODUC: All right. I'm

going to allow Mr. Bezerra to continue his line of questioning based on the explanation he provided.

I will trust that you are not going to try to make the point that Mr. Mizell just stated.

MR. BEZERRA: Correct. I'm just asking about model results and modeling on which Ms. Parker is relying explicitly in her surrebuttal.

CO-HEARING OFFICER DODUC: All right.

MR. BEZERRA: Okay. So I believe where we got cut off is I had a question for Mr. Reyes as to his understanding as to whether petitioners presented H3-plus BA modeling model in their case in chief?

WITNESS REYES: Could you repeat that question please.

MR. BEZERRA: Sure, you were a witness in petitioners' case in chief, correct?

WITNESS REYES: Correct, I was.

MR. BEZERRA: And to the best of your understanding, did petitioners present BA H3-plus modeling in their cases in chief?

MR. MIZELL: I'm going to object. Mr. Reyes has not provided any testimony to the contrary of that. I believe our case in chief stands on its own. If Mr. Bezerra would like to know whether or not the BA modeling was put into evidence as an exhibit, I think

that's also quite clear on the exhibit list provided by the State Water Resources Control Board.

To the extent that he says it's an inappropriate model to rely upon, his witness introduced the BA modeling.

CO-HEARING OFFICER DODUC: Mr. Bezerra, I'm starting to get a little confused, which is never a good thing.

MR. BEZERRA: Sure.

CO-HEARING OFFICER DODUC: I appreciate your -- the rationale you provided in terms of trying to understand the various different model runs that are being presented in surrebuttal testimony. And I would like you to ask your questions based on and referring to the testimony that is being presented in surrebuttal rather than going backwards.

MR. BEZERRA: Sure. I'll try it a little differently.

CO-HEARING OFFICER DODUC: I think it might be the way you're framing the questions.

MR. BEZERRA: Thank you.

Ms. Parker, Figure 2 on Page 4 of your surrebuttal testimony, those are model results from petitioners' Biological Assessment modeling, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Thank you. If we could now turn to Page 5 of your surrebuttal testimony and specifically Figure 3, the model results in Figure 3 are from the modeling presented in petitioners' Final EIR/EIS, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: To the best of your knowledge, are these model -- is that model different than the BA model?

WITNESS PARKER: There are some differences. I'm not aware of exactly what they are.

MR. BEZERRA: But it is -- the Final EIR modeling is different than petitioners' BA modeling, correct?

WITNESS PARKER: I will refer to that question to Mr. Reyes.

WITNESS REYES: Yeah, I've not been involved in the BA modeling, so I wouldn't know.

MR. BEZERRA: Ms. Parker, what is your level of knowledge concerning the Final EIR modeling?

WITNESS PARKER: I have not been involved in the Final EIR modeling at all. My --

MR. BEZERRA: So you did not prepare the modeling presented in your testimony on Page 5, correct?

WITNESS PARKER: I did not. That wasn't a point of displaying this table.

MR. BEZERRA: Okay. Thank you. So based on the answers, my understanding, Ms. Parker, is that your testimony refers to petitioners' case in chief modeling, their Biological Assessment modeling, and their Final EIR modeling, correct?

WITNESS PARKER: My testimony intended to convey that all of the analysis that's been done for WaterFix scenarios, when compared to a no action, does not display a marked impact on the Folsom storage.

MR. BEZERRA: Okay. And I appreciate that, but I just have a simpler question.

Your testimony refers to three different sets of modeling conducted by petitioners, correct -- the case in chief modeling, the Biological Assessment modeling, and the Final EIR modeling correct?

WITNESS PARKER: Yes.

MR. BEZERRA: Which set of modeling represents the project that petitioners are asking State Water Board to approve?

MR. MIZELL: Objection, relevance. This surrebuttal testimony is responding to raised by Mr. Bezerra's witness. It's not meant to rehash the case in chief and the project put forth in our petition.

CO-HEARING OFFICER DODUC: Mr. Bezerra?

MR. BEZERRA: Yes, I'd like to read from Page 2 of Ms. Parker's testimony.

"Mr. Gohring's testimony in Exhibit ARWA-300 Paragraph 3 incorrectly claims that the proposed modified FMS was developed to protect Folsom Reservoir storage against severely dry conditions and that CWF," California WaterFix, "would increase risk of low Folsom storage in severe dry years."

She then goes on to refer to the case in chief modeling, the BA modeling, and the Final EIR modeling all in responding to Mr. Gohring's testimony. So I believe it's appropriate to ask her what project it is actually she thinks does not require any Folsom storage protection.

MR. MIZELL: And I would argue it's irrelevant. She's explaining that no modeling that the petitioners have set forth, regardless of which project Mr. Bezerra believes we're presenting, supports the claims of Mr. Gohring.

CO-HEARING OFFICER DODUC: And that's how I understood her written testimony, Mr. Bezerra. So I'm trying to -- to get clarification on your line of questions.

MR. BEZERRA: Yes.

CO-HEARING OFFICER DODUC: Yes. I will acknowledge that, as I read her testimony, I, too, was a bit distracted by all these different modeling runs that are being mentioned. So I can sympathize with respect to your line of questioning. Where exactly are you going with this?

MR. BEZERRA: This is a pretty simple question. It's if her testimony is that no Folsom storage protection is required, I want to understand exactly what project operations are involved with the project operations being represented by modeling.

CO-HEARING OFFICER DODUC: Ms. Parker -- and if I may restate what you just said, I believe your intention was that all the various different modeling runs under different scenarios led to you the conclusion that you did. And there was not any one particular set of operations or model runs that, in your mind, represented what's being proposed by the WaterFix project?

WITNESS PARKER: I think that's helpful, yes. That's what I said. Maybe another small point of clarification is that this section of my testimony was in response to Mr. Gohring's testimony in which he pulled in totally another study. So he cited results from Alternative 4 from the BDCP study, which I was

also not involved in.

So in attempting to address his concerns, we referenced other model runs from the range of processes that have led us to this point. Does that help?

MR. BEZERRA: Thank you. I can continue on.

Ms. Parker, do you understand that the petitioners' case in chief modeling and Biological Assessment modeling make different assumptions regarding Delta outflows associated with California WaterFix?

WITNESS PARKER: I do understand that on a general level. I'm not fully familiar with all of the assumptions for every alternative.

MR. BEZERRA: And as a modeler, would it be correct that different Delta outflow assumptions might affect different -- the project operations in sets of modeling?

WITNESS PARKER: Of course.

MR. BEZERRA: Thank you. Moving on to the next subject regarding model results, going back to Figure 1 on Page 2. Ms. Parker, it's your opinion indicates that the State Water Board does not need to adopt any terms to protect Folsom Reservoir storage if it approves petitioners' water right change petition, correct?

WITNESS PARKER: That is correct.

MR. BEZERRA: And, again, this figure is an exceedance plot of end-of-September Folsom Reservoir storage from petitioners' case in chief modeling, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Do you consider September to be the only month that is relevant to the State Water Board in considering whether WaterFix would adversely affect Folsom Water Storage?

MS. AUFDEMBERGE: Objection, exceeds the scope of her surrebuttal testimony.

CO-HEARING OFFICER DODUC: Mr. Bezerra?

MR. BEZERRA: Her testimony is that this plot demonstrates that no Folsom Reservoir storage protection is necessary for California WaterFix. I'm entitled to understand why she thinks that and how credible that opinion is.

CO-HEARING OFFICER DODUC: Overruled.

WITNESS PARKER: So I think that elsewhere in my discussion, we look at storage conditions in other months as well, I believe, September and -- I'm sorry, December and May. So, no, September is not the only month that is of concern to the American River Water Agencies to whom we are responding in this document.

MR. BEZERRA: Okay. My question was do you consider September to be the only month that's relevant in determining whether Folsom Reservoir storage protection is necessary?

WITNESS PARKER: I don't have an opinion on that.

MR. BEZERRA: Okay. Thank you. If we could please refer to Page 16 of Exhibit DOI-37 and specifically the paragraph that begins "Mr. Gohring." Do you see that paragraph?

And the second sentence begins "CalSim modelers," correct?

WITNESS PARKER: Yes, it does.

MR. BEZERRA: In that sense, are you describing what has generally been called stressed water supply conditions in this hearing?

WITNESS PARKER: Yes.

MR. BEZERRA: And those are the conditions I believe you've just testified on direct that the modeling doesn't account for the relevant factors that would be actually considered in severely dry conditions, correct?

WITNESS PARKER: That's one way to say it, yes.

MR. BEZERRA: Okay. Now, please refer to the

last sentence in that paragraph which reads, "If 600 TAF at Trinity, 1200 TAF at Shasta, and 250 TAF at Folsom are considered low storage thresholds, extreme conditions exist in no more than 8 percent of all monthly results." Do you see that sentence?

WITNESS PARKER: I do.

MR. BEZERRA: And just to start with, the abbreviation "TAF" means thousand-acre-feet, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: So in that sense, you're stating that those amounts of storage in the reservoirs you listed can be considered stressed water supply conditions, correct?

MR. MIZELL: Objection, misstates the testimony. It reads "if," not "when."

CO-HEARING OFFICER DODUC: It does, Mr. Bezerra.

MR. BEZERRA: Okay. I'll ask the question differently.

Mr. Parker, do you consider the storage conditions stated in that sentence to be stressed water supply conditions?

WITNESS PARKER: Yes.

MR. BEZERRA: Thank you. And those conditions occur in about 8 percent of all modeled months,

correct?

WITNESS PARKER: Yes.

MR. BEZERRA: Can we please refer back to Page 2, Figure 1 of your testimony. The model results depicted in this figure contain results from the driest 8 percent of modeled months, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: And your opinion is that model results for that 8 percent of months only indicate that there is a problem and not how the CVP would actually operate, correct?

WITNESS PARKER: Can you say that again?

MR. BEZERRA: Sure. You just defined the 8 percent of driest months as stressed water supply conditions, correct?

WITNESS PARKER: I don't think that was my intent. My intent in the language that you cite on Page 16, I guess it was, was to react to Mr. Gohring's statement that, you know, we just said that we can't trust the model 10 to 20 percent of the time. And that -- and this is because of low storage conditions.

And my attempt was to point out that, number one, we did not say that we wouldn't -- that we didn't trust the model and to counter the idea that 20 percent of the time the model results in very low storage

conditions, which is not true.

MR. BEZERRA: Okay. I understand those points. That sentence on Page 16 you defined as stressed water supply conditions, correct?

WITNESS PARKER: Yeah. I guess I -- I want to make it clear that's not the only definition out there. There's nothing written down that says where that line is. I pulled those numbers from just recent discussions about what constitutes dry -- you know, situations where we would definitely see that there are problems with storage.

MR. BEZERRA: Okay.

WITNESS PARKER: Those aren't legal numbers.

MR. BEZERRA: No, I understand. And we just have used the term "stressed water supply conditions" in this hearing. So I want to -- do you consider the reservoir storage levels in that sentence on Page 16 to be stress stressed water supply conditions?

WITNESS PARKER: Yes.

MR. BEZERRA: Thank you. Now, back on Figure 1, these model results include Folsom Reservoir storage results from stressed water supply conditions, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: But it is your opinion that

these results demonstrate that no Folsom Reservoir storage protection is necessary as a result of this hearing, correct?

WITNESS PARKER: These model results demonstrate that the difference between a no action alternative and action alternatives do not indicate significant differences even at low storage conditions. So, therefore, there is not a significant impact of the WaterFix on Folsom storage. That's what these results show.

MR. BEZERRA: Okay. And my question was these model results include results from stressed water supply conditions, correct?

WITNESS PARKER: I believe this is the third time I've answered this question. And the answer is yes, the stressed water conditions --

MR. BEZERRA: Thank you.

WITNESS PARKER: -- exist in the modeling.

MR. BEZERRA: Thank you. I'd like to now discuss some Folsom Reservoir storage results from the set of modeling that generated these results. I'd like to pull up Exhibit BKS-200, please. And I have hard copies for anyone who'd like them.

Exhibit BKS-200 is a series of two-year sequences of model results from petitioners' case in

chief modeling comparing the no action alternative and Alternative H3. Do you recognize these results as the results of petitioners' modeling?

MR. MIZELL: I'm just going to object for the record that these graphs and charts are not within the surrebuttal of Ms. Parker.

MR. BEZERRA: These are modeled results from the same modeling that Ms. Parker has testified to in Figure 1. She relied on that one figure from that modeling to assert that this Board does not need to protect Folsom Reservoir storage.

I'd like to understand her opinion relative to other results from that modeling.

CO-HEARING OFFICER DODUC: That same modeling which was used in her Figure 1?

MR. BEZERRA: Yes.

CO-HEARING OFFICER DODUC: I'll allow you some leeway on that. Overruled.

MR. BEZERRA: Thank you.

WITNESS PARKER: So would you please repeat the question?

MR. BEZERRA: Sure. Do you recognize these results in Exhibit BKS-2 as results from petitioners' modeling?

WITNESS PARKER: I have not examined these

specific results, but I'll just trust you that they're correct.

MR. BEZERRA: Are you prepared to testify to these results?

MR. MIZELL: That's a hypothetical. I believe Ms. Parker has indicated that, if they're phrased as a hypothetical, she's prepared to discuss them. But she does not have knowledge as to whether they're correct.

MR. BEZERRA: At this point, Ms. Doduc, I'd like to move to strike Ms. Parker's testimony, Pages 2 through 4. If she's not prepared to testify to model results that she has depicted, she -- petitioners are frustrating cross-examination by the parties, and the testimony should not be included in the record.

CO-HEARING OFFICER DODUC: Mr. Mizell?

WITNESS PARKER: Ms. Parker's testimony is based on the modeling results we submitted to the public and to this Board and they have been available. She's prepared to discuss the results we put into the record.

Whether or not Mr. Bezerra's exhibit accurately depicts those model results is an open question. He has not shown that these are accurate as compared to the files that we uploaded and that Ms. Parker has reviewed at length.

CO-HEARING OFFICER DODUC: Mr. Bezerra?

MR. BEZERRA: Yes. I sent petitioner -- I sent Department of Interior's counsel a letter yesterday during business hours asking that Ms. Parker please be prepared to discuss these as results of petitioners' modeling. She's apparently is not prepared to do that.

If all this is is Ms. Parker giving testimony about an Exhibit that has been present in the record since last August as December DWR-514, then this is not appropriate surrebuttal and should be struck from the record.

CO-HEARING OFFICER DODUC: Mr. Mizell?

MR. MIZELL: Less than 24 hours' notice to validate technical details produced by counsel is a complete inappropriate request of this witness. She was preparing for her testimony in her cross-exam. To request that she drop everything she's doing in order to assist Mr. Bezerra with his case in questioning is --

CO-HEARING OFFICER DODUC: Actually, Mr. Mizell --

MR. MIZELL: -- is without precedent.

CO-HEARING OFFICER DODUC: Mr. Mizell, enough. Enough.

MR. BEZERRA: Actually, there maybe a simpler --

CO-HEARING OFFICER DODUC: Enough.

Mr. Bezerra, we will take your motion under advisement. I will allow you to continue your questioning. We will reserve the validity and authenticity and correctness of the charts that you are using upon which to question Ms. Parker as a separate issue. And I do want to see where you are going with this.

MR. BEZERRA: Yes.

CO-HEARING OFFICER DODUC: And I do want to take that under consideration as we consider your motion. So for now --

MR. BEZERRA: Yes. And it strikes me there may also be a simpler solution.

Mr. Reyes is here on the Panel, and I believe he testified as to petitioners' modeling in their case in chief. And so I would imagine he's familiar with those results from several months ago.

CO-HEARING OFFICER DODUC: Mr. Reyes, are you?

WITNESS REYES: In as much as I've reviewed model results of these studies in the past -- I mean, I'm familiar with the models, but these specific results that he's pulling up for this two-year period,

I haven't reviewed them, and I haven't reviewed these charts prior to this.

So much like, I guess, Ms. Parker said, assuming that this is correct information, you know, I guess we can answer as best we can.

CO-HEARING OFFICER DODUC: Since this is the basis for the figures that is presented in Ms. Parker's testimony, I'm going to allow Mr. Bezerra to ask his questions.

MR. BEZERRA: Thank you very much.

CO-HEARING OFFICER DODUC: And we will take your motion under advisement for consideration.

MR. BEZERRA: Thank you.

Okay. So referring to first page of Exhibit BKS-200, this shows Folsom -- and I understand you're operating under the assumption that these are hypotheticals. This exhibit shows -- excuse me. This page shows Folsom Reservoir storage for the water years 1923 and 1924, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And water year 1923 was a below normal year in petitioners' case in chief modeling, correct?

WITNESS PARKER: I'll take your word for it.

MR. BEZERRA: Mr. Reyes, do you recall?

WITNESS REYES: No, I don't recall off the top of my head. But, yeah, we'll assume that's what it is.

MR. BEZERRA: The model results on this page show that following that below normal year in 1923, in 1924, implementation of California WaterFix would draw Folsom Reservoir down to 222,000 acre-feet, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And in that same modeled month in these results, the no action alternative would have the reservoir as 361,000 acre-feet correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Ms. Parker, in your testimony you stated that you considered 250,000 acre-feet of storage in Folsom Reservoir to be stressed water supplies and an extreme condition, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: This page of BKS-200 shows that California WaterFix would draw Folsom Reservoir below that extreme condition threshold, and the no action alternative would not, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Okay. If we could please turn to the second page of BKS-200.

This page shows Folsom Reservoir storage for water years 1932 and '33, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Water year 1932 was a critical year in this modeling, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: These model results show that following that critical year in February 1933, implementation of California WaterFix would draw Folsom Reservoir down to 237 acre-feet correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And in that same modeled month, the no action alternative had the reservoir at 382,000 acre-feet, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: That means that Folsom Reservoir -- or excuse me.

That means that California WaterFix would draw the reservoir below the extreme condition threshold of 250,000 acre-feet while the no action alternative would not, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Thank you.

WITNESS PARKER: Can I add something to that answer? Or is it just a one-word answer that you need?

CO-HEARING OFFICER DODUC: Go ahead.

WITNESS PARKER: So we followed the same line

of questioning exactly in a couple of instances in the rebuttal phase. And I think at the time, you know, I had gone into some details about exactly -- like, in July of 1932, where the drop in storage in July of 1932 in the -- and this was just examining the no action and the H3-plus scenarios, that that specific action was due to a different goal in the Delta which either encouraged or discouraged negative carriage water conditions.

That goal was off in the with-project and was on in the no action.

CO-HEARING OFFICER DODUC: Thank you. I don't think we need to repeat all of that.

WITNESS PARKER: Okay. So I'm going to go out on a limb and assume that we're looking at the exact same situations in these examples. So whether or not this is --

CO-HEARING OFFICER DODUC: All right. All right.

WITNESS PARKER: -- the result of a WaterFix operation --

CO-HEARING OFFICER DODUC: I'm going to stop you, Ms. Parker. Let's not rehash all of that. Let's allow Mr. Bezerra to continue his line of questioning.

MR. BEZERRA: Just an objection to that. If

Ms. Parker plans to express opinions about why petitioners' case in chief modeling is operating the way it does, then I do not understand why neither she nor Mr. Reyes is able to affirm that these are results from that modeling.

If they understand the modeling, then they have reviewed the modeling and should understand the results.

MR. MIZELL: There's quite a simple explanation to that.

CO-HEARING OFFICER DODUC: Mr. Mizell?

MR. MIZELL: Which is general understandings of modeling can be kept in one's head. Hundreds, maybe even thousands of lines of data are very difficult to keep in one's ahead. So for Mr. Bezerra to believe they can keep in their heads tables -- this is only two years out of 82 years' worth of data.

CO-HEARING OFFICER DODUC: I understand that, Mr. Mizell.

Mr. Bezerra --

MR. BEZERRA: Just one further note.

CO-HEARING OFFICER DODUC: Okay.

MR. BEZERRA: This is why the Sacramento Valley Water Users submitted 300 pages of model results from petitioners' case in chief as Exhibit SVWU-201

that petitioners have chosen not to address in their rebuttal.

CO-HEARING OFFICER DODUC: Is there an objection that I was trying to rule on? I don't recall now, after all of that exchange.

MR. BEZERRA: Yeah, I was -- just to clarify, I was objecting to Ms. Parker expressing opinions about how the model works when she has just said she's not familiar with the model or this modeling.

MR. MIZELL: And that misstates her testimony.

CO-HEARING OFFICER DODUC: She is not familiar with the specific data points that are being portrayed, Mr. Bezerra.

MR. BEZERRA: Yes.

CO-HEARING OFFICER DODUC: That's a different aspect entirely.

MR. BEZERRA: Thank you.

CO-HEARING OFFICER DODUC: Your objection is overruled.

MR. BEZERRA: Thank you.

CO-HEARING OFFICER DODUC: You may continue your questions.

MR. BEZERRA: Yes. Thank you very much.

So if we could move on to Page 4 of Exhibit BKS-200. This is for the modeled years 1939

and 1940. Water year 1939 was a below normal year, correct?

WITNESS PARKER: That's what I see here.

MR. BEZERRA: Thank you. And in August of that water year, California WaterFix draws the WaterFix down to 128,000 acre-feet, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: And the no action alternative has the reservoir at 191,000 acre-feet, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: And 128,000 acre-feet is only 38,000 acre-feet above Folsom Reservoir's modeled dead pool, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Thank you. I'd like to move on to Exhibit BKS-201. This exhibit is a series of two-year sequences from what I'll represent is petitioners' case in chief modeling comparing the no action alternative to Alternative H4. I assume you do not recognize these results at this time?

WITNESS PARKER: I don't recognize these specific numbers, no.

MR. BEZERRA: Mr. Reyes, do you recognize these as results of petitioners' case in chief modeling?

WITNESS REYES: No, I don't.

MR. BEZERRA: We'll proceed with them as a hypothetical.

The first page of BKS-Exhibit 201, Exhibit BKS-201 shows Folsom Reservoir storage for the modeled years 1923 and 1924, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And in that model year, 1923 was a below normal water year, correct?

WITNESS PARKER: That's what it says.

MR. BEZERRA: These model results show that in that -- following that below normal year in July 1924, implementation of California WaterFix would draw Folsom Reservoir down to 245,000 acre-feet, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And in that same modeled month, the no action alternative would have the reservoir at 361,000 acre-feet, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: That means that, in these results, California WaterFix would draw the reservoir below the extreme condition threshold of 250,000 acre-feet while the no action alternative would not, correct?

CO-HEARING OFFICER DODUC: Hold on.

Ms. Aufdemberge? I saw you reaching for your microphone. I didn't know if you had any objections or not.

MS. AUFDEMBERGE: I do object. He was attributing this difference to Cal WaterFix, and she's already testified that she's not -- doesn't believe that.

CO-HEARING OFFICER DODUC: I didn't hear that last part.

MS. AUFDEMBERGE: She's already testified that, in these particular years, that there are differences going on that are not attributable to Cal WaterFix.

CO-HEARING OFFICER DODUC: Mr. Bezerra?

MR. BEZERRA: These results are drawn directly from the no action alternative and with-action alternative of petitioners' modeling. I understand the with action alternatives to represent the implementation of California WaterFix.

CO-HEARING OFFICER DODUC: Overruled.

MR. BEZERRA: If we could move on to the second page of Exhibit BKS-201, this page shows Folsom Reservoir storage for the water years 1932, 1933, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And water year 1932 was a critical year in this modeling, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And these model results show that, following that critical year in February 1933, implementation of California WaterFix would draw Folsom Reservoir down to 229,000 acre-feet, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And in that same modeled month, the no action alternative has the reservoir at 382,000 acre-feet, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And that means that, in this modeled year, California WaterFix would draw the reservoir below the extreme condition threshold of 250,000 acre-feet while the no action alternative would not, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: If we could move to the fifth page of BKS-201. This page shows Folsom Reservoir storage for the water years 1981 and 1982, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: 1982 was a dry year in this modeling, correct?

WITNESS PARKER: That's what it says.

MR. BEZERRA: And these model results show that, in August of that dry water year, California WaterFix would draw the reservoir down to 233,000 acre-feet, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And in that same modeled month, the no action alternative would have the reservoir at 370,000 acre-feet, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: That means that California WaterFix would draw the reservoir below the extreme condition threshold of 250,000 acre-feet while the no action alternative would not, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Okay. Thank you very much.

I'd like to move on to Figure 2 on Page 4 of your testimony.

You prepared this figure, correct?

WITNESS PARKER: I did.

MR. BEZERRA: And you prepared this figure from the results of petitioners' Biological Assessment modeling, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: Thank you. This figure depicts modeled Folsom Reservoir storage for all months of the

82-career period of record, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: So different months from different years might be located at the same exceedance percentage on these curves, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: For example at the 90 percent exceedance, this figure might show August 1932 storage in the no action alternative and October 1982 storage in the H3-plus curve, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Figure 2 does not compare model results for any specific month of the year, correct?

WITNESS PARKER: It compares model results for all months of the 82-year period of record.

MR. BEZERRA: It does not, for instance, compare model results for the month of September across all water years, correct?

WITNESS PARKER: It does not compare differences in model results on a time series basis.

MR. BEZERRA: So it doesn't compare the results for all years from October, for example?

WITNESS PARKER: There are 82 Octobers in this graph.

MR. BEZERRA: And they are spread all across

the exceedance plot, correct?

WITNESS PARKER: Yeah, that's the point of an exceedance plot.

MR. BEZERRA: And the Octobers may be in difference positions on the no action alternative exceedance plot and the with action exceedance plot, correct?

WITNESS PARKER: I believe I've already said that correct.

MR. BEZERRA: Okay. Thank you. Figure 2 does not break the model results out into water year classes, correct?

WITNESS PARKER: That is correct.

MR. BEZERRA: What climate change assumption is reflected in the model results depicted in Figure 2?

WITNESS PARKER: The early long-term so-called Q5 climate scenario.

MR. BEZERRA: So you have previously testified about this plot, correct?

WITNESS PARKER: I believe I have.

MR. BEZERRA: Okay. Thank you. This plot includes all of the months that you would classify as stressed water conditions, correct?

WITNESS PARKER: Yes, it includes all of the months in the entire period of simulation, including

all of those that are considered stressed water conditions.

MR. BEZERRA: Okay. Even though those stressed water supply conditions in the modeling do not actually reflect how CVP would operate, correct?

WITNESS PARKER: Sure, I'll give you that.

MR. BEZERRA: Thank you. I'd like to move on to Page 5 of your testimony, Figure 3.

Thank you. This figure is a page from the Final EIR -- excuse me. This figure is a page from the Final EIR/EIS modeling that shows Folsom Reservoir storage results for the early long-term climate change assumption, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And in your opinion, this figure indicates that no protection for Folsom Reservoir storage is necessary with California WaterFix, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Okay. If we could please scroll down -- I think we'll have to magnify this a little bit. If we could magnify on that sentence just below the chart, it says, "Note 'ELT' (Early Long-Term) indicates Alternatives that are simulated with 2025 climate change and sea level rise," correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And you classified that as the Q5 climate change scenario, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: Okay. If we could please pull up Exhibit BKS-204, please. This exhibit is excerpts of Chapter 3 of the Final EIR/EIS. So if we could please scroll down to the next page and the highlighted text -- I believe it's highlighted.

Ms. Parker, do you understand that the Final EIR/EIS was released in December 2016?

WITNESS PARKER: Yes.

MR. BEZERRA: Thank you. And the sentence on this page at Lines 15 to 17 states, "Construction of the water conveyance facilities may begin approximately one year after permit issuance and continue for an estimated 9 to 14 years. Operations could begin as early as Year 11," correct?

WITNESS PARKER: Correct. That's what it says.

MR. BEZERRA: Now, year 11, if I do my math correctly, from a 2016 EIR, would be year 2027; is that correct?

MR. BERLINER: At this point, I'm going to object as this being well beyond the scope of her surrebuttal testimony.

CO-HEARING OFFICER DODUC: Mr. Bezerra, where are you going with this?

MR. BEZERRA: She has testified that Figure 3, which represents 2025 climate change, indicates a no Folsom protection is required. What I'm going to demonstrate is that the EIR says that WaterFix would not begin operating until 2027, so the model results do not depict a time period in which California WaterFix would actually be operating.

CO-HEARING OFFICER DODUC: Response to that, Ms. Parker?

WITNESS PARKER: So --

CO-HEARING OFFICER DODUC: So the objection is overruled.

WITNESS PARKER: My response would be that what we call a 2025 climate condition is actually generated from 30 -- from a -- from a synthesis of climate data that spans 15 years before 2025 to 15 years after 2025. So it's a combination of hydrology that is generated from the temperature and precip conditions that would exist between, you know, 2010 and 2040.

So it's just that the center point of that climate period is 2015, so that's the label that gets thrown on it. We're not saying that this is the

climate that's going to occur at 2025 and therefore it expires after that year. Does that help?

MR. BEZERRA: Sure. Do you understand that, if this Water Board approves California WaterFix, it is likely to be operating after the year 2040?

MR. BERLINER: Objection, well beyond the scope of her testimony.

CO-HEARING OFFICER DODUC: Rephrase your question, Mr. Bezerra.

MR. BEZERRA: Sure. Figure 3 in your testimony states that those model results are from climate change in the year 2025, correct?

WITNESS PARKER: Well, no. It's a 2025 inflow data set that happens to be developed from data that spans the 30-year range of projected future climate from 2010 through 2040.

MR. BEZERRA: And you are expressing the opinion in your testimony that Figure 3 demonstrates that if this Board approves California WaterFix, no protection for Folsom Reservoir storage will be necessary, correct?

THE WITNESS: That is correct.

MR. BEZERRA: And do you understand that, if California WaterFix is approved, it is likely to be operating after the 2040 climate window you just

described?

MR. BERLINER: Same objection.

CO-HEARING OFFICER DODUC: Mr. Bezerra, that is beyond her testimony -- in terms of the extent, the lifetime of the operation of the WaterFix.

MR. BEZERRA: Well, the point here is she is testifying that forever and for always no Folsom Reservoir storage protection is required. She is relying on a set of modeling that is constrained in its timing assumptions. And I want to establish that fact.

CO-HEARING OFFICER DODUC: I think you have established that effect [sic].

MR. BEZERRA: Okay. That's fine. Thank you.

Could we please move on to the drought technical appendix in your testimony, which begins on Page 19.

Preliminarily, all of the modeling results reflected in this technical appendix are from petitioners' Biological Assessment modeling, correct?

WITNESS PARKER: That's correct.

MR. BEZERRA: They are not modeling results from modeling petitioners presented in their case in chief, correct?

MS. AUFDEMBERGE: Objection, asked and answered. We've already been through what her

understanding is between the case in chief and the BA modeling.

MR. BEZERRA: I'm asking about the model results that are specifically indicated in this technical appendix.

CO-HEARING OFFICER DODUC: Overruled.

WITNESS PARKER: The model results that are reflected in the technical appendix are comparing -- or are from the no action alternative, from the beginning.

MR. BEZERRA: And they are not from the no action alternative petitioners presented in their case in chief, correct?

WITNESS PARKER: My understanding was that they were one and the same.

MR. BEZERRA: Okay. That's fine. Thank you.

You emphasize in your direct testimony that some of these results occur because CalSim is rigidly adhering to the coordinating operations agreement, correct?

WITNESS PARKER: I believe I used -- I described that when I was trying to explain the specific results of August of 1933. I can certainly say that CalSim ridgedly adheres to COA in all months, that is true.

MR. BEZERRA: CalSim rigidly adherers to

current version of COA, correct?

WITNESS PARKER: It does.

MR. BEZERRA: Thank you. Are you aware that Reclamation and DWR are currently negotiating possible operations with California WaterFix?

MR. MIZELL: Objection --

CO-HEARING OFFICER DODUC: Sustained.

MR. BEZERRA: Are you aware that the Coordinated Operations Agreement could change as a result of petitioners' approving California WaterFix?

MR. BERLINER: Objection, again, beyond the scope and relevance.

MR. BEZERRA: This is well within the scope. She testified that these results occur because CalSim is adhering to the current version of COA. If COA changes, that could change the results.

CO-HEARING OFFICER DODUC: Overruled.

WITNESS PARKER: So I guess that's -- I look at that as beyond the point that I was trying to make here. The point that I'm trying to make in explaining the result in August of '33 is that, in rebuttal testimony, Mr. Bourez characterized August of 1933 as a really good example of a bad operation.

And I was merely trying to clarify why CalSim makes or comes up with solutions like that and explain

that those happen in rare circumstances when the model has, you know, in layman's terms, I guess, backed itself into a corner and is needing to adhere to a specific set of rules.

I did not mean to imply that the COA standards under which the model currently operates would not have an effect on the WaterFix or that the WaterFix would not have an effect on COA. That's not what I was trying to say.

So I don't know -- I don't know if that answers your question, but I don't know how to answer your question.

MR. BEZERRA: I just -- it was a pretty simple question? It's that --

WITNESS PARKER: Could you repeat it then?

MR. BEZERRA: Sure. Maybe it's two simple questions. The current -- the results in this technical appendix rely on a current version of COA, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: And it is possible that COA could change with the WaterFix, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: Thank you.

WITNESS PARKER: COA could change without the

WaterFix.

MR. BEZERRA: When do you expect COA may change?

CO-HEARING OFFICER DODUC: Objection.

MR. BEZERRA: Thank you. Before you go to Page 24, this is the model year 1933 that you've talked about, and I'll try to cut through this a little more quickly.

I believe you agree on Page 25, on 25, I believe you agree with Mr. Bourez that the modeled operation under which 4,476 cfs is exported simply to San Luis Reservoir storage is an unreasonable operation of the CVP, correct?

MS. AUFDEMBERGE: Objection, she's not the operator. She's the modeler and can't testify to a reasonable operation of the CVP.

CO-HEARING OFFICER DODUC: Mr. Bezerra?

MR. BEZERRA: On the top of Page 25, she states, "The combination of strained system conditions created by severe drought with a devout adherence to COA forces the model to devise a solution that is not a reasonable reflection of actual operations."

CO-HEARING OFFICER DODUC: Overruled.

WITNESS PARKER: Can you please state your question again?

MR. BEZERRA: Sure. And, again, I'm trying to cut through this a little bit. I believe you agree that, in this model year, in August of 1933, the export of 446- -- 4,476 cfs simply to San Luis Reservoir storage is not a reasonable operation of the CVP, correct?

MR. MIZELL: Objection, that misstates her testimony dramatically. She's talking about model results, not about actual operational decision making. So to the extent that she has opined upon the reliability of the results or the reasonableness of those results, she can speak to that. She cannot speak to whether or not an actual operation is reliable or reasonable.

CO-HEARING OFFICER DODUC: Mr. Bezerra?

MR. BEZERRA: Yeah, my question does not concern actual operations. It concerns model's reflection of operations.

CO-HEARING OFFICER DODUC: All right. With that clarification, the objection is overruled.

WITNESS PARKER: With that clarification, though, it's -- in my mind, this is not a yes-or-no question. So do I have permission to answer with something other than yes or no?

CO-HEARING OFFICER DODUC: Mr. Bezerra, what

was your question again?

MR. BEZERRA: Let me try to ask this a different way. If we can scroll down on Page 25.

There's the sentence that begins, "Under the stressed conditions..." Do you see that, Ms. Parker?

WITNESS PARKER: Yes.

MR. BEZERRA: That sentence states, "Under the stressed conditions experienced in August of 1933, however, these generalized rules do not enable the model to make the more realistic choice to preserve upstream storage over an unreasonable export."

In that sentence, you agree with Mr. Bourez that the export is an unreasonable reflection of project operations, correct?

WITNESS PARKER: In that sentence, I'm trying to identify why the model -- in this whole section, I'm trying to identify why the model does this and why this shouldn't be picked out as a -- as an expression of how terrible the model is. The model is not going to have pinpoint accuracy in every single month, making every single decision in the system. That's what I'm trying to point out here.

CO-HEARING OFFICER DODUC: So in using the term "unreasonable export," you were using it generically and not specifically in reference to

Mr. Bourez's modeling? Or did you?

WITNESS PARKER: I mean, I -- I'm not sure how to answer that. I'm trying to -- I'm trying to explain why CalSim does odd things occasionally in the period of record.

And I don't want to get backed into a corner saying that it does unreasonable things. It does something that -- I mean, if we had flexibility built into COA and we could have borrowed some water from -- from the State Water Project in that month, then we might have done something different in the model. But that doesn't mean that this is an unreasonable result for CalSim to take in this particular month.

MR. BEZERRA: So are you changing your opinion that the export of 4,476 cfs as described in your testimony is an unreasonable export of water?

WITNESS PARKER: Okay. Let's go ahead and say it's unreasonable. Does that make you happy?

CO-HEARING OFFICER DODUC: Hold on.

WITNESS PARKER: I don't want to quibble. This is not a legal thing here. This is a model results discussion. This is a discussion about how CalSim operates.

I'm trying to explain to the Board where some of these results come from, that we have really started

getting into the weeds on whether CalSim is an appropriate tool and whether it's capable of reflecting drought conditions and whether it's capable of discerning the difference between a WaterFix operation and a no action operation.

Those are the big picture topics that I'm trying to present here. Whether or not a specific operation is called unreasonable in the public record in CalSim or whether or not I can say that the CVP would actually do that in real life at some point, that's not the purpose of what I wrote this for. So I hope that that helps.

MR. BEZERRA: Thank you. And again, the technical appendix reflects results from the Biological Assessment modeling, correct?

WITNESS PARKER: Yes, that's correct.

MR. BEZERRA: Could we please go back to Page 4, Figure 2. And you previously stated you're relying on these model results for the opinion that no protection of Folsom Reservoir storage is required for California WaterFix, correct?

MR. BERLINER: Objection, asked and answered.

CO-HEARING OFFICER DODUC: Let's just let him lay the foundation.

WITNESS PARKER: Correct.

MR. BEZERRA: Thank you. And these model results are from the Biological Assessment modeling, correct?

MR. BERLINER: Objection, asked and answered.

CO-HEARING OFFICER DODUC: Yes, it is correct.

MR. BEZERRA: These -- the model results depicted in this figure include model results from the water year 1933, correct?

MR. BERLINER: Objection, asked and answered.

CO-HEARING OFFICER DODUC: Mr. Berliner, let's just get through this.

MR. BERLINER: Well, this witness has been testifying a long time about the same subject, and frankly, I'm trying to protect the witness from having to go over the same material over and over again which tests, you know, everybody's patience.

CO-HEARING OFFICER DODUC: Noted.

MR. BERLINER: If Mr. Bezerra has a question, just ask the question.

CO-HEARING OFFICER DODUC: Noted, noted.

Mr. Bezerra, please move quickly.

MR. BEZERRA: Fine. I believe she's testi- -- that's fine.

If we can move on to reclamations' operational philosophy, which begins on Page 14. In the first

paragraph, you make the statement, "The petitioners' modeling is consistent with the operational philosophy applied in planning studies over the past 15 years." Do you see that statement?

WITNESS PARKER: What paragraph are we on?

MR. BEZERRA: First paragraph.

WITNESS PARKER: Yep. Thank you. Yep. I see that.

MR. BEZERRA: Okay. So the portion of your testimony on Pages 14 and 15 regarding Reclamation's operational philosophy, those are all based on your opinion that petitioners' modeling is consistent with Reclamation's planning studies over the last 15 years, correct?

WITNESS PARKER: Well, they're not just planning studies. The 2004 and 2008 OCAP studies were produced by the Central Valley operations office.

MR. BEZERRA: Okay. And in that sentence, you called them all "planning studies," correct?

WITNESS PARKER: They're planning studies, but they were done for operations purposes, so. But they're long-term water supply reliability planning models.

MR. BEZERRA: Thank you. You understand that the assumptions in planning models will not bind the

CVP and SWP operators in operating the project with California WaterFix in place, correct?

WITNESS PARKER: So, I'm a modeler. That's -- appears to be in the line of a lot of discussion in this hearing.

CO-HEARING OFFICER DODUC: If you don't know, say you don't know.

WITNESS PARKER: I guess it doesn't bind anybody.

MR. BEZERRA: Thank you.

WITNESS PARKER: We've discussed that before.

MR. BEZERRA: And a number of CalSim elements, like WSI-DI and San Luis rule curve, attempt to reflect operator discretion, but operators do not have to follow those model assumptions, correct?

MR. MIZELL: Objection, asked and answered.

CO-HEARING OFFICER DODUC: I believe it has been asked and answered. Is there a point you're trying to make, Ms. Bezerra?

MR. BEZERRA: Yes. Ms. Parker is testifying, and it's part of her testimony that we should not trust MBK's model results because they are not consistent with Reclamation's operational philosophy as depicted in their planning studies.

If the -- if her opinion is that Reclamation

will follow all of the operational assumptions in the modeling, I want to understand that.

WITNESS PARKER: I don't think those two things are the same.

CO-HEARING OFFICER DODUC: Go ahead and answer, Ms. Parker, so that we can move on.

WITNESS PARKER: All I'm trying to show here is that Reclamation has had a pretty consistent trend of what they depict in all of their planning studies, whether they've been for planning or EIS or whatever purposes or operational purposes. All of our planning studies have exhibited a consistent philosophy in allocation.

MR. BEZERRA: I think this is one more question. You understand that petitioners have proposed no terms and conditions to operate California WaterFix consistent with any planning study, correct?

MR. BERLINER: I'm going to object.

CO-HEARING OFFICER DODUC: Sustained.

Mr. Bezerra --

MR. BEZERRA: Yes.

CO-HEARING OFFICER DODUC: -- you have made your points on these lines of questioning. I -- you've actually done it multiple times. So let's move on.

MR. BEZERRA: Thank you, yes. And at this

point, the next section of my cross is a relatively deep dive on WSI-DI.

CO-HEARING OFFICER DODUC: Okay.

MR. BEZERRA: I think it will take more than 13 minutes, and we're at lunchtime. So this would seem like an appropriate place to break. I hope I can get this done in half an hour. It's quite technical, and we've never gone through WSI-DI in this level of depth.

CO-HEARING OFFICER DODUC: All right. Before we do that, though, there is a motion still outstanding that you made to strike a portion of Ms. Parker's testimony.

Ms. Parker, as Mr. Bezerra walked you through those series of charts and asked you questions about the differences between the WaterFix proposal and the no action alternative and the resulting change there in those months, assuming that those charts were correct modeling results, did any of that change the testimony that you presented in your Figures -- 1, I believe it was?

WITNESS PARKER: No, it doesn't change my testimony or my opinion.

CO-HEARING OFFICER DODUC: Based on that, Mr. Bezerra, I am denying your motion. There is no reason to strike her testimony simply because she could

not authenticate your exhibits. She did answer the questions that you asked based on those exhibits.

And with that, we will take our lunch break, and we will return at 1:20.

MR. BEZERRA: Thank you.

(Whereupon, the luncheon recess was taken at 12:20 p.m.)

AFTERNOON SESSION

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(Whereupon, all parties having been duly noted for the record and with the proceedings resumed at 1:20 p.m.)

CO-HEARING OFFICER DODUC: It is 1:20. We are back in session.

Mr. Bezerra, please proceed on your last topic of questioning for these witnesses.

MR. BEZERRA: Thank, very much, Chair Doduc.

CROSS-EXAMINATION BY MR. BEZERRA (resumed)

MR. BEZERRA: Ms. Parker, the last thing I'd like to talk to you about, although this may take a little while, is the WSI-DI.

So if we can please bring up Exhibit DOI-37, Page 6, which is the beginning of Ms. Parker's testimony on that.

Thank you.

Preliminarily, Ms. Parker, you intend this portion of your testimony to be part of your critique of MBK's hand selection of CVP's water supply allocations, correct?

WITNESS PARKER: Actually, primarily, this particular topic was in response to Mr. Bourez' depiction of WSI-DI as a form of perfect foresight.

MR. BEZERRA: Okay.

WITNESS PARKER: I wanted to make clear that we don't consider the generation of this curve or its use to be perfect foresight.

MR. BEZERRA: The WSI-DI is only part of CalSim's logic for allocating water supplies, correct?

WITNESS PARKER: It's the basis for it, so it's a pretty big part.

MR. BEZERRA: Another part of that logic is the export estimate, correct?

WITNESS PARKER: For the South of Delta allocation, that is true.

MR. BEZERRA: And for the South of Delta allocation, the export estimate is the modeling logic that emulates limits on water supply allocations resulting from Delta conveyance constraints, correct?

WITNESS PARKER: From Delta export constraints primarily driven by OMR criteria.

MR. BEZERRA: And by "OMR," you mean criteria regarding --

WITNESS PARKER: Old and Middle River flow restrictions, reverse flow restrictions.

MR. BEZERRA: I just want to make sure I understand the relationship. WSI-DI generates the water supply and some delivery curve, and then export

estimate sits on top of that for South of Delta allocations, correct?

WITNESS PARKER: Yes, that's fair.

MR. BEZERRA: And petitioners' modeling does not vary the export estimate between the no action alternative and a with-action alternative, correct?

MR. BERLINER: Objection, beyond the scope of her surrebuttal testimony.

CO-HEARING OFFICER DODUC: Mr. Bezerra?

MR. BEZERRA: Her surrebuttal testimony is a pretty extensive critique, again, of MBK's model allocation logic. And I want to understand which pieces of the logic she's talking about.

CO-HEARING OFFICER DODUC: Overruled for now.

MR. BEZERRA: So, again -- and I know you're more familiar with the Biological Assessment modeling. Petitioners' Biological Assessment modeling does not vary the export estimate between no action alternative and the proposed action, correct?

WITNESS PARKER: I actually don't know off the top of my head.

MR. BEZERRA: You don't know about that part of the allocation logic in the BA modeling?

WITNESS PARKER: Not -- I don't have exact knowledge of that right now, no.

MR. BEZERRA: Okay. So on Page 6, can you please refer to the first paragraph after the initial quote and particularly the first sentence, which reads, "The WSI-DI curve is a relationship depicting the ability to deliver water relative to a given water supply," correct? Do you see that sentence?

WITNESS PARKER: Yes.

MR. BEZERRA: Okay. And if we could please go to Page 11 of that exhibit.

At the bottom of the first paragraph, you describe a delivery target for 1980, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: And then you state, "The WSI-DI curve" -- I'm sorry, wrong quote.

Then you state, "This is the system-wide capability for CVP delivery based on the water supply," correct?

WITNESS PARKER: That is correct.

MR. BEZERRA: Okay. Now, these two statements on Pages 6 and 11, they mean that WSI-DI takes into account the CVP's capacity to deliver water supplies, correct?

WITNESS PARKER: It's a system-wide perspective on delivery, on water supply delivery and carryover.

MR. BEZERRA: So the WSI-DI curve states a relationship between available supplies on the one hand and carryover and deliveries on the other hand, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: How does the WSI-DI curve determine that relationship between supplies on the one hand, carryover and deliveries?

WITNESS PARKER: How does it determine it? You mean -- are you asking how we --

MR. BEZERRA: Yes.

WITNESS PARKER: -- determine the curve?

MR. BEZERRA: Yeah. You have -- your plots indicate this cloud of blue dots, correct?

WITNESS PARKER: Yes. I've gone through the training process or the -- people don't like that word, "training." But it's the WSI-DI curve development process.

MR. BEZERRA: Okay. Let me go back to Page 7 of your testimony and in particular, Figure 4.

For each of these curves, there's a set of blue dots, correct?

WITNESS PARKER: That is true.

MR. BEZERRA: And each of the blue dots indicates a particular relationship between a

particular water supply and a particular amount of delivery, correct?

WITNESS PARKER: That is true.

MR. BEZERRA: How does the model calculate the position of those blue dots for any given water supply?

WITNESS PARKER: Okay. Well, during the training process, if I can use that word, for each step of this process, there are variables that are calculated that preserve the value of what the water supply index was in March and in April and in May.

And then it -- so we've run 82 years. Okay? And it looks at, at the end of every September, what was the delivery carryover and what was the delivery that was able to be achieved in that year. So that is the DI value, the delivery index value, which is carryover plus delivery. And so that point for that year will be plotted as one of those blue dots.

So whatever the WSI was, the water supply, which is all the storage and the inflow forecast -- so it has that value that it calculated, let's just say, in March. And then it looks at the actual March through September delivery plus the September carryover, adds that all up and plots, and that's the Y axis. So that's where that dot comes from. And it gets 82 of those.

MR. BEZERRA: Before you run a model for a project like California WaterFix, do you have a preexisting set of, let's say, blue dots that are then fed into the model?

WITNESS PARKER: No.

MR. BEZERRA: The model for a project itself generates all of these relationships between water supplies and deliveries in and of itself, that model?

WITNESS PARKER: During the training process, yes.

MR. BEZERRA: And then, once the model is trained, do you rerun the model to determine the actual results?

WITNESS PARKER: Of that particular scenario?

MR. BEZERRA: Yes.

WITNESS PARKER: Yes.

MR. BEZERRA: So there's a couple of steps. First you have the model generates the set of blue dots. And then you take that set of blue dots and use that in conducting the model?

WITNESS PARKER: That's exactly the point I'm trying to make is that we don't use the blue dots. We draw a curve that is a generalization and reflects the general trend of the cloud of blue dots.

MR. BEZERRA: So what is the source of the

blue dots that allow you to draw the WSI-DI line?

WITNESS PARKER: The three steps of the training run.

MR. BEZERRA: Okay. But -- okay. Looking at Figure 4, Step 1, you already have a cloud of blue dots. Where did they come from?

WITNESS PARKER: Well, in Step 1 we start with the orange dots. Did you understand that?

MR. BEZERRA: Start with the orange dots. Okay.

WITNESS PARKER: That says, like, if my water supply index is 10 million acre-feet, then I can achieve 10 million acre-feet of carryover plus delivery. That may not be true. Okay? So you'll get a dot that might be slightly above 10 million acre-feet for the actual delivery and carryover. You might get a dot that's slightly below that. And your WSI value may not be exactly 10 million. It might be 9.5 million or whatever. Okay? Do you understand that?

MR. BEZERRA: Yes.

WITNESS PARKER: All of those dots represent a range of water supply index -- water supply conditions relative to delivery and storage conditions. There's other things besides that orange dot that are affecting the system's ability to deliver water.

MR. BEZERRA: Okay.

WITNESS PARKER: So you get the results from that first whack at running the model, and that's a better depiction of what the model is capable of doing under that set of inflows, that set of regulatory criteria, that set of demands -- so. Does that answer your question?

MR. BEZERRA: Yes. So on Pages 6 and 7 of your testimony, you have these steps, 1, 2, 3 steps. Each step has a sub-step D that refers to a curve is fitted to the blue dots, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: Is this the training of the WSI-DI curve that you've talked about?

WITNESS PARKER: The curve fitting is one of the steps in the training process.

MR. BEZERRA: Okay. CalSim contains a specific module that trains the WSI-DI curve, correct?

WITNESS PARKER: Correct.

MR. BEZERRA: And a modeler has discretion about whether to apply that module of CalSim, correct?

WITNESS PARKER: That's true. In fact, in my testimony, I said that the curve could also be generated just by a person. You know, you could write your own WSI-DI curve.

MR. BEZERRA: So a modeler can choose not to train the WSI-DI curve, correct?

WITNESS PARKER: That is correct.

MR. BEZERRA: And that discretionary decision by a modeler would affect the CVP allocations in the model, correct?

WITNESS PARKER: That is correct.

MR. BEZERRA: Is CalSim's WSI-DI training function a statistical analysis that finds the best fit line within these clouds of blue dots?

WITNESS PARKER: That might be a better question for Mr. Reyes.

WITNESS REYES: Yeah. So the line that is developed in this water supply index, demand index curve generation method is not a best-fit line. It's a -- it uses statistical analyses to actually develop a line that's, I think, about one standard deviation lower than the best fit line. And that's intend so that it's conservative.

So the line -- you've got all those blue points, and we're trying to develop a rule. So those blue points represent what the model is able to achieve. And we're now going to develop a rule for the future use of the model where we're going to say, "Given a certain water supply index that's based on

storage and forecasted inflow, what's a good rule I can use to come up with how much I can deliver or carry over?"

And we don't draw a best fit line through that cloud of points because, in an allocation method, probably with worst thing you can do is over-allocate to your customers. You don't want to over-promise and under-deliver. So we skew that line to the conservative side so that we don't get into that kind of trouble.

MR. BEZERRA: So, make sure I understand. So in the modeling, DWR and Reclamation have chosen the WSI-DI line that is intentionally less aggressive than the best fit line through the cloud of data points, correct?

WITNESS REYES: That's correct.

MR. BEZERRA: Okay.

CO-HEARING OFFICER DODUC: Let's give Mr. Bezerra another 15 minutes.

MR. BEZERRA: I will do my level best.

Who developed that statistical analysis and made that choice to have a less aggressive allocation line?

WITNESS REYES: This predates me. But -- and my time at DWR. But it -- it was something that was

developed by DWR back with a predecessor model called DWR Sim. And I think it was largely developed by a couple of engineers in the modeling group.

MR. BEZERRA: Okay. So the development of that line was done by modelers with certain amount of discretion, correct?

WITNESS REYES: Could you clarify what you mean by "discretion"?

MR. BEZERRA: You just testified that the line that is used for the WSI-DI is less aggressive than a best fit line.

WITNESS REYES: That's correct.

MR. BEZERRA: That was a choice that DWR made in developing the WSI-DI function, correct?

WITNESS REYES: Yes, that's correct, in consultation with our operators.

MR. BEZERRA: Okay. And that line, you could make a different choice about setting the WSI-DI line, correct?

MR. BERLINER: Objection, I wanted to give Mr. Bezerra some leeway here, but we are really now delving into an area that is way beyond Ms. Parker's testimony as to how internal DWR decisions may have been made in order to come up with the concept of the WSI-DI curve.

CO-HEARING OFFICER DODUC: Mr. Bezerra, I believe I understand the point you're trying to make and that you've made it, but go ahead and provide your answer for the record.

MR. BEZERRA: Yes. The answer is Ms. Parker is testifying that we should follow this line no matter what in our modeling. And I want to understand what it is and where it came from and what other possible choices there are.

CO-HEARING OFFICER DODUC: My sort of guess of where you're going and where you have been and where other cross-examiners throughout rebuttal as well as the testimony, the case in chief section, has pointed out is that these operational philosophy, these assumptions, this rule curve, this training process are based on internal decisions that may change in the future.

MR. BEZERRA: That's part of it. This also underpins, apparently, the entirety of petitioners' modeling. So it's important to understand how this functions if this is a major point of dispute among the parties. How did their modeling function? And so I'm trying to understand the choices that are buried in it.

CO-HEARING OFFICER DODUC: I understand the line of questioning you are pursuing, I will agree with

Mr. Berliner, though, that at that some point, you're going beyond what these witnesses -- actually, not only what they testified to but what they may know because it is speculative in terms of what might happen in the future with respect to all these steps that are being incorporated right now into the current modeling.

MR. BEZERRA: Thank you.

Either Ms. Parker or Mr. Reyes, could the WSI-DI line be changed to reflect additional diversion capacity provided by California WaterFix?

WITNESS PARKER: So the WSI-DI relationship is really an overarching look at system-wide water supply and system-wide delivery and carryover.

The export part of the water supply picture or the export part of the delivery picture is actually sort of a separate piece that is, as you've pointed out, governed by San Luis rule curve and export estimates that uses water supply as a -- as a -- you know, as a jumping-off spot. But we used to have a WSI-DI curve for South of Delta allocations. But we don't anymore because South of Delta allocations are really driven by export limitations more than the water supply part of it.

But, I mean, they're all related. But -- so your question was would the WSI-DI need to be retrained

for WaterFix? Is that what I'm --

MR. BEZERRA: Could it be retrained for WaterFix?

WITNESS PARKER: Could it be? I mean, retraining the water supply picture and the demand picture, the delivery picture doesn't change the -- doesn't affect the amount of water we can get through you the Delta. The WaterFix does.

So the -- like, to my knowledge, the water supply, the WSI-DI curve actually was not changed for the WaterFix alternatives because the overall water supply picture is still the same.

MR. BEZERRA: I want to understand a couple things you said there. First, I believe you just testified that there used to be a South of Delta WSI-DI curve and now there isn't because you have the export estimate; is that correct?

WITNESS PARKER: Well, no, that's not -- may have been what I said.

So it used to be, before we had the RPAs that really were the driver of what we could export, before that, back when it was more hydrologically driven in terms of Delta conditions, Delta hydrology, we actually did have a separate WSI-DI curve that was trained specifically for South of Delta allocations.

But that's off the table now because that was not governing South of Delta allocation. It was -- which is now governed by a combination of water supply and export capability.

MR. BEZERRA: Okay. So I want to clarify. I think what you just said is the portion of the allocation logic in the model that would be affected by Cal WaterFix is the export estimate, correct?

WITNESS PARKER: That's not what I said.

MR. BEZERRA: Well, you just testified that there is no South of Delta WSI-DI curve anymore.

WITNESS PARKER: That is true.

MR. BEZERRA: And then you testified that the modeling relies on the export estimate to account for through-Delta constraints, correct?

WITNESS PARKER: So the export estimate table that's used in petitioners' modeling is a -- is a single monthly estimate. It's a broad-based estimate of export capacities. And there's one value for every month.

There are other elements of the allocation process that affect the -- the ultimate definition of allocation south of the Delta.

MR. BEZERRA: Okay.

WITNESS PARKER: So that the export estimate

table is one element in there that does affect South of Delta allocation.

MR. BEZERRA: And California WaterFix could both affect the export estimate and the WSI-DI? Is that what you just testified?

WITNESS PARKER: No, I did not testify to that.

MR. BEZERRA: California WaterFix could affect the factor in the system that is reflected in the export estimate, correct?

WITNESS PARKER: I don't know what that means. The California WaterFix can enable additional export south of the Delta.

MR. BEZERRA: And that could potentially change the export estimate in the modeling, correct?

WITNESS PARKER: I don't know what you mean by that. It's not a dynamic thing in CalSim. The export estimate is an input table.

MR. BEZERRA: Is an input table that reflects existing constraints on Delta conveyance, correct?

WITNESS PARKER: Generally speaking, yes.

MR. BEZERRA: And California WaterFix could affect the ability of the projects to export water from the Sacramento River to the Delta export pumps, correct?

WITNESS PARKER: That is correct.

MR. BEZERRA: And you just testified, I believe, that petitioners did not change the export estimate between the no action alternative and the with-action alternatives in the modeling, correct?

WITNESS PARKER: Erik would you mind verifying that? Do you have any idea? Do you know?

WITNESS REYES: I believe that's correct.

MR. BEZERRA: Mr. Reyes, could you just speak into the mic so the court reporter can hear that.

WITNESS REYES: Yeah, I'm not a hundred percent sure, but I believe that's correct that, between the two processes, the export estimate table is the same.

MR. BEZERRA: Okay. And by "processes" you mean the no action alternative versus the with-action alternative?

WITNESS REYES: That's correct.

MR. BEZERRA: Thank you.

Okay. Could we move on to Exhibit BKS-202, please. Thank you.

And Ms. Parker, this is just Slide 5 of your PowerPoint with one addition that I made, which is the little red arrow there in the middle. So we may want to blow that up on the screen for visibility.

You indicated in your testimony that this is not a slide from the actual WSI-DI petitioners' modeling but represents how this -- WSI-DI could be, correct?

WITNESS PARKER: That's true.

MR. BEZERRA: So this is a reasonable representation of a WSI-DI curve?

WITNESS PARKER: Yes.

MR. BEZERRA: And this slide presents a fully trained WSI-DI curve at Step 3 as you've described it, correct?

WITNESS PARKER: That's true. And let's note that there is a typo in the title; that should be reading "Step 3."

MR. BEZERRA: Thank you. I appreciate that.

Now, do you see the little arrow I added connecting those two dots?

WITNESS PARKER: Yes.

MR. BEZERRA: So those dots both occur at approximately 7.5 million acre-feet of available water supply, correct?

WITNESS PARKER: That's correct.

MR. BEZERRA: But the two dots are more than 2 million acre-feet different in depicting the amount of water delivered, correct?

WITNESS PARKER: That's correct.

MR. BEZERRA: So this indicates that Cal WaterFix can make allocations that are up to 2 million acre-feet different with approximately the same level water supply, correct?

WITNESS PARKER: I don't think that that -- this has nothing to do with the California WaterFix. This is --

MR. BEZERRA: I'm sorry. You're right. I apologize.

This slide indicates that CalSim generally can depict a delivered water supply that varies by 2 million acre-feet at roughly the same amount of available supply, correct?

WITNESS REYES: I just want to add that, when you're saying "roughly the same amount of supply," this supply that you see, this WSI, is water supply in storage that you know about and a forecast of supply.

MR. BEZERRA: Understood.

WITNESS REYES: So you may see the spread there, but that's because the actual supply could be very different than what the forecast of supply is.

MR. BEZERRA: Okay.

WITNESS REYES: They might have the same exact forecast as the WSI, but what turns out in reality

could be very different. And that's -- that's the sort of uncertainty that operators have to deal with.

MR. BEZERRA: Okay. And so that is the level of uncertainty that exists -- well, let me --

WITNESS REYES: In real life or real time.

MR. BEZERRA: But on this slide, Exhibit BKS-202, for the same -- essentially the same forecasted water supply, the model may have deliveries that vary by 2 million acre-feet, correct?

WITNESS PARKER: Sure.

MR. BEZERRA: Okay. And the black line on this slide represents the fully trained WSI-DI curve, correct?

WITNESS PARKER: Correct, conceptually.

MR. BEZERRA: Conceptual?

WITNESS PARKER: This is not the curve that was used in the WaterFix studies.

MR. BEZERRA: And the black line representing the trained WSI-DI is much closer to the bottom of the cloud of dots than the top, correct?

WITNESS PARKER: As Mr. Reyes has testified, the process that's used to draw that line to fit that curve deliberately takes a conservative approach. So, yes, it is lower overall than the preponderance of blue dots.

MR. BEZERRA: And the WSI curve is intended to emulate operators' discretion in making water supply allocations, correct?

WITNESS PARKER: Yeah, yes.

MR. BEZERRA: And in real life, operators do not have to follow this WSI-DI curve in making allocations, correct?

MS. AUFDEMBERGE: Objection --

WITNESS PARKER: They don't have to, and they don't --

So it's not an operations model.

MS. AUFDEMBERGE: Yeah, either -- this is asked and answered, and also it calls for legal conclusion. I believe Ron Milligan testified that there's numerous legal obligations that lead us to conclude what our operational philosophy is. This is not an issue of capacity alone, and that's clear in the testimony.

CO-HEARING OFFICER DODUC: The question is pretty simple on the surface. And that is there is nothing that requires that this actually be the actual allocation or what -- what is the actual operation would be based on just this curve, correct?

I think it was a similar point that Mr. Bezerra's trying to make for quite a while now, and

that is there's no constraint based on the operators to follow what is being depicted in these modeling efforts.

MR. BEZERRA: Precisely.

MS. AUFDEMBERGE: And I object to that question. And that's a question that has been asked and answered by the operators. This is not a modeling question then. It's -- that's -- if it's a question about whether the model -- whether the operations have to follow this curve, it seems like that's the tail wagging the dog.

It's the operators that are feeding the information to the modelers. So you need to ask the operators if -- what they believe that their constraints are in helping the modelers develop this process.

CO-HEARING OFFICER DODUC: I believe Ms. Parker and others have testified -- other modelers have testified that the models do not reflect the operational flexibilities that exist in real life, so I believe Ms. Parker could answer Mr. Bezerra's question. The objection is overruled.

WITNESS PARKER: So the operators -- essentially, operations does not use a WSI-DI curve that is trained by CalSim.

MR. BEZERRA: Thank you.

CO-HEARING OFFICER DODUC: Mr. Bezerra?

MR. BEZERRA: I think it's 15 minutes more.

CO-HEARING OFFICER DODUC: Let's try for 10.

MR. BEZERRA: Well, I will try for 10.

CO-HEARING OFFICER DODUC: Be more direct in your questioning.

MR. BEZERRA: Thank you.

On Page 7, just below Figure 4, you indicate that all of these -- all of Figure 4 is for demonstration purpose only.

WITNESS PARKER: I do.

MR. BEZERRA: And none of these are the actual WSI-DI curves that were used in petitioners' modeling?

WITNESS PARKER: That is correct.

MR. BEZERRA: Okay. Do you have knowledge of the WSI-DI curve that was used in petitioners' Biological Assessment modeling?

WITNESS PARKER: Do I have knowledge of the curve? It's input to the model.

MR. BEZERRA: Have you seen the curve that was used? Were you involved in developing that curve?

WITNESS PARKER: I was not involved in developing that curve.

MR. BEZERRA: Were you involved in developing

the WSI-DI curve that petitioners used in their case in chief modeling?

WITNESS PARKER: No.

MR. BEZERRA: Okay. And I believe Mr. Reyes testified that there was no change in the WSI-DI curve between the no action alternatives and the with-action alternatives on petitioners' modeling. Do you have any other knowledge on that subject?

WITNESS REYES: I don't recall my stating that.

MR. BEZERRA: Okay. Mr. Reyes, I thought the testimony was that petitioners -- I'm sorry.

You testified about the export estimate, didn't you?

WITNESS REYES: Correct.

MR. BEZERRA: I'm sorry. Mr. Reyes, do you know -- do you have knowledge of petitioners' WSI-DI curves in the Biological Assessment modeling?

WITNESS REYES: What's your question? Do I -- am I aware of them?

MR. BEZERRA: Yes.

WITNESS REYES: I know they exist. I don't know if I -- I, myself, did not generate them, no.

MR. BEZERRA: Okay. Did you generate the WSI-DI curve used in petitioners' case in chief

modeling?

WITNESS REYES: No, I did not.

MR. BEZERRA: And, Ms. Parker, I assume you were not involved in the generation of those curves as well?

WITNESS PARKER: No, no, I was not.

MR. BEZERRA: Who did generate those curves?

MR. BERLINER: Objection, beyond the scope of testimony, relevance.

CO-HEARING OFFICER DODUC: Mr. Bezerra?

MR. BEZERRA: Ms. Parker is attempting to rebut Mr. Bourez' testimony about the functioning of WSI-DI in petitioners' modeling. I'd like to understand where those curves came from.

If the witnesses don't know where they came from, I'd like to know where I can find that information.

MS. AUFDEMBERGE: I believe that Ms. Parker testified that this was not rebutting Mr. Bourez' modeling. It's about whether or not the WSI-DI curve has foresight, has perfect foresight.

CO-HEARING OFFICER DODUC: That is a good point.

MR. BEZERRA: That's fine. These witnesses don't know where this is from.

WITNESS PARKER: Well, I -- that's not entirely fair.

MS. AUFDEMBERGE: There's no question on the table.

CO-HEARING OFFICER DODUC: Hold on, hold on.

MS. AUFDEMBERGE: I didn't hear a question.

CO-HEARING OFFICER DODUC: I think I've lost track of this train of discussion.

Mr. Bezerra, please ask your next question.

MR. BEZERRA: All right. Thank you very much.

Do you know whether petitioners developed the WSI-DI curves in California WaterFix modeling specifically for California WaterFix?

MR. BERLINER: Again --

CO-HEARING OFFICER DODUC: Again, yes, sustained.

MR. BEZERRA: Do you know whether petitioners developed different WSI-DI curves that accounted for climate change in developing the Q zero and Q5 modeling used in the Biological Assessment modeling?

WITNESS PARKER: I'm pretty sure that the same WSI-DI curves were used in the sensitivity analyses that were done at different climate levels. My understanding is that those studies were considered as sensitivity analyses, and we weren't trying to develop,

like, adaptation strategies for future climate. And so no effort was made to carefully adjust operations. It was a -- there was a sensitivity analysis -- analyses used to see what an impact climate would have. So my sense is that those curves were not regenerated. I believe that that's the case.

MR. BEZERRA: Do you know whether, in petitioners' Q5 Biological Assessment modeling the WSI-DI was different than in petitioners' Q zero current climate modeling?

CO-HEARING OFFICER DODUC: All right. Someone object, please.

MR. BERLINER: Yes, objection.

CO-HEARING OFFICER DODUC: Mr. Bezerra, I've allowed you quite a bit of leeway because I actually found this fascinating, but I'm sure Ms. Parker will remind us that, again, the point of her bringing up Figure 4 was to address the aspect of perfect foresight as was brought forth in, I believe, Mr. Bourez' testimony, and it wasn't intended to make any other points with respect to the WSI-DI curve. And we're going into quite a bit of detail.

MR. BEZERRA: Well, in -- thank you. In her direct testimony, she stated that the WSI-DI curve should be adjusted to account for a variety of factors,

and she specifically stated that climate change was one. And she is criticizing Mr. Bourez for not using the WSI-DI curve that petitioners used. And I'd like to understand if petitioners accounted for climate change in there own WSI-DI curve.

She stated on her direct testimony that you need to account for climate change, and I don't know whether they have or not.

CO-HEARING OFFICER DODUC: Ms. Parker?

WITNESS PARKER: I would respond that it depends on what those scenarios are to be used for and, because the climate change scenarios were intended to be just a gut check on the influence of a climate scenario and not promoted as a proposed action or as an alternative, that those were not refined.

MR. BEZERRA: Okay. Let me go back.

Do you know whether petitioners adjusted the WSI-DI curve in the Q5 Biological Assessment modeling to account for climate change?

MR. BERLINER: This is beyond the scope of surrebuttal. There's nothing in the surrebuttal about climate change.

CO-HEARING OFFICER DODUC: Could you point me to where you're talking about?

MR. BEZERRA: Well, we have Figure 8 on

Page 11 and Figure 9 on Page 11 which depict the WSI-DI curves from the Biological Assessment modeling. And Ms. Parker's testimony is criticizing MBK for how it handled allocations departing from WSI-DI in their with-project modeling.

She is testifying to the Biological Assessment modeling. And I think it's worth it for this Board to understand whether petitioners have even attempted to account for climate change in assessing the water supplies available to be conveyed through California WaterFix.

CO-HEARING OFFICER DODUC: Mr. Berliner?

MR. BERLINER: Even if Mr. Bezerra was correct --

CO-HEARING OFFICER DODUC: It's outside the scope.

MR. BERLINER: -- this testimony has nothing to do with that.

CO-HEARING OFFICER DODUC: All right. Sustaining the objection.

MR. BEZERRA: I think that's it. Thank you very much.

CO-HEARING OFFICER DODUC: Ms. Akroyd? No? Okay.

And then, Ms. Nikkel, you're up and then

Mr. Jackson and Shutes.

MS. NIKKEL: Good afternoon.

CO-HEARING OFFICER DODUC: Ms. Nikkel, you are Group 8.

MS. NIKKEL: Thank you.

CO-HEARING OFFICER DODUC: Today, right now, anyway.

MS. NIKKEL: I figured that out, too, when I realized I wasn't 7 or 9, must be 8.

CROSS-EXAMINATION BY MS. NIKKEL

MS. NIKKEL: Good afternoon, Ms. Parker. I'm Meredith Nikkel. I'm here on behalf of the Tehama-Colusa Canal Authority. I just have one topic and just a few questions. Hopefully we'll get through this in less than ten minutes.

The topic is North of Delta and South of Delta allocations in the modeling that you testified about. So first, just as foundation for that, in Figure 7 of your testimony that you testified about this morning in your direct testimony, you compared inflow forecasts with actual inflow.

Based on that analysis, would it be fair to say that the May forecast provides a fairly good estimate of inflows that contribute to reservoir storage?

WITNESS PARKER: "Good" is a -- "fairly good" is a fairly subjective word.

The 50 percent forecast means that 50 percent of the time you would expect the actual inflow to be above, and 50 percent of the time it could be below. There's all kinds of things that can make it how much above, how much below, so.

MS. NIKKEL: Would you agree that the May forecast is better than the March and April forecast?

WITNESS PARKER: Yes.

MS. NIKKEL: So turning, then, to your Table 2 on Page 12 of your written testimony, which is Exhibit DOI-37. That table and the testimony related to it is discussing North and South of Delta allocations in the model.

In preparing this testimony, did you review the Shasta and Folsom end-of-September storage levels in the modeling for 1980?

WITNESS PARKER: I did not.

MS. NIKKEL: Okay. That's fair. I'll represent to you -- and we can operate on this if you're comfortable with that -- that, if you were to reference the data output tables in SVWU-201, you would find that Shasta and Folsom carryover storage in 1980 was more than 3.5 million acre-feet in petitioners'

modeling.

I can walk you through that, or we can just agree that that's what you would find in you looked.

WITNESS PARKER: I trust you.

MS. NIKKEL: Thank you. To your knowledge, there's no legal requirement that would prevent operators from allocating 100 percent to North of Delta and South of Delta in the modeling in a year with more than 3.5 million acre-feet in storage in Shasta and Folsom, correct?

MS. AUFDEMBERGE: Objection, calls for a legal conclusion.

CO-HEARING OFFICER DODUC: And an operational question.

Mrs. Nikkel?

MS. NIKKEL: To your knowledge, as far as she knows.

MR. BERLINER: Well, I mean, this really is an operational issue, not a modeling issue.

CO-HEARING OFFICER DODUC: Sustained.

MS. NIKKEL: Okay. No further questions. Thank you.

CO-HEARING OFFICER DODUC: Mr. Jackson -- who is not here, or Mr. Shutes who is not here?

MR. BERLINER: Yeah, Mr. Jackson may have been

out in the lobby.

CO-HEARING OFFICER DODUC: Going once --

MS. MESERVE: He's out there.

MR. JACKSON: We don't have anything.

CO-HEARING OFFICER DODUC: Mr. Jackson has indicated you do not have questions. That concludes everyone I have on my list.

Any redirect, Mr. Mizell or Ms. Aufdemberge?

MR. BERLINER: We do have very brief redirect.

CO-HEARING OFFICER DODUC: On what particular area?

MR. BERLINER: On the -- I forget exactly which figure it is. I'll get that. But Mr. Bezerra's questions about the Folsom draw down, comparing the no action and the WaterFix.

CO-HEARING OFFICER DODUC: All right.

MR. MIZELL: In order that we not ask redirect questions that are beyond what we need to, can we have five minutes to make sure that they are narrowly tailored?

CO-HEARING OFFICER DODUC: We will take a five-minute break and return at 2:10.

(Recess taken)

CO-HEARING OFFICER DODUC: 2:10 and we are back in session.

Mr. Mizell, Ms. Aufdemberge, which one of you will be doing the redirect? Oh, Mr. Berliner?

MR. BERLINER: Yes.

REDIRECT EXAMINATION BY MR. BERLINER

MS. PARKER: Ms. Parker, I have a question for you. There are --

CO-HEARING OFFICER DODUC: I'm sorry. What is it that we are looking at, Mr. Berliner?

MR. BERLINER: We are looking at an Exhibit BKS-200, which is the 1932-1933 year for Alternative H3. And this was an exhibit prepared by BKS that is -- is purported to extract certain information from the modeling. And there were a series of questions asked about this.

Ms. Parker, you recall seeing this exhibit?

WITNESS PARKER: Yes, I do.

MR. BERLINER: And you were asked a series of questions by Mr. Bezerra concerning the no action alternative and the H3 alternative, and then there's a very similar slide concerning H4. Do you recall that one as well?

WITNESS PARKER: Yes, I do.

MR. SHUTES: And Mr. Bezerra was discussing the point that, if you looked at various months on this table for 1932 and 1933, there are some substantial

differences between the acre-feet in the no action alternative and the acre-feet under California WaterFix H3 alternative. Do you recall that?

WITNESS PARKER: Yes, I do.

MR. BERLINER: And there was an implication that the difference between the two columns, which is set forth in the right-hand column on that table, was directly attributable to the California WaterFix. Do you recall that?

WITNESS PARKER: Yes.

MR. BERLINER: Okay. Is that a correct implication, when you compare the end-of-month Folsom storage looking at the no action and the H3 alternative?

CO-HEARING OFFICER DODUC: Hold on. I think Mr. Bezerra has something to say.

MR. BEZERRA: Yes. I have an objection on lack of foundation and lack of personal knowledge. These witness testified that they did not know these model results and could only testify about them as a hypothetical. They therefore cannot offer an opinion as to the causation of these results from the model unless they have developed an extensive amount of knowledge about the modeling they did not have earlier today.

CO-HEARING OFFICER DODUC: No, Mr. Bezerra, I'm overruling your objection. I believe their concern was that they did not have the specific knowledge with respect to the specific results that are being depicted here.

But I believe Mr. Berliner is asking a broader question with respect to the overlying principles associated with the modeling and the interpretation of the modeling.

So, overruled, Mr. Bezerra.

MR. BERLINER: Thank you.

WITNESS PARKER: I'm sorry, Mr. Berliner. Could you please repeat the question? I forget it now.

MR. BERLINER: Yeah, my question is --

CO-HEARING OFFICER DODUC: And Mr. Berliner, I'm assuming that you're not asking her about the specifics with respect to the data being shown and the differences being shown.

MR. BERLINER: Correct.

CO-HEARING OFFICER DODUC: Great.

MR. BERLINER: And we could put up -- to make that point, I could put up any year that was shown.

CO-HEARING OFFICER DODUC: Exactly.

MR. BERLINER: Exactly.

So, Ms. Parker, I'm asking you on the general

concept level concerning the various slides that were shown by Mr. Bezerra where there's a difference of some substance between the no action alternative and the H3 alternative, the implication was that those differences are attributable to the California WaterFix solely.

Could you explain what the differences may be based upon?

WITNESS PARKER: Yes. So we see a --

CO-HEARING OFFICER DODUC: Ms. Parker, I can see Mr. Bezerra getting antsy. So let me make sure I understand.

Your answer to Mr. Berliner's questions is not an answer to the -- to the graph itself that is before you, but you are providing possible explanation as to why that difference might occur, correct?

WITNESS PARKER: Yes, yes.

CO-HEARING OFFICER DODUC: Okay.

WITNESS PARKER: And I guess the distinction here is between an explicit operation of the California WaterFix -- so the idea is that these difference do exist. We acknowledge that.

CO-HEARING OFFICER DODUC: But you're not actually trying to explain on this particular chart why that difference exists?

WITNESS PARKER: Right.

CO-HEARING OFFICER DODUC: Because otherwise I would have to sustain his objection?

WITNESS PARKER: All right. I'll give the answer I have, and you can tell me if it's okay or not. How's that?

The implication in Mr. Bezerra's questioning seemed to be that the California WaterFix was explicitly causing the reductions that we see in this plot and the other five that -- that were put up.

It is not an explicit operation of the WaterFix in these types of cases that we see. It is that, in some month, there is one release from the reservoir that is caused in the no action -- or the WaterFix relative to the no action that is due to the lack of a negative carriage water goal in the Delta. And then that difference persists for a bunch of months until the reservoir recovers.

That is not a deliberate operational target of the California WaterFix, so we don't see these differences as an outcome of the WaterFix operation. And I guess that's the thing that we're trying to make clear. Does that make sense?

CO-HEARING OFFICER DODUC: (Nods head)

MR. BERLINER: Let me see if I can break that down a little bit because I'm guessing that there's

about three people in the room that understand what a negative carriage water goal is.

So if you could please explain that and why that's relevant.

WITNESS PARKER: Okay. So negative carriage water --

MR. BEZERRA: I'm going to object again. Again, the witnesses testified they did not know these operations, they were only testifying as to hypothetical. And now, whatever you can say about general explanation, they are attempting to explain these model results and why they occur.

If they do not know these model results, they cannot offer an opinion as to why they occur.

CO-HEARING OFFICER DODUC: Mr. Berliner?

MR. BERLINER: What was explained, I believe, by Ms. Parker -- and I don't want to put words in her mouth -- when we -- at the time this came up is she was asked specifically about, for instance, February of 1933 and this particular graph.

That has really nothing to do with the general modeling concept of comparing the impacts of the no action alternative as compared to another alternative and what draw-down -- I'm sorry -- what storage levels might result when you compared the two alternatives.

It's a generic question attributable to the model.

CO-HEARING OFFICER DODUC: And she's providing a generic answer?

MR. BERLINER: Essentially, yes. I mean, we're obviously within the context of stressed water supply conditions because otherwise it really wouldn't be relevant.

CO-HEARING OFFICER DODUC: I am still overruling Mr. Bezerra's objection, but it will be noted in considering and weighing this particular portion of Ms. Parker's testimony.

And I think she needs the question to be asked again, Mr. Berliner.

MR. BERLINER: I was asking about what the definition is or if you could explain the concept of negative carriage water.

WITNESS PARKER: So positive carriage water is when, in order to get a certain amount of water across the Delta to the export facilities, if an additional increment of water needs to be introduced to go out the Delta to preserve water quality standards and to maybe meet EI ratio constraints, something like that.

So a negative carriage water situation would be the more water you can push across the Delta, the less Delta outflow you need. So that's a negative

water carriage situation. That can happen, given the criteria and the processes that we use within CalSim to model water quality in the Delta.

In the no action alternative, we have rules in the model that try prevent us from doing that because it doesn't make sense. Okay? But that can hinder releases in some cases. And for the most part, that's okay.

In the WaterFix studies, because of the additional avenue for export, i.e., to go through the WaterFix, that negative carriage water goal or that negative carriage water constraint was turned off. So in the event that there was a negative water carriage situation in the Delta, we'd say, "Okay. We get it. That's -- we're ignoring that." It's okay to have those exports even though there's a negative carriage water situation going on.

Does that help clarify at all?

MR. BERLINER: Well, it helped me. I hope it helped the Board.

WITNESS PARKER: Did that help you guys?

CO-HEARING OFFICER DODUC: Just move on, Mr. Berliner.

MR. BERLINER: That's my last question. So if it's not clear, then we should probably get a better

explanation. But otherwise, I don't have any other questions.

CO-HEARING OFFICER DODUC: Any recross?

Mr. Bezerra.

MR. BEZERRA: Thank you. I think this is just a couple questions.

RECROSS-EXAMINATION BY MR. BEZERRA

MR. BEZERRA: Ms. Parker, the negative carriage water situation that you just described, that is a function of the California WaterFix in the modeling, correct?

WITNESS PARKER: No, that's not -- that's not a function of the California WaterFix at all. It's a common occurrence in CalSim runs in general.

MR. BEZERRA: The negative carriage water assumptions that you just described in the with-action alternative modeling, they do not exist in the no action alternative modeling, correct?

WITNESS PARKER: We do not penalize negative carriage water in the WaterFix alternatives. We do penalize negative carriage water in the no action alternatives.

MR. BEZERRA: So your -- the decision to not penalize negative carriage water is an aspect of WaterFix as you have chosen to model it because it

doesn't exist in the no action alternative, correct?

WITNESS PARKER: Yes.

MR. BEZERRA: Thank you.

CO-HEARING OFFICER DODUC: All right. That concludes, I believe, Ms. Parker and Mr. Reyes' testimony.

Ms. Nikkel?

MS. NIKKEL: I'd like to make a motion to strike one of the slides from Ms. Parker's testimony. Specifically, it's in DOI-38.

CO-HEARING OFFICER DODUC: Let's pull it up.

MS. NIKKEL: And it's at Page 23, which hopefully is also Slide 23. I didn't see anywhere in Ms. Parker's written testimony or today in her oral direct testimony or cross-examination or redirect any explanation of this slide or any -- any opinion upon which this slide is based. And for that reason, it's irrelevant and should be stricken.

CO-HEARING OFFICER DODUC: You did skip over this slide, Ms. Parker.

WITNESS PARKER: I did in the interest of time. I could talk about it now if you want me to.

CO-HEARING OFFICER DODUC: Actually, point me to where in your written testimony this slide is referenced.

WITNESS PARKER: It's not.

CO-HEARING OFFICER DODUC: In that case, I'm sustaining Ms. -- actually, I'm granting this -- having an engineer do this is really difficult.

I am hereby granting Ms. Nikkel's motion --

MS. NIKKEL: Thank you.

CO-HEARING OFFICER DODUC: -- even though it is a very nice looking slide.

All right. With that, Mr. Mizell, are you prepared to bring up your next witness?

MR. MIZELL: Yes. Our next witness is going to be Dr. Kimmelshue.

CO-HEARING OFFICER DODUC: Ms. Parker, you did not bring up your baseball analogy. I'm disappointed.

WITNESS PARKER: We had a whole bunch of other ones too.

CO-HEARING OFFICER DODUC: While they are getting ready, let me just get a quick estimate of who all plans on conducting cross-examination of Mr. Kimmelshue.

MR. RUIZ: Good afternoon. Dean Ruiz for the South Delta Water Agency parties. I'll have about 20 minutes.

CO-HEARING OFFICER DODUC: Okay.

MS. MESERVE: Osha Meserve with LAND and the

other protestants. And I would have about 20 minutes as well. And I would request -- and I've discussed with Mr. Ruiz letting him go out of order in front of me, and that way he may take care of some of the questions I had, if that would be all right.

CO-HEARING OFFICER DODUC: All right. Anyone else? I was trying to get a time estimate. It looks like, Mr. Mizell, we will be able to get to your next witness today.

MR. MIZELL: Very good. And they're prepared to go in the audience as we speak.

So Dr. Kimmelshue has appeared before you for rebuttal purposes. He has taken the oath. So I'll just have him attest to his testimony and turn the mic to him.

JOEL KIMMELSHUE,

called as a surrebuttal witness by the petitioners, having been previously duly sworn, was examined and testified further as hereinafter set forth:

DIRECT EXAMINATION BY MR. MIZELL

MR. MIZELL: Dr. Kimmelshue, is DWR-933 ac correct copy of your surrebuttal testimony?

WITNESS KIMMELSHUE: Yes, it is.

CO-HEARING OFFICER DODUC: Your microphone is

not on.

MR. MIZELL: Just closer to you.

WITNESS KIMMELSHUE: Yes, it is.

MR. MIZELL: Thank you. And with that, I'll allow him to summarize his testimony.

WITNESS KIMMELSHUE: I think most of my surrebuttal testimony speaks for itself.

CO-HEARING OFFICER DODUC: I think you can lift the microphone up.

WITNESS KIMMELSHUE: Thank you. I think most of my surrebuttal testimony speaks for itself. There's just a few major points I want to stress before questioning.

I mainly focused on the threshold salinity levels and tolerances that were listed and mentioned in Dr. Leinfelder-Miles' previous testimony. And how new varieties have been developed over time to address such things as salinity increases over time, over the 32 years, the reference that she mentioned.

I also spent some time in the surrebuttal testimony focusing on the importance of establishing the exact locations of the fields that were tested for the alfalfa study and even within those fields, those sampling points.

I think it's very important to understand in

some detail what is understood by baseline conditions and comparing changes in soil salinity and soil profile to a defined baseline condition. That also is in my surrebuttal testimony.

And I have my own professional opinions with regards to the detailed nature of a manuscript for a peer reviewed publication and the components of that manuscript that should be included for a journal publication. Thank you.

MR. MIZELL: And with that, Mr. Kimmelshue will be available for cross-examination.

CO-HEARING OFFICER DODUC: All right.

Mr. Ruiz?

CROSS-EXAMINATION BY MR. RUIZ

MR. RUIZ: Good afternoon, again. Dean Ruiz, South Delta Water Agency parties.

Good afternoon, Dr. Kimmelshue. I mentioned I had about 20 minutes, and the topics pretty much track his surrebuttal. I've got a couple questions on the salt tolerant varieties, the overall purpose of Dr. Miles-Leinfelder's study, some questions about the 2.0 threshold he discusses, and a little bit -- just a couple questions about the lack of data in the time frame of Dr. Miles-Leinfelder's study.

CO-HEARING OFFICER DODUC: All right. Please

proceed.

MR. RUIZ: Dr. Kimmelshue, in your surrebuttal testimony I think at page -- beginning about at Page 4, you discuss, as you just summarized a little bit in your testimony, your verbal testimony, you discussed some new salt tolerant varieties for alfalfa seed, correct?

WITNESS KIMMELSHUE: That's true.

MR. RUIZ: And you discussed those potentially being available in the Delta as early as 2018; is that correct?

WITNESS KIMMELSHUE: That is correct from my communications with alfalfa breeders, yes.

MR. RUIZ: That was going to be my next question, because I think you anticipated, that is -- your information about those varieties or supposed potential varieties is based on personal communications with alfalfa breeders?

WITNESS KIMMELSHUE: That is correct.

MR. RUIZ: Is it based on anything else?

WITNESS KIMMELSHUE: No. It's just based on my conversations with those breeders.

MR. RUIZ: Okay. You don't have any references to any studies or anything with regard to those new varieties that you're mentioning?

WITNESS KIMMELSHUE: I don't. I would suspect those are confidential information for those alfalfa breeders.

MR. RUIZ: Okay. And these varieties that you're mentioning, they haven't been grown in the Delta yet, correct?

WITNESS KIMMELSHUE: I'm unaware if they've been tested in the Delta or not, but they have been tested in situations where the salinity has approached 6 to 6 1/2 decisiemens per meter with no field decline.

MR. RUIZ: Is that 6 to 6 1/2 threshold or level you're talking about with regard to applied salts, applied waters, or actual soil salinity?

WITNESS KIMMELSHUE: That's soil salinity.

MR. RUIZ: And what is the source of that information?

WITNESS KIMMELSHUE: My personal communications with those breeders and their description of the studies that they conducted to raise the salinity in a soil by applying -- by applying saltier water or salt sources on the surface to a threshold level or to a level that they tested and did that different plot studies that then indicated to them where they just measured a yield with regard to different salt content in the soil to determine where

they started to experience a yield decline.

MR. RUIZ: And when -- forgive me for my ignorance. When you say "alfalfa breeders," what specifically are you referring to?

WITNESS KIMMELSHUE: There are alfalfa seed breeders that are looking for ways of cross-breeding different varieties of alfalfa. I'm not a plant geneticist -- but that cross-breed different varieties of alfalfa for traits that they want to enhance in a plant, such as salinity tolerance.

MR. RUIZ: Okay. Ultimately to sell to farmers, correct?

WITNESS KIMMELSHUE: Correct.

MR. RUIZ: We don't know specifically or you don't know specifically how any of these new potential varieties would fare in the South Delta, for example, do you?

WITNESS KIMMELSHUE: I think -- I think the thing to keep in mind here is that they are developing these more salt tolerant varieties in response to increasing salinity conditions in agronomic systems. And salt is salt. And decisiemens per meter are decisiemens per meter of salinity in soil. And that's kind of the measurement that is the threshold that they're trying to achieve.

So there has been obviously a demand for increased salt tolerant varieties of alfalfa, and so they develop those varieties.

Now, the salinity in the South Delta may be composed of different forms of sodium chloride, calcium magnesium, potassium, different combinations, but TDS, or milligrams per meter -- decisiemens per meter includes all of those components. It's a measurement of total salt.

MR. RUIZ: I appreciate that. My question, though, is more specific. You don't know how those new varieties you're referring to that some of these breeders told you about in your personal communications would fair specifically in the South Delta, do you?

WITNESS KIMMELSHUE: My -- my professional opinion would be that they probably wouldn't develop a variety of alfalfa that wouldn't be able to withstand a certain level of salinity, whether that salinity is in the South Delta or elsewhere, it's a measured level of salinity.

MR. RUIZ: I'm going to move to strike his response as non-responsive again.

I'm asking you specifically whether or not you know if these new varieties of alfalfa seed that you've been told about by some of these breeders, if you know

how they would fare specifically in the South Delta.

CO-HEARING OFFICER DODUC: I believe he answered that based on his opinion, his knowledge as an expert not -- you don't have any specific data to show that?

WITNESS KIMMELSHUE: No, I do not.

CO-HEARING OFFICER DODUC: Okay. So your motion is denied.

MR. RUIZ: I picked that up. Thank you.

CO-HEARING OFFICER DODUC: I just have to be more clear with these things now.

MR. RUIZ: Are you aware that, at least in the South Delta, that alfalfa as a crop is declining in terms of the amount of acreage that's being planted?

WITNESS KIMMELSHUE: I'm going to have to ask you to explain your question a little bit more. Over what period of time and over what --

MR. RUIZ: Well, are you aware that, over the past two years, three years, that the amount of acreage in alfalfa planted in the South Delta has decreased significantly?

MR. MIZELL: I'm going to object to this line of question as being beyond the scope of the surrebuttal evidence. He's addressing Dr. Leinfelder-Miles study, which was of alfalfa. It's

irrelevant if alfalfa happens to be declining.

CO-HEARING OFFICER DODUC: Mr. Ruiz?

MR. RUIZ: He's opining -- I asked him specifically if he knew whether or not how this -- these varieties would fare in the South Delta and he went into how, in his professional opinion, they would be -- they wouldn't be developed unless they were tolerant or something that would work in the South Delta.

So I'm asking him if he has knowledge in terms of the significance of his statements, given the fact that the alfalfa crops are declining in the South Delta.

CO-HEARING OFFICER DODUC: I'm going to sustain Mr. Mizell's objection. He is indeed referring to rebuttal testimony when he chose to discuss alfalfa.

MR. RUIZ: That's fine. I'll move on though my next question.

How would, in your professional opinion, a variety such as that you've referenced that's significantly apparently or supposedly or hopefully or potentially more salt tolerant with regard to alfalfa, how, in your opinion, would that affect or assist a grower of, say, tomatoes in the South Delta?

MR. MIZELL: Objection, beyond the scope of

the surrebuttal testimony.

CO-HEARING OFFICER DODUC: Yes, Mr. Ruiz.

MR. RUIZ: Well, the question is do you have any reason to think or in your professional opinion from your personal communications that these crops are also something that would lend itself to the theory that these varieties, with their additional salt tolerance, would lend themselves to other crops that are grown in the South Delta?

MR. MIZELL: Same objection.

CO-HEARING OFFICER DODUC: I will allow it because I expect the answer to be no.

WITNESS KIMMELSHUE: I don't understand your question, I'm sorry, how it relates to tomatoes versus alfalfa. I'm sorry. You're going to have to be more explicit.

MR. RUIZ: Well, are these salt tolerant varieties that you're being told about from these breeders, these alfalfa breeders, do you have information that they also relate to or there's other in the works, if you will, similar types of seeds, salt tolerant seeds for other crops such as tomatoes?

CO-HEARING OFFICER DODUC: Now you may object.

MR. MIZELL: Objection.

CO-HEARING OFFICER DODUC: Sustained, it is

definitely outside the scope.

MR. RUIZ: I want to move on to a couple of questions with regard to your surrebuttal testimony regarding the 2.0 threshold.

I think it's on Page 2 or 3 of your surrebuttal. You talk about that threshold as being old. Do you recall that testimony?

WITNESS KIMMELSHUE: I do.

MR. RUIZ: Okay. And when you're talking about the 2.0 threshold, you're talking about the point at which -- you're referring to the soil salinity and the point at which yield begins to decrease based on that threshold, correct?

WITNESS KIMMELSHUE: Based on that threshold from that references from 1985, yes.

MR. RUIZ: Is there new research that disproves the 2.0 threshold?

WITNESS KIMMELSHUE: This kind of gets back to your previous line of questioning. You know, when I -- when I -- first off, the Ayers & Wescot reference is a traditional reference that's been used for decades. And it was published in 1985.

And it's my experience in working with agronomic systems in alfalfa in Arizona and in California and in other areas, more specifically in

Arizona, that there are varieties -- those are non-dormant varieties; I'll clarify that, but there are dormant varieties as well -- that have been developed that withstand higher levels of salinity in the soil.

And we've talked about that already, you and I have, because there's always a need to try to provide a better variety for growers to overcome increased salinity conditions, drought conditions, climate conditions, those types of things. That's what plant breeders do.

And so my concern with that level of 2.0 from 32 years ago is that it does not take into account all of the work that's been done by these plant breeders and others for their careers to determine maybe there's a better widget. And indeed there is, and they have been developing those, and indeed they are coming onto the marketplace.

So that was my only concern with that, Mr. Ruiz, that I want to make sure that the threshold levels that are talked about here and discussed are ones that are current and also ones that are applicable to a situation of elevated salinity.

MR. RUIZ: You mentioned that -- you referenced that the -- that the Ayers & Wescot's 32 years old, right?

WITNESS KIMMELSHUE: Correct.

MR. RUIZ: If our math is correct?

My specific question, though -- I understand that you're indicating that it's a long period of time and that that threshold doesn't take into account other market research and things that are being developed.

My question is specifically is is there any new specific research that's been peer reviewed that's accepted that disproves the 2.0 threshold other than in market forces and the breeder efforts if you will.

WITNESS KIMMELSHUE: You know, I did not do an extensive literature review on alfalfa variety research with regards to thresholds. I called breeders and just simply asked the question: Are there varieties that have a higher threshold?

And the answer was yes. So I assume that, to get to that point, they had to do plot studies, and they had to test this over time, or else they wouldn't make the investment to put it only the marketplace.

And so although I have not reviewed the research directly, I did talk to the experts in their field and asked the simple question: Are there varieties that withstand a higher threshold? And I was told yes.

MR. RUIZ: And that was your question to them

just in general?

WITNESS KIMMELSHUE: I asked them -- that was my first question to them. And I asked them also you know, "How did you develop these varieties? Why did you develop these varieties? Were these varieties -- do you expect a yield decline in these varieties? Do you expect these varieties to be more expensive than standard varieties? And I proposed a line of questioning to them in that regard.

MR. RUIZ: And they were pretty confident in their responses to you, correct?

WITNESS KIMMELSHUE: Correct.

MR. RUIZ: Did they refer to -- refer any specific peer reviewed or academic studies to you to support their position that there's these new varieties that are available and out there or soon to be available?

WITNESS KIMMELSHUE: They did not give me any references or provide me with any -- direct me to any specific publications; however, I find it hard to believe that the largest alfalfa breeding company in -- one of the largest ones in the world would not do their due diligence and provide plot studies and research for multiple years. It takes multiple years to put these things out on the marketplace.

So, to answer your question, no --

MR. RUIZ: Thank you.

WITNESS KIMMELSHUE: -- I did not receive or look at any references in that regard. But makes sense to me that they wouldn't make the investment to put something on the marketplace that wouldn't succeed.

MR. RUIZ: I have a couple questions with regard to -- you have some comments in your testimony with regard to, if you will, lack of data or the time frame of this study that we're talking about.

You understand that the purpose of Dr. Miles-Leinfelder's study was to see and to what extent applied salts make their way through the root zone, correct?

WITNESS KIMMELSHUE: I understand that, yes.

MR. RUIZ: Okay. The fact that there was not more data available doesn't in fact reduce or diminish the results of Dr. Miles-Leinfelder's specific study though, does it?

WITNESS KIMMELSHUE: Can you explain to me what -- when you say "lack of data," can you be specific in what lack of data you're referring to?

MR. RUIZ: In terms of there not having been a similar study to her study recently in the South Delta, or in the Delta in general, in a recent study, that

doesn't in fact diminish the results of her study; it just puts into context -- it would be great if there was more data available, if there were more studies available other than just what she's done most recently. Is that a fair assessment?

WITNESS KIMMELSHUE: I'm not trying to dodge your question. I want to answer it appropriately. So can you just -- can you point to my testimony in my surrebuttal where that -- so I can review that, please?

MR. RUIZ: Yeah, just give me a second here.

Well, I'm not finding it specifically so let me just ask the question.

Is it a fair assessment that part of your criticism of her study is that there isn't more data to support its use as a baseline, if you will, for leaching fractions in the South Delta?

WITNESS KIMMELSHUE: Are you referring to data related to location?

MR. RUIZ: In part, yes.

WITNESS KIMMELSHUE: Okay. For me and my professional judgment, my best professional judgment, the location of these fields is -- especially in the complicated Delta environment, is pretty critical.

I've worked in the Delta, too. And there's high spots and low spots and islands that are prone to

salinity build-up and there's islands and fields that are not. And I have no way of knowing -- and we're just talking about location now, so if you have other data gaps that you want to talk about, let me know.

There's no way of knowing where those fields are. I believe in Dr. Leinfelder-Miles' most recent testimony here, she was asked if she took GPS locations of those fields, and she said yes.

And my question is, well, if you went to the effort to log exactly where those fields are, knowing that the complexity of the Delta is what it is, why wouldn't we put that in a summary report to help interpret the results in a more objective fashion such that I can relate that to high water table soils, drainage systems in fields or not, and a whole variety of other parameters?

That -- from a lack of data that you're referring to, this one is a significant one for me. When reviewing Dr. Leinfelder-Miles' work because I want to know where those fields are in -- on the face of the earth in the South Delta. Just being in the South Delta isn't -- if she has GPS locations, it would be great to see those locations.

MR. RUIZ: You have -- is it fair to say that you also have some criticism with respect to the value

of the report because the time frame in which it occurred was during a drought period?

WITNESS KIMMELSHUE: Yeah. Dr. Leinfelder-Miles, if I'm not mistaken, made the statement about she wanted to establish a baseline condition. And in establishing a baseline condition, it's important to include dry years, wet years, and hopefully average years.

And I understand that Dr. Leinfelder-Miles has no control over Mother Nature. I get that. I've done research for a number of years myself in an academic institution. And that is -- that is a struggle with natural systems research. I get it.

But the years in which she's trying to establish a baseline were very dry years. So if it is the intent to use that as a baseline, it is indeed an outlier. And the salinity concentrations in the soil profile and in the system should be expected to be elevated and not be representative of a baseline condition that would include wet years, dry years, and average years.

That's -- and I'll finish up with one more thing. That's what I said the last time I was here and testified, I said, man, I really would like to go out there and take some samples right now in the spring

after all this rain that we had. And I would be pretty convinced to tell you right now that the salinity concentrations in those fields would be pretty low.

MR. RUIZ: The fact that her study was conducted during a drought period, a drought phase, that's not an outlier with respect to at least the result of what -- the results of her study during a drought phase though, correct? I mean, if anything, it indicates what the situation is during a drought phase; would you agree with that?

WITNESS KIMMELSHUE: I'll agree with that. That's true. If the goal was to establish what an extreme -- I wouldn't call it a baseline. I would call it -- in my term, what I would call it is an extreme condition situation. And I don't think, when Dr. Leinfelder-Miles started her studies in 2014, I believe it was, or '13 or '14, that she had a prediction of what climate conditions we were going to see in the next two years. I don't think that was probably a goal of her study to say, "I can predict we're going to have a drought, and I'm going to establish this study to test against drought conditions." That's just the way it happened.

CO-HEARING OFFICER DODUC: All right. Mr. Kimmelshue, I'm going to stop you here.

Mr. Ruiz, how much additional time do you need?

MR. RUIZ: That was my last question that he's still answering.

CO-HEARING OFFICER DODUC: And I believe that you've more than answered that question.

MR. RUIZ: Thank you.

CO-HEARING OFFICER DODUC: All right. Ms. Meserve for LAND. Actually, Ms. Meserve, are you still anticipating 20 minutes.

MS. MESERVE: Yes.

CO-HEARING OFFICER DODUC: Okay. Then why don't we go ahead and take a break for the court -- I'm looking at the court reporter.

Take a break? Yes? Let's go ahead and take our break, and we will return at 3:05.

(Recess taken)

CO-HEARING OFFICER DODUC: All right. It is 3:05; we are back in session.

And before we turn to Ms. Meserve, let me go ahead and belatedly acknowledge for the record that, since we've resumed after our lunch break we have been joined by Ms. Conny Mittenhofer.

With that, Ms. Meserve.

MS. MESERVE: Thank you. Osha Meserve for

LAND et al. And I have some questions regarding the four opinions discussed in Dr. Kimmelshue's testimony. And I've listened to what Mr. Ruiz said, and so I hopefully will not overlap with anything he's asked.

CO-HEARING OFFICER DODUC: You will not.

MS. MESERVE: I'm sure you will hold me to it.

CO-HEARING OFFICER DODUC: Please begin, Ms. Meserve.

CROSS-EXAMINATION BY MS. MESERVE

MS. MESERVE: Okay. So Dr. Kimmelshue, on -- and I guess we could bring up your testimony, might be helpful if you don't mind, Mr. Baker, which is DWR-933.

CO-HEARING OFFICER DODUC: And closer to the microphone, please, Ms. Meserve or bring it closer to you.

MS. MESERVE: So on Page 3, Lines 16 through 18, you mentioned that the Delta weather in -- was not representative in the years 2014 through '16; is that correct? Do you see that statement, was not a representative baseline condition?

WITNESS KIMMELSHUE: Again, my definition of a baseline condition would encompass dry, wet, and average conditions. And if that's my definition of a baseline condition, it is not.

MS. MESERVE: And in your opinion, what were

the significantly different conditions in the South Delta in 2014 through '16?

WITNESS KIMMELSHUE: Overall, the lack of precipitation relative to average years.

MS. MESERVE: So do you believe that there was a drought in the South Delta during the salinity study?

WITNESS KIMMELSHUE: I believe that there was a drought in the State of California, yes.

MS. MESERVE: And thinking -- let's think about --

WITNESS KIMMELSHUE: I haven't checked precipitation records in the South Delta, but I'm assuming that was the case, too.

MS. MESERVE: So you have assumed that there were drought conditions in the South Delta?

WITNESS KIMMELSHUE: Yes.

MS. MESERVE: In your estimation, would that mean that applied water would be less?

WITNESS KIMMELSHUE: The demand of a crop is predominantly in the time frame in California when we don't see much precipitation. If you have a wet condition, a wet winter preceding the demand of the crop that's in the ground, you might have a period of time on the front end of the demand curve in the early spring, for example, that the soil moisture would

suffice for an irrigation event.

But for the most part, 85, 90 percent of the water that's applied is directly applied because of demand that isn't satisfied by precipitation.

MS. MESERVE: Now, so you said in your -- that you assumed it was drought conditions there. Do you know the actual rainfall for the years in question, 2014, '15, and '16, in the South Delta?

WITNESS KIMMELSHUE: I've looked at them, but I cannot recall at this time.

MS. MESERVE: I will represent to you that, in 2014, it was 8.2 inches, in 2015, 11.8, and 2016, 18.5. Does that sound like it -- I mean, I'll represent to you that's the rainfall. Does that sound like drought conditions to you?

WITNESS KIMMELSHUE: I'd have to compare those to the long-term data to answer that question,

MS. MESERVE: So you've implied that this is not a representative baseline condition, but you in fact did not investigate what the actual rainfall was in the South Delta?

MR. MIZELL: Objection, misstates his testimony.

CO-HEARING OFFICER DODUC: Okay. Now I'm confused because -- Ms. Meserve ask your question

again.

MS. MESERVE: Did you -- you state that the 2014 through 2015 period is not representative. However, you did not do any research to see what the rainfall actually was during those years in the South Delta; is that correct?

MR. MIZELL: Objection, misstates his testimony.

CO-HEARING OFFICER DODUC: And how did that -- I'm sorry, Mr. Mizell.

MR. MIZELL: Yes.

CO-HEARING OFFICER DODUC: How did that mischaracterize his testimony?

MR. MIZELL: Dr. Kimmelshue indicated that he reviewed the rainfall patterns but he does not recall them at this time, sitting here today. That's different than saying he did no research whatsoever into the rainfall patterns.

CO-HEARING OFFICER DODUC: All right. That's a fine distinction.

Ms. Meserve, please rephrase.

MS. MESERVE: You state on Page 3 at Lines 16 to 17 that it was conducted during a time in which representative baseline was -- let's see -- was not in any way conducted during a time in which representative

baseline conditions could be established.

Did you do any research to support that claim?

WITNESS KIMMELSHUE: The answer to your question is no, other than reviewing the precipitation records that I cannot pull out of my head at this moment in time. But, again, I want to define what I determine as a baseline condition that should include dry years, wet years --

CO-HEARING OFFICER DODUC: Yes, you have already identified that in Lines 13, 14, and 15. I'll ask Mr. Kimmelshue to directly respond to the questions and keep it at that.

MS. MESERVE: In your research, you did not look at the South Delta in particular. You were looking at statewide information regarding drought; is that fair?

WITNESS KIMMELSHUE: I looked at precipitation data from Twitchell Island and -- I believe Twitchell Island, yes.

MS. MESERVE: Are you aware that, in the Hoffman study that you cite, the average rainfall is 10.9 inches for the years 1952 to 2008?

WITNESS KIMMELSHUE: I cannot recall that right now.

MS. MESERVE: If that's what Hoffman says, if

I'm correct, would you think that a range of 8 to 18 inches during the years in question would be within the Hoffman study?

WITNESS KIMMELSHUE: It would be, yes.

MS. MESERVE: So in that instance, the 2014 to 2015 years would not be outliers from the average, would they?

WITNESS KIMMELSHUE: Again, I would have to go back and look at the frequency, duration of when that rainfall occurred and when it was able to supply soil moisture to the crop itself. It could have all occurred in a very short period of time or not. And I haven't done that detailed of an analysis.

MS. MESERVE: Okay. Moving on to the issue of salt tolerant crops, which is discussed on Page 4 of your testimony, you mention on Page 4, Line 11 that in some cases there were not yield declines when soil salinities were 6.0 to 6.5 decisiemens per meter. What's the reference for this statement?

WITNESS KIMMELSHUE: The reference is the personal communications that I had listed above, three or four lines above that.

MS. MESERVE: On Line 7, you mention two names. You mean -- so are you saying that Joe Machado or Peter Reisen told you that some of the tolerances

are that high?

WITNESS KIMMELSHUE: Yes.

MS. MESERVE: And just to clarify, would it not be the alfalfa breeders and seed dealers that aren't specifically named that are mentioned on Line 6?

WITNESS KIMMELSHUE: I spoke with the two that I mentioned here and received the information that I mentioned below on Line 11 from those two.

MS. MESERVE: Are you sure that the 6.0 to 6.5 decisiemens per meter figure actually refers to soil salinity as opposed to water salinity?

WITNESS KIMMELSHUE: I believe that's what I was told, yes.

MS. MESERVE: Do you have any record of those conversations?

WITNESS KIMMELSHUE: I do. Yes. Not with me today, though.

MS. MESERVE: Have those -- so they have not been entered into evidence here today?

WITNESS KIMMELSHUE: Not -- no.

MS. MESERVE: I would like to move to strike this portion of his testimony. He's relying on personal communications, and he hasn't even listed all the persons he spoke with, and it's not reliable.

CO-HEARING OFFICER DODUC: Mr. Mizell?

MR. MIZELL: I think we've been over this line of objection many times before. Experts are allowed to rely upon conversations with other individuals, whether they be expert or lay people. He has actually listed the people he discussed, and Ms. Meserve is misconstruing his testimony in that regard.

CO-HEARING OFFICER DODUC: Yes, that was part of our very extensive discussion in the February 21st, 2017 ruling on objections. So the objection is overruled, the motion is denied. I'm going to cover all my bases from now on.

MS. MESERVE: Fair enough.

So just to be crystal clear, the 6.0 to 6.5 decisiemens, you say, soil, is coming from Joe Machado or Peter Reisen. Can you tell me which?

WITNESS KIMMELSHUE: I cannot right now. I have to look back at my notes.

MS. MESERVE: Okay. I want to look at the location of the study issue.

You had cited the Sreenivas paper in terms of the specific location. Could we look at LAND-103.

Are you familiar with this Sreenivas study?

WITNESS KIMMELSHUE: I am, yes.

MS. MESERVE: And you are concerned that, to paraphrase, that unlike a study like this,

Dr. Leinfelder-Miles did not disclose the exact location with coordinates; is that fair to state?

WITNESS KIMMELSHUE: That's true.

MS. MESERVE: And now we go to Page 2 of this study, please? And if you scroll down, I believe there's a coordinate provided under "Materials and Methods."

Does that look like a location coordinate to you?

WITNESS KIMMELSHUE: It is.

MS. MESERVE: Could we go to LAND -- I'm guessing here -- 114, Mr. Baker.

You see there -- and I'll represent to you we've entered these coordinates into the Google Maps, or Google Earth rather. Does this look like a specific location to you on land?

WITNESS KIMMELSHUE: No, it does not.

MS. MESERVE: Is it possible that the GPS listed here is to give a reader a general location?

MR. MIZELL: Objection, we have strayed a bit from Dr. Kimmelshue's surrebuttal testimony at this point, being asked about coordinates that appear in a third party's study that we're not relying upon for the veracity of the data in that study. He's indicating that locations would be helpful. I think he's made

that point ad nauseam at this point. And whether or not other studies not being relied upon by either Ms. Meserve or the Department do or do not have correct geolocation information is wholly irrelevant.

CO-HEARING OFFICER DODUC: Ms. Meserve?

MS. MESERVE: Question withdrawn.

CO-HEARING OFFICER DODUC: All right.

MS. MESERVE: Sorry to go slightly out of order here. Back on the personal communication issue discussed on Page 4 of your testimony, is it your understanding that it's the job of alfalfa breeders and seed dealers to sell seed?

WITNESS KIMMELSHUE: Yes.

MS. MESERVE: So they would have a personal pecuniary interest in making representations about the availability of new varieties, right?

WITNESS KIMMELSHUE: I think what you might be alluding to is are they biased -- are you alluding to are they biased in their representation of their seed varieties?

MS. MESERVE: What I'm asking about is whether you would recognize that they would be to motivated to make, perhaps, aggressive representations to you.

WITNESS KIMMELSHUE: I don't know if they're motivated or not, and if I were a seed sales person and

I were selling a product that was developed by my researchers, I would surely hope that they would give me reliable data that I would report directly for my own ethical and moral reputation.

MS. MESERVE: Certainly. And now with -- could we get LAND-115, please.

And this is an article regarding breeding of salt tolerant crops. Have you ever seen this article before? It's in the Ag Professional, I believe.

MR. MIZELL: Objection, this article doesn't appear in Dr. Kimmelshue's surrebuttal testimony so far as we're aware, and therefore it's beyond the scope of his testimony.

CO-HEARING OFFICER DODUC: Ms. Meserve, where are you going with this, and how is it linked to his testimony?

MS. MESERVE: He states on -- Dr. Kimmelshue states on Page 5, Lines 2 through 4, that, with the four-year planting decision time span, there is more than enough time when compared to the 10-year construction time frame. So he's basically indicating that there's plenty of time to develop these new varieties. So that's my line of questioning.

CO-HEARING OFFICER DODUC: And how does that document play into it.

MS. MESERVE: If you could scroll down, please, to the highlighted text.

CO-HEARING OFFICER DODUC: So, Mr. Mizell, as long as she relates her lines of questioning and the use of this document to that particular portion of Dr. Kimmelshue's testimony, your objection is overruled.

MS. MESERVE: And just to -- have you had a chance to take a look at the highlighted text?

So would you agree that it takes many years to develop such new varieties?

WITNESS KIMMELSHUE: It does take many years to develop new varieties, yes.

But what I'm trying to say -- and maybe I wasn't clear in my surrebuttal testimony; I apologize if that's the case -- is that, because the rotational scheme of an alfalfa crop in the South Delta is known to be about four years, the Delta fix project is not, as I understand it, expected to begin as early as -- within ten years.

So what I'm trying to say here is, if a grower is to make a decision, if the Delta fix project is approved and say, "Okay. We're going to go forward with it," a grower has ample time to change varieties because rotation is a four-year rotation within a

10-year time frame to get ready for something if there was a concern about increased salinity. That's what I'm trying to say.

I'm not talking about how long it takes for alfalfa -- for new varieties to be established.

MS. MESERVE: But your statement here on the top of Page 5 would be dependant on those varieties being established, correct, because they don't exist today? You haven't cited any evidence that they exist today.

WITNESS KIMMELSHUE: They do exist today. And I was told in my personal communications that they're going to be on the marketplace in 2018, next year.

MS. MESERVE: But those aren't part of this record, are they?

WITNESS KIMMELSHUE: Yes, they are.

MS. MESERVE: Your personal communications? You just -- you stated earlier --

WITNESS KIMMELSHUE: Only what we previously talked about on Lines 7, 8, 9, and Page 4.

MS. MESERVE: Okay. And have you done any research with respect to the development of other types of salt tolerant crops, other than alfalfa?

WITNESS KIMMELSHUE: Actually, if I can step back, on Line -- just to make sure we're clear, on Line

13 on Page 4, I do mention that they will be commercially available beginning in 2018. I'm sorry. go ahead. I'm sorry.

MS. MESERVE: Just to clarify, the Delta grow a variety of crops in addition to alfalfa, correct?

WITNESS KIMMELSHUE: Correct.

MS. MESERVE: So did you do any research about other types of crops that might be developing more salt tolerance?

CO-HEARING OFFICER DODUC: I hear an objection.

MR. MIZELL: I'm going to object, similar to last time.

CO-HEARING OFFICER DODUC: The same line of questioning -- I think Mr. Ruiz was going with tomatoes, I believe it was. The same objection was made, so, yes, sustaining the objection.

MS. MESERVE: I shall move on.

Looking at the discussion on Page 8 to 9 of your testimony regarding a -- an alleged discrepancy in root-zone-base determination now, you cite on Page 23 the Bali report, which was LAND-79. It's on Line 23. I'm sorry. It's Page 7 --

CO-HEARING OFFICER DODUC: 20?

MS. MESERVE: 7, 7 Line 23.

Did you review the Bali report, Dr. Kimmelshue?

WITNESS KIMMELSHUE: I did review it, yes.

MS. MESERVE: You state here on Page 7 that the Bali report assumes that no roots will grow past a zone of elevated salinity. I'm sorry. It's Page 8, Line 8.

Do you see the language there, Dr. Kimmelshue, about "assumes"?

WITNESS KIMMELSHUE: I do.

MS. MESERVE: Didn't the Bali, et al. report actually show with data that roots didn't grow into a zone of elevated salinity?

WITNESS KIMMELSHUE: So my point -- my point there is that anywhere in a field you're not going to have consistent salinity across a certain level or profile depth. It's going to vary as you go along. And we talked about threshold limits of soil salinity, okay.

CO-HEARING OFFICER DODUC: Dr. Kimmelshue, I'm trying to --

MS. MESERVE: Yeah, I would like an answer to the first question.

CO-HEARING OFFICER DODUC: Yes, answer her question, please.

WITNESS KIMMELSHUE: I'm sorry. Could you repeat it? I'm sorry.

MS. MESERVE: Sure. No problem.

Didn't the Bali, et al. study that's cited here in your testimony actually show with data, not assumptions, that the roots didn't grow into the zone of elevated salinity?

WITNESS KIMMELSHUE: It did.

MS. MESERVE: No further questions.

WITNESS KIMMELSHUE: Can I expand on that now?

CO-HEARING OFFICER DODUC: No.

WITNESS KIMMELSHUE: Okay.

CO-HEARING OFFICER DODUC: Thank you, Ms. Meserve, unless Mr. Mizell wishes to redirect on that topic.

Oh, hold on.

Mr. Keeling? No, I don't have you listed for cross-examination. Are you now requesting?

MR. KEELING: No, I do not have a question, but I do have a motion based on upon the question and answers just given.

Based upon the witness's responses to Ms. Meserve's questions, a number of them, we -- this is Tom Keeling on behalf of the San Joaquin County protestants -- move to strike the sentence beginning at

Line 15, Page 3.

CO-HEARING OFFICER DODUC: Hold on a second. Let's go there, Page 3, Line 15.

MS. MESERVE: And concluding on Line -- actually, it's two sentences. The two sentences begin on Line 15 and begin -- end on Line 18.

I listened very carefully to this question and answer exchange. The witness was given multiple opportunities establish the basis, any basis, for these statements and did not do so.

Normally, these sorts of colloquies result in a ruling from you, from the Hearing Officers, to the effect that the -- it will be considered as to the weight. Here, I think we're far past that line. This goes to admissibility. And I make a motion to strike on that basis. Thank you.

CO-HEARING OFFICER DODUC: Mr. Keeling?

MR. KEELING: Yes.

CO-HEARING OFFICER DODUC: Let me make sure I understand your motion. You would like to strike the two sentences beginning on Line 15 through, I believe, Line 18, right?

MR. KEELING: That's correct.

CO-HEARING OFFICER DODUC: That is correct. And the basis was that Mr. Kimmelshue did not conduct

the research?

MR. KEELING: He did nothing at all to examine the conditions referred to here for Ms. Leinfelder-Miles's study. He appears to simply assume, "Well, we had a drought in California in those years," and that was the extent of it. I didn't get any more out of his answers than that. Perhaps somebody else did.

CO-HEARING OFFICER DODUC: I heard that he actually did look at some data. But I won't respond to that. I'll let Mr. Mizell --

MR. KEELING: We have nothing in the record to indicate what data he may have looked at.

CO-HEARING OFFICER DODUC: Hold on.

Mr. Mizell?

MR. MIZELL: I do believe that misstates the record. Dr. Kimmelshue did respond to the questions that he reviewed the precipitation records. He could not recall the exact quantities of the precipitation that he saw in those records, sitting here today. But he did mention the one location of precipitation records that he recalled today, which was Twitchell Island, I believe.

So I do believe that there is ample evidence in the record at this time to sustain this opinion of

Dr. Kimmelshue's.

CO-HEARING OFFICER DODUC: Ms. Meserve?

MS. MESERVE: I would join in the motion to strike, and I would also point out that, in the answers to the questions regarding application of water, Dr. Kimmelshue talked about whether water would need to be applied. So I'm not sure why the precipitation has really even been made relevant. So this seems very unsupported, what he's stated on Page 3.

CO-HEARING OFFICER DODUC: Mr. Ruiz?

MR. RUIZ: Yes, Dean Ruiz on behalf of the SCWA parties. I would join in Mr. Keeling's motion.

CO-HEARING OFFICER DODUC: Anyone else wish to opine?

(No response)

CO-HEARING OFFICER DODUC: All right. Mr. Keeling, I appreciate your motion, but I will again deny your motion and take your concern into consideration when we weigh the evidence that Mr. Kimmelshue has provided with respect to these two sentences in particular.

MR. KEELING: Thank you.

CO-HEARING OFFICER DODUC: All right.

Mr. Mizell.

MR. MIZELL: No redirect.

CO-HEARING OFFICER DODUC: All right. In that case, then, thank you -- is it Doctor or Mister?

WITNESS KIMMELSHUE: Technically, Doctor.

CO-HEARING OFFICER DODUC: All right. Well, thank you very much, Doctor.

And now for the next doctor. For purposes of trying to address Ms. Womack's question earlier today, may I ask those who plan to conduct cross-examination of Dr. Nader-Tehrani to give me a time estimate?

I believe, Mr. Mizell, that Mr. Davis, then, will be the next witness? Mr. Mizell?

MR. MIZELL: Mr. Davis is the last remaining witness after these two testify.

CO-HEARING OFFICER DODUC: Exactly. So I'm trying to determine whether -- based on the anticipated cross-examination of Dr. Nader-Tehrani, whether Ms. Womack and her father will return to tomorrow or next week. So please give me estimates.

MS. TABER: Kelley Taber for the City of Stockton. I estimate about 45 minutes.

MR. EMRICK: Matthew Emrick, City of Antioch.

Could be as little as 5 minutes or as much as 30 minutes.

CO-HEARING OFFICER DODUC: Covering your bases.

MR. EMRICK: Well, I plan to make a motion to strike. I'll just let the Board know that ahead of time.

CO-HEARING OFFICER DODUC: Thank you.

Ms. Meserve.

MS. MESERVE: Osha Meserve for LAND, 20 minutes, estimated.

MR. RUIZ: Dean Ruiz for the South Delta Water Agency parties, probably 40 minutes, 45 minutes.

CO-HEARING OFFICER DODUC: Okay. And do you expect, Mr. Mizell, how long you'll need for his testimony -- oh, 15 minutes 30 at most, right?

MR. MIZELL: 30 minutes, please.

CO-HEARING OFFICER DODUC: So it looks like we will be getting to Mr. Davis tomorrow, unless more people show up for cross-examination.

MR. RUIZ: I just had one other point or request. We are going to switch the order a little bit of cross-examination, if it's okay. The City of Stockton and Antioch were going to go ahead of me in Group 21 -- as Group 21.

CO-HEARING OFFICER DODUC: Okay.

MR. RUIZ: Thank you.

CO-HEARING OFFICER DODUC: All right. So, yes for Ms. Womack, who is hopefully watching, we expect to

get to Mr. Davis tomorrow.

PARVIS NADER-TEHRANI and MARK HOLDERMAN,

called as surrebuttal witnesses by the petitioners, having been previously duly sworn, were examined and testified further as hereinafter set forth:

CO-HEARING OFFICER DODUC: Mr. Mizell, please begin.

MR. MIZELL: Certainly. Both Mr. Holderman and Dr. Nader-Tehrani have appeared before and are under oath in this proceeding.

DIRECT EXAMINATION BY MR. MIZELL

MR. MIZELL: Dr. Nader-Tehrani, is DWR-932 a correct copy of your surrebuttal written testimony?

WITNESS NADER-TEHRANI: Yes, it is.

MR. MIZELL: And is DWR-944 a correct copy of your PowerPoint presentation?

WITNESS NADER-TEHRANI: Yes, it is.

MR. MIZELL: Mr. Holderman, is DWR-943 a correct copy of your surrebuttal written testimony?

WITNESS HOLDERMAN: Yes. Yes, it is.

MR. MIZELL: Thank you. Mr. Baker, if we could bring up DWR-944.

And at this time, I'll let Dr. Nader-Tehrani give a summary of his written testimony.

WITNESS NADER-TEHRANI: All right.

CO-HEARING OFFICER DODUC: Please begin.

WITNESS NADER-TEHRANI: All right. Thank you very much. My name is Parviz Nader-Tehrani.

So if you can go to the next slide, please.

My surrebuttal testimony will focus on these three topics: namely, Antioch water quality, referring to Dr. Paulsen's Exhibits 300 and 302. Also I'll be covering subjects related to Stockton water quality, Exhibit Stockton-26. And in reference to South Delta, Exhibits South Delta Water Agency-257, 257.

So next slide, please.

So with respect to City of Antioch Exhibit 302, it is my belief that Dr. Paulsen focuses most of her analysis on Boundary 1 scenario. And I think I just want to reiterate that the water quality, I believe, at the City of Antioch at intake under H3, H4, and Boundary 2 scenarios will be similar or better than the no action alternative and also that water quality changes under Boundary 1 compared to no action alternative are mostly influenced by lack of Fall X2. I've gone over that before.

Next slide, please. I think -- skip one slide, yes.

So here's an example of a table presented by

Dr. Paulsen. There are several examples of this type of analysis that Dr. Paulsen has presented. This one is in specifically Table 4, Page 27, Antioch Exhibit 302, which is an illustration of a comparison in water quality between Boundary 1 against no action and EBC2 scenarios.

So next slide, please.

So what I've done here is now I'm showing a similar analyses of -- this is in references to water quality at the City of Antioch under all scenarios that are part of this -- petition, namely H- -- and including H3, H4, Boundary 1 and 2.

And so what this table represents is the number of days within each water year where the 250-milligram daily average chloride concentration is not met at the City of Antioch intake. And I just want to also reiterate, as you know, this does not imply an exceedance of the D1641 standard because that really refers to Contra Costa Canal.

But I also want to explain what the different shades of green and red represent. So shade of red represents increased exceedance of the 250-milligram-per-liter threshold by five days or more in a given water year relative to no action. And shades of green show that reduce exceedance of the

250-milligram threshold by five days or more relative to no action alternative.

So if you focus on H3, H4 and Boundary 2, you see that, for most of the years, the water quality as reflected by those shades of color are similar or better when you compare them to the no action alternative.

The only exception there is the 1988, where no action results show somewhat better water quality results in reference to meeting that 250-milligram-per-liter threshold.

So the only scenario that shows higher exceedances of -- in reference to -- relation to no action alternative is Boundary 1. But as I explained before, the water quality associated with Boundary 1 is mostly -- those exceedances are mostly related to the -- the increase of EC relative to no action alternative is mostly related to the lack of Fall X2 implementation under Boundary 1.

Next slide, please.

In reference to Antioch Exhibit 300, it is my belief that the CCWD agreement with DWR will have minimal effect on water quality in the Delta. This is, I guess I believe -- I disagree with Dr. Paulsen's assessment.

Next slide, please.

So in Antioch Exhibit 300, Page 23 to 25, that's Dr. Paulsen's rebuttal opinion that states that she believes that the agreement may have adverse water quality at Antioch's intake, but DWR's analysis is not sufficient to determine the magnitude or frequency of these impacts. I do disagree with this, with her assessment.

Next slide, please.

In fact, the Final EIR/EIS Appendix 31B contains a detailed analysis on the effect of the CCWD DWR agreement. Analysis actually is provided at several locations, including Antioch, Collinsville, Rock Slough, Port Chicago, Mallard Slough, Emmaton, Jersey Point, and Rio Vista.

I believe in Dr. Paulsen's cross-exam by Mr. Jackson, Mr. Jackson asked Dr. Paulsen if her testimony applies to Collinsville as well as Antioch. And she responded in with -- if by that she meant there was no analysis shown in the EIR about Collinsville. And her response was at least that she hadn't seen any. But in fact, there is a detailed analysis that's available in Appendix 31B. And I'm going to show you an example of what those plots like look.

And the conclusion -- my conclusion is that

the settlement agreement, CCWD's settlement agreement in Alternative 4A has minimal to no effect on the salinity at these locations.

So next slide.

So here's an example of a plot. And I'm going to explain. Although this is kind of small, if you can zoom in. Yes.

So let's focus on the top left plot. So this is part of the EIR Appendix 31B. That's the exhibit SWCV-102. And it's Figure 168, 168. So Figure 168 actually has four parts to it. What you're looking at here is just one of those four.

And so what the top left figure represents is the EC exceedance probability at Antioch's intake for the month of October for the 16 years of simulation. So these are not long-term averages. These are monthly averages but done in the form of an exceedance plot so there are 16 points, basically, on this plot representing the monthly average EC at the City of Antioch's intake.

And in each of these figures, there are three lines. One represents without mitigation. This is in reference to Alternative 4A. And then the other two lines refer to the mitigation through -- the possible mitigations either through Freeport intake, water

delivered to Freeport intake, or the BDCP CWF in the intakes. And as you can see, you can hardly tell the difference between -- between these lines. And it clearly shows that there is really no water quality changes expected at this location or any of the other locations that I mentioned earlier.

So the plots you see in this figure represents the analysis done for month October, November, December. And the Figure 168 that I mentioned earlier includes for all the other nine months as well. And you will see exactly similar kind of comparison showing very little difference in terms of water quality changes.

Next slide, please.

So in reference to Stockton Exhibit 26, I have three points I would like to make. And so the first point is I believe Dr. Paulsen reaches an incorrect conclusion in regards to Boundary 1 based on the information that's presented in the EIR/EIS. And then the second point is that Dr. Paulsen, it's my belief that -- overestimates chloride concentration at both Buckley Cove and City of Stockton's intake. And the third point is that Dr. Paulsen's fingerprinting analysis at Buckley Cove is flawed. And I'm going to go over these in a little more detail.

Next slide, please.

So in Page 31 is Stockton Exhibit 26. Dr. Paulsen cites a number of alternatives that have been analyzed in the EIR, Final EIR. And so the top ones, starting from 1A to 9, you know, she's saying that they have shown to have significant adverse impacts with respect to chloride concentration at Contra Costa. And then -- because if you look at the last sentence, "Does the operation of project to Boundaries 1 and 2, which DWR states are represented by Scenarios 1A, 3, and 8, would also have significant impacts," that, I think, is incorrect. And I believe there are important pertinent information that are missing in this -- this paragraph. So I'm going to explain that further.

Next slide, please. So all the alternatives that are cited by Dr. Paulsen except for the three Alternatives 4A, 2B, and 5A included 65,000 acres of restoration and were simulated at late long-term levels, which implies 260 climate change and 45-centimeter sea level rise.

And the Final EIR/EIS clearly explains that the primary reason for the water quality degradation, especially in the western Delta for these alternatives, was the inclusion of the 65,000 acres of restoration.

And can you can refer to Appendix 5E in the EIR, Pages 172 and 173, which has detailed information about that.

Next slide, please.

And we know that Alternatives 4A, 2B, and 5A were simulated at early long-term. And this is with no restoration. And this is really consistent with the modeling done for this petition. And they were done at 2025 climate change and 15 centimeter of sea level rise. These alternatives do not show any significant impacts or adverse effects with respect to chloride concentration at Contra Costa Canal.

Next slide, please.

So the next point is about the fact that I believe Dr. Paulsen over estimates -- over estimates the chloride concentration at both Buckley Cove and City of Stockton's intake. Dr. Paulsen has used a Guivetchi 1986 document, which is now Antioch 205, to use the EC-chloride relationship.

You have heard me talk about the EC-chloride relationship in the past. And I believe Dr. Paulsen in her surrebuttal talks about that.

This is somewhat different because the information that I shared before was in reference to Contra Costa. Now we're talking about this document, and it's a very different subject here, although we're

talking about the same, EC-to-chloride relationship.

Next slide, please. So this is a partial map of the pdf Page 6 of Antioch 205. Can you zoom in on the map, please? Okay, that's good.

Okay. So I have labeled with that red arrow the location of the City of Stockton intake. So as you can see, the stations that are shown in blue are the stations where the EC-to-chloride conversion equations are available in Antioch Exhibit 205. So the two locations are Station 16 and 17, marked by those blue dots.

So, first, you can see there is no station right at the City of Stockton's intake. And I believe Dr. Paulsen has used Station 16. The other choice she could have made was 17, but that's the location that she uses, Station 16. So I'm going to go over what the differences are when you do that.

So can you go next slide, please.

So these are the two suggested in the -- in Antioch 205, the suggested EC-to-chloride conversions for Stations 16 and 17. And although it may not be very obvious, but the -- when you look at the actual numbers, you will find that, for the same value of EC, it can really lead to largely different chloride values. And I'm going to show some numerical examples.

And the second point I want to make is -- if you can go back to that previous slide one more time, please.

So with reference to map, as you get closer to the ocean, you get the equations that are -- give you higher values of chloride for the same value of EC because there is a -- the ocean water has a higher chloride-to-EC ratio. And that's the tendency. And I've explained that in my written testimony.

Next slide, please, one more.

And so I've given you an example, numerical example. So the EC of 650, and so if you use the equation based on Station 16, you will get a chloride concentration of 124.8 milligrams per liter. That's the station Dr. Paulsen used. And if you use Station 17, you get a number 101.8 milligram per liter. So one Station 16 basically and for this numerical example, is a number that is 22 percent larger.

So you can see the -- the importance of this, especially because Dr. Paulsen is using a threshold of chloride concentration -- this is for what the City of Stockton has expressed that's their preference for you -- you know, of you taking water when the chloride concentration is below 110 milligrams per liter.

Next slide, please. Can you zoom in on the

top left? Yes.

So this is -- Dr. Paulsen is showing higher contribution from San Joaquin water under Alternative 2. So what this represents is fingerprinting analysis at the City of Stockton's intake. So that's Exhibit Stockton 26, Page 34. So if you look at actually the bottom -- bottom left plot, you will see that the orange color represents Boundary 2. And for the months of December through May, you will see higher contribution from San Joaquin as compared to no action or EBC2, let's say.

And then if you look at the Martinez, which is the top right, you actually see hardly any difference. But I think the issue here is that the scale that has been used here is actually not appropriate.

So next slide, please.

So what I've gone here is I'm just showing the monthly average Martinez contribution at City of Stockton's intake. So what this represents again, a fingerprinting analysis based on long-term monthly averages. So the -- for no action represented by the blue line and it's compared to other scenarios. And as you can see, the numbers appear to be very small, 1 percent.

So is that important? Yes, it is very

important because in 1 percent contribution from Martinez -- you know, and Martinez EC let's say numerically it's in the range of 30,000. So 1 percent of 30,000 is 300 EC. That's quite a sizable number when you look at that.

Why is this important is because, if you compare H3, H4, and Boundary 2, and more so for Boundary 2, the contribution from ocean water is now quite a bit lower than when you compare to no action.

And again why is that important? It has to do with the choice of location. If Dr. Paulsen uses a station that's closer to the ocean, that implies that she expects a higher contribution from the ocean water where, in fact, you will see that -- you are seeing here that the contribution from ocean is actually lower under those three alternatives.

Next slide, please.

So what I've done here is I'm showing the exceedance of -- water quality exceedance at the City of Stockton's intake based on daily average chloride two ways, one based on using Station 16, which is what Dr. Paulsen used, and one based on Station 17.

Based on what I -- in the information I've shown here is that I believe Station 17 actually better represents water quality chloride based on chloride

concentration at the City of Stockton's intake. So if you look at this information, you will see that roughly about 10 to 14 percent of times you will see that the water quality exceeds the City of Antioch's stated preference of 110 milligram per liter.

Then, if you look at the next slide, now the same information. All I've done here is I've used the EC-to-chloride conversion based on Station 17. And here, if you do that, you actually only see a 3 percent exceedance of that 110-milligram-per-liter preference. And state that again I believe, for H3 and H4 and especially for Boundary 2 because they reduce the ocean salt contribution, that this plot, which are based on Station 17, better represents the water quality as measured in chloride concentration at the City of Stockton's intake.

Next slide, please.

So just the summary of what I just said, given that this ocean salt is reduced substantially under H3, H4, and Boundary 2, you know, that I believe Station 16 -- when you use Station 16, the results are overestimated.

And I believe Station 17 better represents chloride concentrations under H3, H4, and Boundary 2. And it is my belief also that the California WaterFix

does not alter chloride at the City of Stockton's intake in comparison to no action.

Next slide.

Now in relationship to Buckley Cove, Buckley Cove actually happens to be very close to Station 16.

Nevertheless, Dr. Paulsen used the same EC-to-chloride relationship that -- it's close to Station 17, but she used Station 16. And in fact I've demonstrated that the numbers can be very different. And I -- and I believe her analysis would have a tendency to overestimate Buckley Cove chloride concentration.

Next slide, please.

Here's an example of a -- the information that Dr. Paulsen showed in her testimony. This is Page 20, Figure 3. And this is showing the chloride concentration at Buckley Cove. I believe these results are overestimated. And it is my belief that any analysis that's based on these Buckley Cove chloride estimates in Dr. Paulsen's testimony should be considered questionable.

Next slide, please.

And with respect to Buckley Cove, Dr. Paulsen also shares the results for fingerprinting analysis at Buckley Cove. And I believe this analysis actually is

flawed. So if you -- can you zoom in under the figures.

So if you -- what she's showing is a fingerprinting in a volumetric contribution of the different sources for the no action and EBC2. So the no action is the purple line, and the black line represents EBC2.

So if you look at the bottom left, that's the San Joaquin River, you will see a reduced contribution from the San Joaquin River. If you look at the agriculture water to the right, you will also see a reduced contribution from ag water. If that is correct, one would expect that one of the other sources would have to increase because the sources would have to add up to 100 percent.

But in fact, you will see that's -- the Sacramento River and the Martinez water, there is no changing between the two. And therefore, that's how I -- leads me to believe that this analysis is flawed.

And next slide.

And so with that analysis at Buckley Cove, any analysis that's based on those fingerprinting I think should be considered questionable.

With respect to South Delta Water Agency Exhibit 257, it is my belief that water levels in South

Delta are not affected by the proposed North Delta diversion points.

There are several figures that Mr. Burke uses that are showing comparison of time series of daily results. I just want to be clear, when I state here "daily results," I really am stating these are time series of daily results. And those should be considered to be inappropriate use of DSM-2 when used in conjunction with CalSim II based on what I've stated earlier.

And I believe also that Mr. Burke makes some claims with respect to water quality effects but does not show a single water quality plot.

Next slide.

This is on Page 2 of Exhibit South Delta Water Agency 257, Table 2. This is the information that Mr. Burke shared in Exhibit 257. And now you -- what it indicates, that for the modeling of the no action alternative, that there is a spring barrier for the month -- second half of April and first half of May.

This is -- I believe it's incorrect modeling for the no action, in fact, does not include the operation of the spring barrier.

Next slide, please.

Can you zoom in a little, please?

So, in fact, based on the information I've received from Mr. Holderman, the Head of Old River spring barrier has been installed 14 years since 1992. And if you specifically look at the last three years, they've been installed around late March. And they were removed around late May or early June.

So all in all, they've been in place for two months. Why is that important? For one thing, it does establish that the local water users in the area have been exposed to the conditions of the spring barrier in those months, the two months. However, the modeling for the no action alternative does not include the operation of the spring barrier.

Had the modeling included the effect of the spring barrier, you would have seen reduced water level changes when you compare against no action. Nevertheless, the modeling does not include the operation of the spring barrier at the Head of Old River.

Next slide, please.

I also want to talk about temporary agriculture barriers. So these -- these barriers have been installed in the past, typically from April -- sometime in April to sometime in November. They have a tendency to increase water levels and specifically the

minimum water levels.

Mr. Burke shows stage difference probability plots at locations throughout South Delta. These plots specifically exclude June 15 to September 15th. That's a very important period. This is at the time that the water levels are actually protected by the ag barriers.

So next slide, please.

This is the map that Mr. Burke used that's on Figure 1, Page 5 of South Delta Water Agency Exhibit 257. So there are -- those circles represent the points where Mr. Burke showed in his analysis the changes in water level at those locations.

So based on what I've seen, the highest changes that Mr. Burke presented occur at stations that are labeled 1 and 2 in this figure, which is immediately downstream of Head of Old River barrier or Head of Old River.

Based on my understanding of -- and my discussions with Mr. Holderman, Chief of the South Delta Manage- -- branch -- DWR management -- sorry -- South Delta Branch in DWR, there has rarely been any water level complaints in that stretch of Old River that are included in Stations 1 and 2. And when you look at the other stations and move away from that area, the water level changes are actually much

smaller.

Next location. I have about five more minutes.

So what I'm showing you here is the probability of exceedance for the daily minimum stage at Middle River at Undine Road. You might recall seeing a few photos shown by Mr. Burke, and it happens to be that same location where the photo was taken, indicating those dry conditions that occurred during the low tide.

This information is now based on 16 years, so it can -- water level exceedance plot based on the entire 16 years of simulation. And this is just comparing no action alternative versus H3.

So as you can see, there are some differences that you can observe in between the 15 to 20 percent probability. That -- those changes are -- tend to occur during higher flow period. And you can see the water levels are higher.

So now pointing to the right side of the figure is when you're looking at the low water level period during low flow periods. And you actually see very little difference between these two scenarios, between H3 and no action.

If you go to the next slide -- so now I'm

showing you something similar except this time I'm focusing in the month of June through November. This is the period that in the modeling included the effects of the agricultural barrier. And as you can see, once -- you know, if you look at the low water level that are shown on the right side of the figure, you actually see no difference at all, minimal reductions. And the only reductions are during higher flows.

The second point here that you will notice is that, if you compare the water level at the right side of -- which represents a low flow period and compare it with the other period that you indicated for the overall -- you know, all months of the year, you actually see the water levels are about a foot and a half higher.

That is because of the fact that this is a period of where the ag barriers actually tend to protect water levels.

The one other point I want to mention and I'm going to be done is that Mr. Burke shows a similar plot based on exceedance, but the way he does it, he's giving -- he's showing the probability of exceedance based on the difference and not the actual water levels. And I believe that is not of much value because what it doesn't indicate is where those -- at

what time period do we see those larger differences? Is it happening at the times when the water levels are higher or lower? That information is not there when you show the model results that way.

This is a more suitable way of showing it because it does clearly show at what water levels, you know, those reductions are found. And that's kind of the fundamental difference between the two ways of showing the water level change.

And I believe -- I believe that concludes -- there is no other slide. That's it.

CO-HEARING OFFICER DODUC: All right. Thank you, Doctor.

Anything else at this point, Mr. Mizell?

MR. MIZELL: No, that concludes our direct.

CO-HEARING OFFICER DODUC: All right. Let ask the court reporter. Do you need a short five-minute break? Yes, let's do that. Let's take a short break, and we will return at 4:10. And then I'll ask Ms. -- actually, let's make it -- I'll be generous, 4:15. And Ms. Meserve, if you could please come up during the break and set up for your cross-examination.

MR. MIZELL: Hearing Officer Doduc --

CO-HEARING OFFICER DODUC: Hold on a second. I had a request for Stockton and Antioch to go before

South Delta. Does that also apply to --

MS. MESERVE: Yes. I'll go.

CO-HEARING OFFICER DODUC: All right.

Mr. Mizell?

MR. MIZELL: Yes, Dr. Nader-Tehrani's written testimony references conversations he had with Mr. Holderman for certain specific purposes of historic operations of the South Delta barriers, both the agricultural and the Head of Old River in the spring.

While that is permitted, we also endeavor to give the Board as much opportunity to question the actual people as possible. So Mr. Holderman is here today. He is unavailable tomorrow.

Is there an opportunity to have cross-examination of Mr. Holderman conclude today?

CO-HEARING OFFICER DODUC: Does anyone have cross-examination questions just for Mr. Holderman?

(No response)

CO-HEARING OFFICER DODUC: All right. With that, then, we will take our break and return at 4:15.

(Recess taken)

CO-HEARING OFFICER DODUC: All right. It is 4:15. Before we get to Ms. Meserve, I believe there's a housekeeping item.

Ms. Nikkel?

MS. NIKKEL: Yes, I'm appearing now on behalf of Delta Flood Control Group. And just as a matter of scheduling, we'd like to request that the witness Mr. Gilbert Cosio not be called up tomorrow and instead be called to testify next week, if that pleases the Hearing Officers and there is no objection.

CO-HEARING OFFICER DODUC: And you have coordinated with the City of Sacramento to have Ms. Starr available in his place?

MS. NIKKEL: It's not a switch. It's just that -- yes, the City will have Ms. Starr available. And I believe also the County will have Mr. Steffen available, although I haven't confirmed --

CO-HEARING OFFICER DODUC: Right. It's not a switch, yes.

So I can -- unless there are any objections, I -- are there any objections?

(No response)

CO-HEARING OFFICER DODUC: If we manage to get through the entirety of Group 7's witnesses tomorrow, I would be more than happy to break.

MS. NIKKEL: Thank you.

CO-HEARING OFFICER DODUC: And with that, Ms. Meserve, a couple of things before you begin. Going back to your previous cross-examination of

Dr. Kimmelshue, let me be very clear, you brought up LAND-114, the one with the graphics and the coordinates, but then you withdrew your question. So I expect that you will not be submitting LAND-114 into the record? Unless you plan on using it as part of your surrebuttal.

MS. MESERVE: That's correct, yeah. I'm trying to remember back, sorry. Yeah, if there was no answer to it --

CO-HEARING OFFICER DODUC: You withdrew your question.

MS. MESERVE: Okay.

CO-HEARING OFFICER DODUC: All right. I just want to make sure that we don't get that in and then have to deal with an objection from petitioners.

And Ms. Meserve, are you still anticipating 20 minutes?

MS. MESERVE: Yes. It may be closer to 10. I'll move along here.

CO-HEARING OFFICER DODUC: Wow, okay. Ms. Taber is here and ready.

All right. Ms. Meserve, please begin. If it's closer to 20, then we will take our adjournment for the day. If it's closer to 10, Ms. Taber will be up.

MS. MESERVE: Okay. I'll speak slowly.

CO-HEARING OFFICER DODUC: Pressure now.

CROSS-EXAMINATION BY MS. MESERVE

MS. MESERVE: I have just two areas of questioning for Dr. Nader-Tehrani, one relating to the restoration discussion on Pages 7 and 8 of his testimony and the other relating to the late -- the timing of the modeling in terms of the late long-term, and then a question about the stations used.

So this relates all to the Stockton testimony.

Let's see. So beginning with -- maybe if we could put up the Nader-Tehrani surrebuttal testimony, which is DWR-932.

Dr. Nader-Tehrani, on Page 7 and 8 of that testimony, you criticized Dr. Paulsen for relying on the modeling from the Final EIR operating scenario for B1. And for her -- in particular looking at Alternative 1A for the operating impacts on water quality; is that correct?

WITNESS NADER-TEHRANI: Yes, I've criticized her for comparing results for Boundary 1 and 2 with Alternatives 1A, 3, and 8 specifically for water quality.

MS. MESERVE: And on Page 8, you state that Alternative 1A is not similar -- I'm sorry --

Alternative 1A is not similar to B1 scenario because it included restoration, including the 65,000 acres of tidal restoration, correct?

WITNESS NADER-TEHRANI: I'm sorry. What lines?

MS. MESERVE: That's Page 8, Line -- I'm sorry. It looks like it's Page 7, Line 20, sort of goes into 8, but it seems like the crux of your testimony is that the 65,000 acres of tidal restoration is included in B1 but was included in Alternative 1A; is that a fair summary?

WITNESS NADER-TEHRANI: That's a fair summary, yes.

MS. MESERVE: So in your opinion, does the location and spacial extent of restoration have an effect on the water quality changes you might expect from operation of the CWF?

WITNESS NADER-TEHRANI: I don't remember the specifics of where the 65,000 acres of restoration were. I know there were located through the Delta, including western Delta. So -- and then, yeah, if the location -- so I'm not sure.

MS. MESERVE: I could ask again just to make clear. I think it's a relatively straightforward location. It's just the location and spacial extent of

the restoration, in your opinion, it sounds like would be important when considering the water quality impacts associated with CWF.

MR. MIZELL: Objection, misstates his former testimony and is also beyond the scope of his surrebuttal testimony. He speaks about the -- whether or not 65,000 acres is included, not about the locations or spacial extent and whether or not that impacts water quality.

CO-HEARING OFFICER DODUC: And how does the inclusion of the 65,000 acres, in your opinion, alter that water quality conclusion?

WITNESS NADER-TEHRANI: The modeling clearly showed that the -- the increasing water quality EC in western Delta was directly related to the inclusion of the 65,000 acres of the restoration.

CO-HEARING OFFICER DODUC: And does it matter where it's located?

WITNESS NADER-TEHRANI: It does matter where it is located, but the assumption was -- they were very specific in this particular scenario where the 65,000 -- I don't remember exactly where they were. You might get different results if you -- if you make the assumptions different. But based on the assumptions that were made in the EIR, it made a big difference.

MS. MESERVE: And so -- Dr. Nader-Tehrani, where would Dr. Paulsen or someone like her look for understanding the water quality impacts to Stockton for operational scenario B1, which does not include the 65,000 acres of restoration?

WITNESS NADER-TEHRANI: I would -- in reference to this particular topic, I was referring to her explanation of the effects of Boundary 1 relative to those scenarios at Contra Costa Canal. It was not about City of Stockton's intake.

MS. MESERVE: So with respect to Contra Costa Canal, going with that example --

WITNESS NADER-TEHRANI: Yes.

MS. MESERVE: -- where would someone like Dr. Paulsen look for understanding the water quality impacts for operational scenario B1 without the 65,000 acres of restoration?

WITNESS NADER-TEHRANI: So the explanations are given in Appendix 5E. And there is clear explanation as to why Boundary 1 is not similar to the other alternatives mentioned with respect to water quality.

And, in fact, the explanation is there as to that the water quality would be somewhat along the lines of the other three alternatives, namely 4A, 2D

and 5 -- 5A.

MS. MESERVE: So would your recommendation for operational scenario B1 be to look at those other alternative analyses?

WITNESS NADER-TEHRANI: No. No, that's not what I'm saying. I guess the question was whether there was water quality degradation that are reported under Alternative 1A similar to Boundary 1, and the answer is no.

MS. MESERVE: Is there anything in the modeling available to protestants that they could look at to understand B1?

WITNESS NADER-TEHRANI: All the modeling that have been presented as part of this petition includes the simulation of Boundary 1. And there is water quality information available throughout the Delta, including City of Stockton's intake. And I believe Dr. Paulsen has already shared those results, we had a look at those results and shared them with the Board.

MS. MESERVE: Just to be clear, is it your understanding that there is modeling for water quality under a B1 scenario?

WITNESS NADER-TEHRANI: Yes, and I believe Dr. Paulsen has already showed that information, yes.

MS. MESERVE: Could we look at DWR-944, which

is Dr. Nader-Tehrani's PowerPoint.

At Slide 13, you state that the modeling for Alternative 4A has no restoration; is that correct?

WITNESS NADER-TEHRANI: The modeling for Alternative 4A as done for this petition does not include restoration.

MS. MESERVE: Could we look at one of the exhibits I gave you, Mr. Baker, LAND-113?

This is just an easy figure I could find. Actually, it's 116. Sorry. This is just something I pulled off of the CWF website which, on the last page of this, shows a breakdown of restoration -- if you scroll to the bottom.

Does it sound correct to you, Dr. Nader-Tehrani, that there would be 2300 acres of habitat restoration under Alternative 4A?

WITNESS NADER-TEHRANI: I don't have an opinion on that. It's been a while since I've looked at these figures. I don't know if these are up to date or not.

MS. MESERVE: Is it your understanding that the water quality modeling for Alternative 4A included 2300 acres of restoration?

MR. MIZELL: Asked and answered.

MR. BERLINER: Objection --

CO-HEARING OFFICER DODUC: I'm sorry, one person, please. What was the objection?

MR. BERLINER: Two objections. One, the question was already asked and answered. He said he didn't recall. And the other is this is beyond the scope of his surrebuttal testimony.

MS. MESERVE: I believe in the slide we just showed previously, his slide states that there's no restoration. So I'm simply testing the weight of that statement.

MR. BERLINER: Well, this is quite specific as to a specific 2300 acres of habitat which he did not testify about that.

CO-HEARING OFFICER DODUC: All right. I will sustain the objection but perhaps ask a more pointed question of Dr. Nader-Tehrani.

Are you aware of the inclusion of any restoration in the modeling that Ms. Meserve is asking about?

WITNESS NADER-TEHRANI: Relation to Alternative 4A.

CO-HEARING OFFICER DODUC: 4A.

WITNESS NADER-TEHRANI: I believe Alternative 4A has been modeled at different levels, including late long-term and early long-term. So the modeling that

I'm referring to is the specific modeling of Alternative 4A early long-term. That scenario that I'm referring to does not include restoration.

MS. MESERVE: Wasn't one of your other criticisms of Dr. Paulsen's reliance or use of the modeling that the modeling was only giving an early long-term output, not a late long-term output?

WITNESS NADER-TEHRANI: I'm not sure.

MS. MESERVE: That's on Page 7 Line 21. I'm sorry. Maybe that's the wrong -- I'm sorry. On Page 8 -- I gave you the wrong page number.

On Page 8, Lines 2 and 3, doesn't it say there that 4A was modeled at early long-term?

WITNESS NADER-TEHRANI: As I just stated, you know, it may have -- Alternative 4A might have been modeled at the other periods, but the specific modeling I was referring to was the simulation that are part of the EIR, that these three alternatives specifically were modeled at early long-term, 2025 climate change, 15-centimeter and sea level rise, and did not include any restoration areas.

MS. MESERVE: Right. So isn't it correct that Alternative 4A was only modeled at early long-term?

WITNESS NADER-TEHRANI: I don't think I'm saying that. I'm just saying that it might have been

modeled at other -- climate change and with different assumptions on restoration. But the specific modeling that I'm referring to are the ones that are modeled at early long-term, and they -- I do know they did not specifically have any restoration areas.

MS. MESERVE: But you acknowledge that there is some restoration planned as part of Alternative 4A?

WITNESS NADER-TEHRANI: I don't know the specifics, and that's not part of my testimony.

MS. MESERVE: Okay. On Page 7 on your testimony -- on Page 20 -- let's see, 7, Lines 21 through 23, again, you state it's based on this late long-term modeling and it's wrong.

If the CWF is built, would you expect it to still be in operation in 2060?

MR. MIZELL: Objection, relevance.

CO-HEARING OFFICER DODUC: Ms. Meserve?

MS. MESERVE: Dr. Nader-Tehrani is stating that the testimony of Dr. Paulsen is incorrect in part because it refers to the late long-term output. And I'm simply asking, basically, why that wouldn't be relevant.

CO-HEARING OFFICER DODUC: So ask it that way.

MS. MESERVE: Why wouldn't late long-term be relevant for Alternative 4A or any other operating

scenario given that the project would be in place in 2060 still if it was built?

MR. BERLINER: Objection, this was discussed in the case in chief and is not part of his surrebuttal at this time.

CO-HEARING OFFICER DODUC: Overruled.

Refresh my memory, please. It is a statement in his rebuttal testimony. So answer the question, please. His surrebuttal.

WITNESS NADER-TEHRANI: Can you repeat the question, please?

MS. MESERVE: Given that, if the CWF was built, it would still likely be in existence in 2060, why wouldn't the late long-term model outputs be relevant to a water quality investigation?

WITNESS NADER-TEHRANI: As I stated, the biggest -- I'm sorry. Okay.

As I stated before, the change that caused the more significant water quality change of those alternatives that I'm referring here, is the 65,000 acres of restoration and not the -- necessarily the choice of climate change or the late long-term or the sea level rise.

MS. MESERVE: Did you specifically look at the -- compare the weight of those two different

factors in your analysis?

WITNESS NADER-TEHRANI: I personally -- I have looked at these results a while back but not recently. But I believe the folks working on EIR, they have looked at it. And I think there is a -- as I said, there is a lot of explanation about that topic in Appendix 5E, Pages 172 and 173.

MS. MESERVE: Looking at the issue of the station that was examined in Dr. Paulsen's testimony on Page 9, you state that you -- that Dr. Paulsen should have looked at Station 17 instead of Station 16; is that correct?

WITNESS NADER-TEHRANI: I'm not saying which one necessarily she should use. I'm just stating the fact that one -- for one thing, there's no station right at the City of Stockton intake; two, that the Station 16 that she chose would have a tendency to overestimate the chloride concentration.

And the fact that there is less salinity intrusion from the ocean for H3, H4, and Boundary 2, that Station 17 would actually be more appropriate.

MS. MESERVE: What about for Boundary 1, would you maintain that 17 would be more appropriate?

WITNESS NADER-TEHRANI: I would say neither would be appropriate because they're -- so if you use

17, you would have a tendency to perhaps overestimate it. And if you use 16, you might underestimate.

MS. MESERVE: Isn't Station 16 closer to the City of Stockton intake than 17?

WITNESS NADER-TEHRANI: I don't think the closeness is necessarily a big factor here.

MS. MESERVE: No further questions.

CO-HEARING OFFICER DODUC: Thank you, Ms. Meserve.

Ms. Taber, you had requested 45 minutes. We need to break or adjourn at 5:00. Do you have an area that you can explore within those 20 or so minutes?

MS. TABER: I do. And I think that I will not need a full 45 minutes, so I could see how far I can get.

CO-HEARING OFFICER DODUC: All right.

CROSS-EXAMINATION BY MS. TABER

MS. TABER: Okay. I think I'm ready. Sorry, I was -- thanks to Ms. Meserve's cross-examination, I'm able to shorten mine, but I was trying to figure out how best to do that.

Good afternoon, Dr. Nader-Tehrani, Kelley Taber on behalf of the City of Stockton.

My questions will cover his primary opinions, and there's really nothing to summarize about that

other than just to get straight to it.

So we have just spent a good amount of time talking about your opinion on -- why don't we just bring it up so we have it in front of us -- on DWR-932. I have a highlighted copy in my exhibits with some highlighting on it.

And I think it's Stockton's Exhibit 40, Page 7, Lines 17 to 23, which we've just discussed, your opinion that Dr. Paulsen's use of data from the previous versions of EIRs that do not apply to the California WaterFix is incorrect or flawed in your opinion because she doesn't discuss what you call a very important and pertinent point, that all the alternatives included the 65,000 acres of restoration and that they were simulated at late long-term.

Do you recall, Dr. Nader-Tehrani, that DWR's witness Jennifer Pierre stated in her oral testimony back in July that the boundary scenarios should be evaluated to determine project impacts?

WITNESS NADER-TEHRANI: I vaguely recall.

MS. TABER: Could we switch, Mr. Baker, to Stockton's Exhibit 41, which is a page from the Final EIR. And scroll down to -- let's see what -- I thought it was highlighted.

Oh, yeah, the highlighting is very weak, but

it's Line 26. It says, "As shown in Appendix 5E, the operation of the future conveyance facility under a possible adaptive management range represented by Boundary 1 and Boundary 2 will be consistent with the impacts discussed" --

(Reporter interruption)

MS. TABER: -- for the range of alternatives considered in this document."

Doesn't this statement make it clear that DWR might operate the California WaterFix to the range that's presented between Boundary 1 and Boundary 2?

MR. MIZELL: Objection, beyond the scope of his surrebuttal.

CO-HEARING OFFICER DODUC: Ms. Taber?

MS. TABER: Well, his surrebuttal has put the validity of Draft EIR and R-DEIR analysis at issue and Dr. Paulsen's reliance on it.

And I don't have a lot of questions, but I think there has been some confusion, at least in my mind, with the responses that have been given. And I only have a few questions, so --

CO-HEARING OFFICER DODUC: All right. Overruled.

MS. TABER: So I apologize, but I'm not sure I heard whether Dr. Nader-Tehrani answered my question.

CO-HEARING OFFICER DODUC: I don't believe he did.

WITNESS NADER-TEHRANI: No. Could you repeat your question.

MS. TABER: Doesn't this statement make clear that DWR might operate the California WaterFix to the range of operations presented between Boundary 1 and Boundary 2?

WITNESS NADER-TEHRANI: Yes.

MS. TABER: And DWR has already establish that Boundary 1 and Boundary 2 differ substantially from the proposed project Alternative 4A, correct?

MR. MIZELL: Objection, beyond the scope of surrebuttal, not to meanings repetitive of our case in chief --

CO-HEARING OFFICER DODUC: Hold on, Mr. Mizell. I'm still overruling you because I want to see where she goes with this.

WITNESS NADER-TEHRANI: Once again, can you repeat the question, please?

MS. TABER: So DWR has already established that the operations of Boundary 1 and Boundary 2 differ substantially from the proposed project, correct?

WITNESS NADER-TEHRANI: I'm not sure. I'm not sure.

MS. TABER: Okay. Do you recall Mr. Munevar's testimony regarding the simulated long-term average deliveries under Boundary 1 and Boundary 2 compared to the proposed project and the difference in volume of deliveries?

WITNESS NADER-TEHRANI: I vaguely recall.

MS. TABER: Okay. So -- I guess I'll have to ask -- do we have DWR-71 available? It wasn't on my exhibit list because I wasn't expecting to have to refresh Dr. Nader-Tehrani's recollection about this testimony.

CO-HEARING OFFICER DODUC: So, Ms. Taber, let me make sure I'm clear and I understand. You are trying to refute that particular paragraph that you highlighted earlier in Dr. Nader-Tehrani's testimony?

MS. TABER: I can go straight to my question.

CO-HEARING OFFICER DODUC: Please.

MS. TABER: If -- if, assuming that Boundary 1 is not comparable to the suite of alternatives that were evaluated in the Final EIR/EIS, with the exception of Alternatives 4A, 2D, and 5A, then which of the EIR alternatives should we review to determine the impacts that will occur for the Boundary 1 scenario?

MR. MIZELL: I'm going to object as asked and answered. Ms. Meserve asked this question three times,

and he said the same answer each time.

MS. TABER: He said it was discussed in the appendix.

CO-HEARING OFFICER DODUC: Please answer again Mr. -- Dr. Nader-Tehrani

WITNESS NADER-TEHRANI: So I believe the way I recall in the EIR, it says Boundary 1 is -- again, I may be paraphrasing here, but in terms of operational -- operationally, it's similar to the other alternatives, 1A and -- the other -- that operation, you know, Bound- -- Alternative 3.

But it clearly demonstrates that, when it comes to water quality, there is really no comparison between Boundary 1 and Alternative 1A and 3. And it more resembles the other three alternatives that were simulated, 4A, 2D, and 5A. That's only for water quality but for water supply, and it's more in line with the other alternatives. So that's explained in Appendix 5E.

MS. TABER: Okay. That was a helpful clarification. Thank you.

And I know that we addressed this in Ms. Meserve's cross-examination, but I do have a few questions about the 65,000 acres of habitat restoration that you referenced in your testimony as being a

critical distinction between those Draft EIR alternatives and the project.

And so, Mr. Baker, could you please put up Stockton's Exhibit 43 which is the Eco -- California EcoRestore home page. And if you could scroll down to that -- there you go. That's good.

This appears to show the EcoRestore project as including approximately 30,000 acres of habitat restoration; is that correct?

MR. MIZELL: I'm going to object to the line of questioning about EcoRestore. That's not the project before this Board or involved in this permit.

CO-HEARING OFFICER DODUC: Ms. Taber?

MS. TABER: My questioning goes to whether Dr. Nader-Tehrani's opinion considered -- and the effects of the project on Stockton and chloride levels considered the associated effect of the California EcoRestore project.

He's saying that 65,000 acres of habitat restoration were included in the Draft EIR analysis for certain alternatives; they weren't included in the project impact analysis. It's not clear to me where these impacts have been addressed and how they factored into his -- the existence of this separate project factors into his opinion or whether he considered that

at all.

CO-HEARING OFFICER DODUC: All right.

Overruled. Dr. Nader-Tehrani, answer only the to the extent that you are able to.

MR. MIZELL: I would like the record to reflect EcoRestore is not a part of the California WaterFix. This is beyond anything that's been presented in this hearing to date.

CO-HEARING OFFICER DODUC: I understand that. And I think Ms. Taber does as well.

Her point, however, is that Dr. Nader-Tehrani made a point of criticizing Dr. Paulsen's analysis because it relied upon an analysis that included restoration. I understand Ms. Taber's point to be that there will be some restoration, and whether or not that restoration is currently being analyzed as far as impacts are concerned to Stockton is what she's going after.

So Dr. Nader-Tehrani, only answer to the extent that you are aware of. And it's fine to say that you're not aware of any other --

WITNESS NADER-TEHRANI: I'm not aware of any analysis in reference to EcoRestore.

MS. TABER: And does that include the analysis in the Final EIR as well as the report that Dr. Bryan

prepared for his rebuttal testimony?

WITNESS NADER-TEHRANI: I don't know.

MS. TABER: Okay. Do you know why the EcoRestore habitat restoration was not included in that evaluation?

CO-HEARING OFFICER DODUC: Now I'm going to sustain the objection I believe Mr. Mizell is about to make.

Mr. Mizell?

MR. MIZELL: Yes, for the record, I object.

CO-HEARING OFFICER DODUC: Sustained.

MS. TABER: Thank you.

Let's --

CO-HEARING OFFICER DODUC: Hold on, Ms. Taber. I think Ms. Meserve is about to come to your assistance.

MS. MESERVE: Well, we'll see. Osha Meserve for LAND. I guess I would like to support Ms. Taber's ability to ask about this because I believe this is basically a cumulative project. These EcoRestore -- 27,000 acres of it is required by the current biological opinions. And this has been since 2008-2009 supposed to be carried out and is -- indeed some parts of it have moved forward.

So if we're testing the statements made in the

surrebuttal that is very important about whether there's restoration in there or not, seems like this should be an available line of questioning since Dr. Nader-Tehrani has made this an issue and 30,000 acres is quite a bit.

CO-HEARING OFFICER DODUC: Ms. Meserve, I actually agree with you, which is why I overruled Mr. Mizell's earlier objection. I sustained his current objection, which he did not get into detail about, because she was asking Dr. Nader-Tehrani to speculate as to why certain things wouldn't be done with respect to modeling EcoRestore. And that is definitely outside the scope. Perhaps --

MS. TABER: Dr. Tehrani, did you make an decision to exclude the EcoRestore habitat restoration from the analysis of WaterFix effects that was conducted for the EIR or for Dr. Bryan's rebuttal testimony?

WITNESS NADER-TEHRANI: No.

MS. TABER: Mr. Baker, could you please put up Stockton's Exhibit 44 and scroll down to Page 4 of that document. Thank you.

Dr. Nader-Tehrani, this is also from the EcoRestore website, and it shows various projects that are scheduled and the timing of them for the EcoRestore

project. And I think I heard you say in response to Ms. Meserve's questioning that the location and extent of projects would have an effect on water quality; is that correct?

WITNESS NADER-TEHRANI: That's correct.

MS. TABER: So looking at this map which shows the State's projected timeline for various EcoRestore projects, which of these projects shown on this map would you expect to affect salinity in the Delta?

MR. MIZELL: Objection, beyond the scope, speculative, not our project. I mean, I could go on, but EcoRestore is inappropriate to be discussed in here.

CO-HEARING OFFICER DODUC: Mr. Mizell, I appreciate that EcoRestore is separate. But Dr. Nader-Tehrani brought up the issue of restoration in his surrebuttal testimony and in criticizing Dr. Paulsen's testimony in particular. So I'm going to allow Ms. Taber to pursue this line of questioning.

But I'll also allow you the opportunity to submit in writing your opposition to this. And I assume that you will be filing a motion to strike this particular portion of her cross-examination, so do so, and we'll take that under consideration. But for now I'm allowing her to proceed.

MS. TABER: Thank you.

Dr. Nader-Tehrani, would you like me to repeat that question?

WITNESS NADER-TEHRANI: Yes, please.

MS. TABER: So looking at the list of habitat restoration projects that are included in this EcoRestore project fact sheet that I found on the website, which of these habitat restoration areas would you expect would affect salinity levels in the Delta?

CO-HEARING OFFICER DODUC: And answer, Dr. Nader-Tehrani, only to the extent that you have that knowledge.

WITNESS NADER-TEHRANI: There is no clear answer to this as not all restoration would cause negative effects. There may be some restoration areas that would actually positively affect water quality. There is no simple answer to this question.

MS. TABER: Okay. Thank you. So you can see on the right side of the page that they identified construction dates, target construction dates for the prongs.

Assuming that these projects are completed on schedule, would you expect one or more of them to have any effect on salinity in the Delta at the time the California WaterFix project is projected to operate?

MR. BERLINER: Objection, calls for speculation.

CO-HEARING OFFICER DODUC: Do you have an opinion, Dr. Nader-Tehrani?

WITNESS NADER-TEHRANI: I don't have enough information.

CO-HEARING OFFICER DODUC: All right.

MS. TABER: Turning to your -- well, actually, I'll just close by asking you, on this topic, is it possible to make a meaningful comparison with regard to water quality between the alternatives that were evaluated to include 65,000 acres of habitat and the late long-term condition and Alternatives 4A, 2D and 5A Using the modeling presented in the EIR?

CO-HEARING OFFICER DODUC: I'm not sure I understand the question.

MS. TABER: I'm --

MR. BERLINER: That IS the objection.

MS. TABER: You don't understand question?

From a water quality perspective, is it possible to make a meaningful comparison between the results that would -- the water quality changes that would occur under the alternatives in the EIR that included 65,000 acres of habitat restoration and the late long-term condition and Alternatives 4A, 2D and

5A?

WITNESS NADER-TEHRANI: I'm not clear as to the question.

MS. TABER: I'm trying to get at whether the results are so different because of the different factors that were included in the range of alternatives in the Draft EIR and the currently described proposed project Alternative 4A and the related Alternatives 2D and 5A to be able to draw a meaningful comparison between those results and understand the relative differences of how the California WaterFix project would operate.

CO-HEARING OFFICER DODUC: You just really hurt my brain with that question, Ms. Taber.

MS. TABER: Okay. Well, I can -- I can --

CO-HEARING OFFICER DODUC: Yes.

MS. TABER: -- move on. I thought I understood it but -- so going to your surrebuttal opinion No. 3 regarding Dr. Paulsen's fingerprinting at Buckley Cove -- and could we put up here Exhibit Stockton 26? And go to Page 23, Figure 5.

MR. BERLINER: I might just ask for a time check, since it's almost 5:00. Is this going to be short or lengthy?

CO-HEARING OFFICER DODUC: Ms. Taber?

MS. TABER: This should be short, so -- I only have a couple of questions.

CO-HEARING OFFICER DODUC: Okay.

MS. TABER: But I didn't expect that we would take this long to get where we did, so I --

CO-HEARING OFFICER DODUC: We do need to stop at 5:00.

MS. TABER: I understand. So I'll ask a few more questions, and you can decide if you want me to finish up tomorrow.

So as an example that you cite in support of your statement that it appears that the fingerprinting analysis for Buckley Cove is incorrect, you site Figure 5 on Page 23 of Stockton stockton 26 -- we're not at Figure 5. So maybe it's not --

Let's scroll to Figure 5. Sorry. Maybe the reference was -- keep going. One more. Thank you. Okay.

Dr. Paulsen -- or Dr. Nader-Tehrani, you understand that Dr. Paulsen used DWR's model input files to perform the fingerprinting analyses, correct?

WITNESS NADER-TEHRANI: Actually, I'm not sure because I thought she -- there was somewhere I read, I think, that she might have rerun it. But I'm not sure.

MS. TABER: She did use DWR's model input

files, correct?

WITNESS NADER-TEHRANI: But then she reran it, right?

MS. TABER: Well -- right. Okay.

WITNESS NADER-TEHRANI: I think I remember seeing that some sentence as to the fact that she might have rerun the model based on our inputs, the DWR --

MS. TABER: Right. But she did use DWR -- I can move on. That's fine.

Did you conduct your own fingerprinting analysis to confirm Dr. Paulsen's results for Buckley Cove?

WITNESS NADER-TEHRANI: No. I'm just looking at these results, and it stood out that there was a problem with it, and I was stating the problem.

MS. TABER: Are there any other sources of water to the Delta that are not shown in Figure 5 of Stockton stockton 26?

WITNESS NADER-TEHRANI: Well, I'm just -- you know, all the figures that Dr. Paulsen showed these four -- these four sources. So what I'm not shown, for example, there are some flows to eastside streams. And Yolo Bypass typically, because they are fresh, similar to Sacramento River, when I plot those, I combined them with Sacramento River. But I'm not sure how Dr.

Paulsen handled it.

MS. TABER: Okay. So did you consider in looking at this why the percentage of the sources didn't sum to a hundred percent?

WITNESS NADER-TEHRANI: I was just making a point that they do not. And there was no indication from her that there were any other sources that she didn't show in this particular exhibit, figure.

MS. TABER: Okay. I'll just have one last question, and we'll wrap it up for today.

Dr. Nader-Tehrani, fingerprinting results do not depend on the EC-chloride conversion; is that correct?

WITNESS NADER-TEHRANI: That's correct.

MS. TABER: Okay. Thank you.

I do have a few more questions that I can ask --

WITNESS NADER-TEHRANI: There's the volumetrics -- sorry. I just want to be clear.

When we talk about different kind of fingerprinting, this particular type, which is a volumetric fingerprinting, does not depend on EC.

CO-HEARING OFFICER DODUC: All right.

WITNESS NADER-TEHRANI: Correct.

MS. TABER: Okay. Thank you. I have a few

more, but I fear that we might not get through them, so.

CO-HEARING OFFICER DODUC: Okay. How much time do you anticipate needing tomorrow, Ms. Taber?

MS. TABER: Probably five minutes to ten minutes.

CO-HEARING OFFICER DODUC: All right. So Ms. Taber, tomorrow, we'll resume with her first and then Mr. Emrick and then Mr. Ruiz.

Mr. Mizell, Mr. Berliner, you may have until noon on Monday to file your written objection to Ms. Taber's lines of questioning with respect to EcoRestore.

Ms. Taber, Ms. Meserve, anyone else who wants to chime in will have until noon on Tuesday to do so.

MR. MIZELL: One housekeeping item, I want to give the Hearing Officers as much as notice as I have myself and possibly avoid any surprises.

Our witness Mr. Davis has been called to court appearance in San Joaquin County tomorrow, and he is the last remaining witness. Rather than introduce any sort of delay or complexity into this hearing process I'm proposing that -- the Department has submitted a request for judicial notice of the publicly available contracts that were the intent of Mr. Davis's

testimony. He was simply here to authenticate the documents and put them into the record, not to interpret them.

And so our request is that we take judicial notice of those public documents instead, and I will remove Al's testimony -- or at least not submit Al's testimony into the record and not submit those -- any documents that are not judicially noticeable.

CO-HEARING OFFICER DODUC: So you've just turned lawyer on an engineer. With respect to -- I'll turn to Ms. Kuenzi here.

I believe Ms. Womack has indicated -- there may be others, but at least Ms. Womack -- wanted to conduct cross-examination of Mr. Davis. In non-legal terms, what does that mean, Ms. Kuenzi?

MS. KUENZI: Well, it sounds -- from what I heard and understood was that Mr. Davis's testimony would be withdrawn --

MR. MIZELL: That's correct.

MS. KUENZI: -- would not be part of the record; and therefore, there would be no need for cross-examination --

MR. MIZELL: That's correct.

MS. KUENZI: -- because there would be no testimony.

CO-HEARING OFFICER DODUC: Could you just have said that, Mr. Mizell?

MR. MIZELL: I'm working on being succinct. Is's a learning process.

CO-HEARING OFFICER DODUC: All right. So Ms. Womack, then, please be advised -- oh, I see Ms. Meserve coming up. Hold on.

MS. MESERVE: Good afternoon, Osha Meserve for LAND.

I understand what Mr. Mizell has said is that he's going to submit it and request judicial notice of the documents.

I don't think we could presume at this moment that judicial notice would in fact be granted. I don't know that we've done that method with other documents in this proceeding yet. So I guess I just wouldn't want -- I know that Ms. Womack did have questions regarding that testimony. So I wondered what's your process for whether you grant the judicial notice or not? And would there be an opportunity for others to object?

CO-HEARING OFFICER DODUC: The process for judicial notice?

MS. MESERVE: Because typically, in court proceedings, if someone filed a request for judicial

notice, it's not an automatic thing. I don't know what the arguments would be here but I think that there may be issues with content authenticity.

CO-HEARING OFFICER DODUC: All right. Let's do this, then. Mr. Mizell, I will also give you until noon on Monday to file the official request for official notice of Mr. Davis' documents.

MR. MIZELL: And it should actually be served on everybody in the next few minutes.

CO-HEARING OFFICER DODUC: Oh, okay. So it's done.

So then, everyone, you have until noon on Monday to respond that if you so wish. And if -- well, I'll discuss with counsel what the process is with judicial notice.

Anything else, since we are now past 5:00 clock?

(No response)

CO-HEARING OFFICER DODUC: All right. Thank you all. We will see you at 9:30.

(Whereupon, the proceedings recessed at 5:01 p.m.)

STATE OF CALIFORNIA)
) ss.
COUNTY OF MARIN)

I, DEBORAH FUQUA, a Certified Shorthand Reporter of the State of California, do hereby certify that the foregoing proceedings were reported by me, a disinterested person, and thereafter transcribed under my direction into typewriting and is a true and correct transcription of said proceedings.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named, nor in any way interested in the outcome of the cause named in said caption.

Dated the 22nd day of June, 2017.

DEBORAH FUQUA

CSR NO. 12948