BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

CALIFORNIA WATERFIX WATER RIGHT CHANGE PETITION HEARING)

JOE SERNA, JR. BUILDING

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

COASTAL HEARING ROOM

1001 I STREET

SECOND FLOOR

SACRAMENTO, CALIFORNIA

PART 2 REBUTTAL

Thursday, August 9, 2018

9:30 a.m.

Volume 38

Pages 1 - 277

Reported By: Candace Yount, CSR No. 2737, RMR, CCRR
Certified Realtime Reporter

Computerized Transcription By Eclipse

APPEARANCES

CALIFORNIA WATER RESOURCES BOARD

Division of Water Rights

Board Members Present:

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

Staff Present:

Andrew Deeringer, Senior Staff Attorney
Conny Mitterhofer, Supervising Water Resource Control Engineer
Jean McCue, Water Resource Control Engineer (afternoon)
Hwaseong Jin (morning)

PART 2 REBUTTAL

For Petitioners:

California Department of Water Resources:

James (Tripp) Mizell
Thomas M. Berliner
Jolie-Anne Ansley

The U.S. Department of the Interior:

Amy L. Aufdemberge, Esq.

APPEARANCES (Continued)

FOR PROTESTANTS AND INTERESTED PARTIES:

For San Joaquin Tributaries Authority, The (SJTA), Merced Irrigation District, Modesto Irrigation District, Oakdale Irrigation District, South San Joaquin Irrigation District, Turlock Irrigation District, and City and County of San Francisco:

Tim Wasiewski

For The City of Roseville, Sacramento Suburban Water District, San Juan Water District and The City of Folsom:

Ryan Bezerra
Andrew J. Ramos

For The City of Sacramento and The Water Forum:

Wesley A. Miliband

For Sacramento Valley Group, Tehama-Colusa Canal Authority & water service contractors in its service area and North Delta Water Agency:

Meredith Nikkel

For The Placer County Water Agency, Biggs-West Ridley Water District (BWGWD) and Glenn-Colusa Irrigation District (GCID):

Kelley Taber

For East Bay Municipal Utility District (EBMUD):

Fred Etheridge

For County of San Joaquin, San Joaquin County Flood Control and Water Conservation District, and Mokelumne River Water and Power Authority:

Thomas H. Keeling

APPEARANCES (Continued)

For California Sportfishing Protection Alliance (CSPA), California Water Impact Network (C-WIN), and AquAlliance:

Michael Jackson

For State Water Contractors:

Stefanie Morris
Rebecca Sheehan

For The Coalition for a Sustainable Delta:

Melissa Poole, Esq.

For Clifton Court, L.P.:

Suzanne Womack

For The Environmental Justice Coalition for Water, Islands, Inc., Local Agencies of the North Delta, Bogle Vineyards/Delta Watershed Landowner Coalition, Diablo Vineyards and Brad Lange/Delta Watershed Landowner Coalition, Stillwater Orchards/Delta Watershed Landowner Coalition, Brett G. Baker and Daniel Wilson:

Osha Meserve

For Sacramento Regional County Sanitation District and City of Stockton:

Kelley Taber

I N D E X

Thursday, August 9, 2018 9:30 a.m.

PROCEEDINGS

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(Proceedings resumed at 9:30 a.m.:)

CO-HEARING OFFICER DODUC: Good morning, everyone. Welcome back to this Water Right Change Petition hearing for the California WaterFix Project.

I am Tam Doduc. To my right is Board Chair and Co-Hearing Officer Felicia Marcus. We will be joined shortly by Board Member Dee Dee D'Adamo, who will be sitting to the Chair's right. To my left are Andrew Deeringer, Conny Mitterhofer and Hwaseong Jin.

We're also being assisted by other staff today.

And the usual quick three announcements:

In the event of an emergency, an alarm will sound. We will evacuate this room and this building.

So please take a moment now, if you haven't by now, identified the exit closest to you.

We will take the stairs, not the elevators, down to the first floor and meet up in the park across the street.

If you're not able to use the stairs, please flag down one of the security people and they will direct you to a protected area.

Secondly, please make sure the microphone is on by pressing the green button when you provide your comments today because this is being Webcasted and reported.

Speaking of being Webcasted, we received a request for closed captioning of the Webcast, so we have enabled closed captioning. To use this function, viewers will need to activate it in their media player. However, we cannot make any guarantee regarding the accuracy of the closed captioning, and the transcript will remain the official record of the hearing. Use at your own risk.

Our court reporter is here today, and if you would like copies of the transcript earlier than the conclusion of Part 2, please make your arrangements directly with her.

And, finally and most importantly, since you have been away from me for a few days, please take a moment and make sure that all your noise-making devices are on silent, vibrate, do not disturb.

Are there any housekeeping matters before we return to Mr. Bezerra and his colleagues for their cross-examination, which is now -- I believe the 50 minutes that's on the clock is 50 minutes of the third hour. That is correct? All right.

MR. WASIEWSKI: Hi. Good morning. Tim Wasiewski for the San Joaquin Tributaries Authority.

I had a chance to review your ruling from August 6 in which you told us we could not rebut -- I guess the way you put it was -- the merits of the Vernalis Flow Criteria in the 2010 Flow Criteria Report which has been admitted into evidence.

So, based on that ruling, I'm going to make a motion to strike the portions of the 2010 Flow Criteria Report that deal with the Vernalis Flow Criteria, because if we can't rebut it, it shouldn't be part of the evidentiary record.

We have a right in this proceeding to rebut evidence that's been presented against our interest. And when you preclude us from doing that, you deprive us of an opportunity to present a case and protect those interests.

If you're telling us that the Vernalis Flow Criteria in that report is -- or at least a rebuttal is not relevant, then the underlying evidence isn't relevant, either, and it should be stricken.

You can't accept a report into the record and then tell us that a portion of it is just flat-out irrebuttable.

So, I will supplement this motion with sort of

like a redacted or strikeout version of where all of the references to the Vernalis Flow Criteria are removed. I think that would include the science behind it and any figures because that goes to the merits.

So I'll be submitting that shortly, but I just wanted to advise you that I'm making that motion now.

CO-HEARING OFFICER DODUC: All right. We'll wait to receive your motion in writing.

MR. WASIEWSKI: Thank you.

CO-HEARING OFFICER DODUC: Anyone wish to comment on that at this time?

Seeing none, are there any other housekeeping matter?

We did receive an e-mail -- I believe it was from Contra Costa County, Contra Costa County Water Agency and Solano County, Group 25, that they will have cross-examination questions for, ah, Mr. Reyes.

This is regarding to Mr. Reyes not being available later today.

WITNESS REYES: I actually can be available today.

CO-HEARING OFFICER DODUC: Okay. And are you available tomorrow?

WITNESS REYES: Yes.

CO-HEARING OFFICER DODUC: What happened to

your important appointment?

WITNESS REYES: It got postponed till Monday, so . . .

CO-HEARING OFFICER DODUC: We would not want to deprive you of that very important appointment.

All right. In that case, then, the concern regarding Mr. Reyes' availability is moot.

Mr. Bezerra, we're back to you.

(Pause in proceedings.)

CO-HEARING OFFICER DODUC: And since it has been several days, if you could please remind us, Mr. Bezerra, what additional topic areas you're covering and which witness or witnesses you still have remaining for your cross-examination.

MR. BEZERRA: Certainly. And I'll lay out what we, the American River Agencies, are doing collectively this morning, and the time, and that sort of thing.

So, I was able to juggle my schedule, obviously, to be here for a little while. So I'm going to conduct the first part of cross-examination of Dr. Wilder. I anticipate that'll be roughly 45 minutes; it might be a little longer.

Mr. Miliband for City of West Sacramento then has an additional subject to talk to Dr. Wilder about.

We think that's about half an hour tops.

And then my colleague Mr. Ramos has cross-examination for Dr. Chilmakuri, and we think that's about half an hour tops.

CO-HEARING OFFICER DODUC: All right.

MR. BEZERRA: And so I'll start with Dr. Wilder.

And I have -- I want to talk to him about the methodology that he asserts in attempting to rebut Mr. Bratovich's testimony. There's two parts of that. One is understanding what the methodology is, and two is seeing how it applies.

So if we could please pull up Dr. Wilder's testimony, which is -- rebuttal testimony, which is Exhibit DWR-1229, please.

(Exhibit displayed on screen.)

MR. BEZERRA: And specifically the discussion begins at Page 2, Line 12.

(Exhibit displayed on screen.)

SERGIO VALLES,
COREY PHILLIS,
RICK WILDER
MARIN GREENWOOD,
CHANDRA CHILMAKURI,
ERIK REYES,
NANCY PARKER
and
KRISTIN WHITE,

called as witnesses by the Petitioners, having previously been duly sworn, were examined and testified further as follows:

CROSS-EXAMINATION RESUMED BY

MR. BEZERRA: Dr. Wilder, in this portion of your testimony which contains Page 3, Line 18, you rely on the analysis in Exhibit DWR-1142; correct?

WITNESS WILDER: Correct.

MR. BEZERRA: And Exhibit DWR-1142 relies on water temperature analysis that is based on the BA H3+ CalSim modeling; correct?

WITNESS WILDER: That's correct.

MR. BEZERRA: And that modeling is not the CWF H3+ CalSim modeling; correct?

WITNESS WILDER: No.

MR. BEZERRA: So you have presented no water temperature analysis that is based on the CWF H3+ CalSim modeling; correct.

WITNESS WILDER: Well, what I did was, I compared analyses -- I'm sorry -- model outputs of the BA H3+ to CFW H3+. That was presented in the Certified FEIR/EIS, and I cite that in my previous testimony during my case in chief.

And I rely on that -- the similarity between the model outputs between the BA H3+ and CWF H3+ to make the link that the BA H3+ results are -- should be the same as CWF H3+.

MR. BEZERRA: When you say you compared the two sets of model outputs, you're talking about the CalSim model outputs; correct?

WITNESS WILDER: Yes, that's correct.

MR. BEZERRA: So you have presented no water temperature modeling that is based on the CWF H3+ CalSim modeling; correct.

WITNESS WILDER: That's correct.

MR. BEZERRA: And your understanding is that CWF H3+ is DWR's Adopted Project that it is asking this Board to approve; correct?

WITNESS WILDER: That's correct.

MR. BEZERRA: Thank you.

So, notwithstanding the fact you've presented no temperature modeling analysis based on CWF H3+, your opinion is nonetheless that that Adopted Project is reasonably protective of Salmonids; correct?

WITNESS WILDER: That's correct, using the logic that I just mentioned, which is that if the CalSim results are going to be similar between the two model scenarios, I have no reason to believe that the temperature model outputs would be any different.

MR. BEZERRA: Okay. But you haven't actually presented any analysis of CWF H3+ temperature modeling; correct?

MR. MIZELL: Objection: Asked and answered.

CO-HEARING OFFICER DODUC: Sustained.

MR. BEZERRA: Okay. Your opinion about CWF H3+ being reasonably protective of Salmonids, that applies specifically to Steelhead in the American River; correct?

Well, let me ask --

WITNESS WILDER: Are you talking about --

MR. BEZERRA: -- that differently.

Your opinion that CWF H3+ is reasonably protective of Salmonids includes reasonably protective of Steelhead in the American River; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: Okay. Now, I'd like to refer to this portion of your testimony on Page 2, beginning on Line 21 through 28.

(Exhibit displayed on screen.)

MR. BEZERRA: And, just generally, in this portion of your testimony, you're explaining why you believe the methodology used in DWR-1142 is better supported than Mr. Bratovich's analysis; correct?

WITNESS WILDER: Yes, that's correct.

MR. BEZERRA: And you describe on Lines 22 through 23 how that methodology used water temperature outputs that characterized temperature trends by month and water year-type; correct.

WITNESS WILDER: Yes. That was one of a number of -- of methods that we used, and that's the point of this sentence, yes.

MR. BEZERRA: Okay. And so by -- This testimony indicates that you are not analyze -- you have not analyzed daily water temperature changes; correct?

WITNESS WILDER: No. I did analyze daily water temperatures.

MR. BEZERRA: Did you have daily water temperature model outputs?

WITNESS WILDER: Yes.

MR. BEZERRA: And what were those?
MR. MIZELL: Object as beyond the scope of his rebuttal testimony.
Dr. Wilder's point in his rebuttal testimony is to what Mr. Bratovich performed in ARWA's case in chief.
We're now going beyond that and discussing daily temperature model results of Mr. -- Dr. Wilder which are not contained within this rebuttal testimony.
CO-HEARING OFFICER DODUC: Mr. Bezerra.
MR. BEZERRA: Mr. Wilder's opinion is that the methodology here is better supported than Mr. Bratovich's.
I'm attempting to identify what exactly went into the methodology which he's relying on to attempt to rebut Mr. Bratovich.
CO-HEARING OFFICER DODUC: And which methodology is it, Dr. Wilder, that you're referring to? Was it the daily?
WITNESS WILDER: Yes. Yeah. On Lines 24 through 25, those are daily temperature model outputs.
CO-HEARING OFFICER DODUC: Objection overruled.
MR. BEZERRA: Thank you.
So did you actually have daily water

temperature model outputs?

WITNESS WILDER: Yes.

MR. BEZERRA: Okay.

(Pause in proceedings.)

MR. BEZERRA: Okay. On that Line 24 through 26, I'd like to understand what you mean by (reading):

". . . Water . . . temperature threshold exceedance analyses that quantify the frequency and magnitude of exceeding temperature thresholds."

Do you see that?

WITNESS WILDER: Yes.

MR. BEZERRA: I'd like to go to Exhibit DWR-1142. Specifically, it's Appendix 5.D.

(Exhibit displayed on screen.)

MR. BEZERRA: Yeah. You need to go back. It's actually -- There are a couple of Attachments to 5.D but there is a chapter that is Appendix 5.D.

(Exhibit displayed on screen.)

MR. BEZERRA: No.

Okay. We need to go back.

(Exhibit displayed on screen.)

MR. BEZERRA: And if we could scroll down.

The one that's Appendix 5.D, "Quantitative Methods."

(Exhibit displayed on screen.)

MR. BEZERRA: Thank you very much.

And if we could please go to Page 277, please.

(Exhibit displayed on screen.)

MR. BEZERRA: And it's 277 in the numbers at the bottom. I believe it's actually .pdf Page 303.

(Exhibit displayed on screen.)

MR. BEZERRA: Okay. And if we could scroll down a little more.

(Scrolling through document.)

MR. BEZERRA: Thank you very much.

Dr. Wilder, you see that paragraph that begins "The final step"?

WITNESS WILDER: Yes.

MR. BEZERRA: And the second sentence, which begins, "the step defined a biologically meaningful effect"?

WITNESS WILDER: Yes.

MR. BEZERRA: Does that sentence accurately described the water temperature methodology on which you are relying in attempting to rebut Mr. Bratovich's testimony?

WITNESS WILDER: Yes, for this specific analysis.

MR. BEZERRA: Okay. Thank you.

And the first prong of that methodology is a difference in frequency of exceedance between the No-Action Alternative and Proposed Action that's greater than 5 percent; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: Okay. And the NAA and the PA are the No-Action Alternative and the with-California WaterFix scenario; correct?

WITNESS WILDER: Correct.

MR. BEZERRA: And just for clarity, the PA here is not CWF H3+; correct?

WITNESS WILDER: Correct. It's BA H3+.

MR. BEZERRA: So just -- Just to be very clear:

So under this methodology, in order to show a biologically meaningful temperature effect, the PA scenario would have to exceed a given temperature threshold by at least 5 percent more of the exceedance curve in the No-Action Alternative; correct.

WITNESS WILDER: It's one of two criteria that we used, the first of which is the difference in the frequency of exceedance between the NAA and PA would have to be 5 percent or greater.

Greater than 5 percent. Excuse me.

MR. BEZERRA: And you say the two criteria.

So, in this methodology, a temperature effect would have to meet both criteria in order to be considered biologically meaningful; correct.

WITNESS WILDER: That's correct.

MR. BEZERRA: And the second -- the second prong of this methodology is that the difference in average daily exceedance would have to be greater than .5 degrees Fahrenheit; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: Okay. Okay. If we could scroll back up to the previous page, which is Page -- which is numbered Page 5.D-276.

(Exhibit displayed on screen.)

MR. BEZERRA: And the first sentence on the page.

Do you see that first sentence, Dr. Wilder?

WITNESS WILDER: Could you describe --

MR. BEZERRA: I'll just read it for the record (reading):

"Patterns in water temperatures at key locations within the Sacramento and American Rivers were evaluated for each month that a life stage of each race/species was present and were summarized at the beginning of the

section for each species and life stage."

Do you see that?

WITNESS WILDER: Yes.

MR. BEZERRA: Okay. So, this means that the two-prong temperature methodology was applied to water temperatures in specific rivers north of the Delta; correct?

WITNESS WILDER: I don't know about that. The -- The first -- This paragraph corresponds to what's called -- what I called the model output characterization. This basically just describes the -- the patterns in temperatures that you see in these different locations.

The second section, 5.D.2.1.2.2, describes the threshold analysis which -- of which we used this, as you say, two-pronged approach.

MR. BEZERRA: And you analyzed the water temperature conditions separately for the Sacramento and American Rivers; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: And that's because different fish inhabit different rivers upstream of the Delta; correct?

WITNESS WILDER: If you mean by individual fish, perhaps, although fish can go into different

waterways at different times of their lives.

If you mean different races or species of fish, certainly you can get the same species of fish in the same river -- or different rivers.

MR. BEZERRA: To the best of your knowledge, does the extent of -- Excuse me.

To the best of your knowledge, does the availability of coldwater pool in Folsom Reservoir affect water temperatures in the American River?

WITNESS WILDER: It can, yes.

MR. BEZERRA: And, to the best of your knowledge, to the extent that Folsom Reservoir storage is reduced, could that result in warmer temperatures in the American River?

MR. BERLINER: Objection: Lack of foundation.

CO-HEARING OFFICER DODUC: Mr. Bezerra.

MR. BEZERRA: I'm asking to the best of his knowledge as someone who has conducted a water temperature analysis in the American River.

MR. BERLINER: Yes. The prob -- The problem with the question is: You haven't specified where in the American River; we haven't specified how much drawdown of Folsom; how much coldwater pool is available; what temperatures are being sought.

Certainly temperature immediately below the

dam would be different than temperature at 10 miles.

CO-HEARING OFFICER DODUC: Mr. Bezerra.

MR. BEZERRA: It's not worth the trouble. Thank you.

CO-HEARING OFFICER DODUC: I mean, you're just encouraging more objections.

MR. BEZERRA: Yeah, I know.

(Laughter.)

MR. BEZERRA: I'm hoping that, you know --

CO-HEARING OFFICER DODUC: Although I --

MR. BEZERRA: -- continued admonitions from the Chair will do that as well.

CO-HEARING OFFICER DODUC: I appreciate that, Mr. Bezerra.

MR. BEZERRA: Thank you.

So, is it fair to say that the proposed action's differential effects on the Sacramento and American Rivers are a basis of your analysis?

WITNESS WILDER: Could -- I'll need more clarification than that.

MR. BEZERRA: Okay. You analyzed water temperatures in the American River, correct, and their effect on Steelhead?

WITNESS WILDER: Yes.

MR. BEZERRA: And you conducted a separate

water temperature analysis for fish in the Sacramento River; correct?

WITNESS WILDER: We used very similar methods. But, yes, we analyzed each river separately, if that's what you mean.

MR. BEZERRA: Okay. So, is it fair to say that you could not conduct a biological analysis based on generalized hydrologic effects over all North-of-Delta streams?

WITNESS WILDER: No, I don't think that's completely accurate. You know, we -- we look at these different rivers separately, but collectively in the end, we roll everything up to look at all -- all life stage -- excuse me -- all of the -- each species in each tributary in which they live.

MR. BEZERRA: So you conducted an analysis that is specific to specific rivers upstream of the Delta; correct.

WITNESS WILDER: Yes, as an initial step.

But as I said, also, in total, when we reached our conclusions or in this case my opinions, we needed to look at all the rivers in combination.

MR. BEZERRA: So you did not do a single analysis in which you averaged all North-of-Delta hydrologic conditions to support your biological

conclusions; correct?

WITNESS WILDER: There was no quantitative analysis, which is what I think -- where I think you're headed, or what you were trying to say, in which we looked at all the rivers collectively.

It was -- It was only afterwards when we took a step back and looked at the overall sum effect.

MR. BEZERRA: So for purposes of analyzing weather, the California WaterFix Project would have an unreasonable effect on fish upstream of the Delta.

You did not conduct an analysis where you generalized all effects north of the Delta; correct.

WITNESS WILDER: No. I don't believe that's what I said. I think we did generalize all of the -- We -- We included all of the rivers in combination to arrive at a -- an ultimate conclusion.

MR. BEZERRA: And that was based on your specific analysis of effects in specific streams upstream of the Delta; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: Thank you.

Okay. Going back down to the later page, Page 5.D-277.

(Exhibit displayed on screen.)

MR. BEZERRA: And that two-pronged analysis in

the second sentence in that paragraph, beginning, "Final step."

That analysis indicates -- Or a little bit lower.

(Exhibit displayed on screen.)

MR. BEZERRA: You indicate that, the .5 degrees criterion was selected partly because, quote, it is (reading):

"A reasonable water temperature differential that could being resolved through real-time reservoir operations."

Correct?

WITNESS WILDER: Yeah. I believe I -- I believe I answered that question in my case in chief cross-examination, but yes.

MR. BEZERRA: Okay. And it is your professional opinion that this is an appropriate consideration in determining whether a change in water temperatures is biologically meaningful; correct?

WITNESS WILDER: Yeah, that's -- that's where the word "reasonable" comes from.

It's -- It's my opinion that this is -- that is what you said. But it's also based on a review, as you can see Number 1 there, of water temperature mortality rates for Steelhead eggs and juveniles.

MR. BEZERRA: Thank you.

The biological effect of a water temperature change on Steelhead is not dependent on any reservoir operation; correct?

WITNESS WILDER: I -- I don't think I agree with that.

Could you restate it?

MR. BEZERRA: Well, just -- it's a simple point.

It doesn't matter to a Steelhead why the water temperature changed; correct?

WITNESS WILDER: Again, could you -- could you clarify that question?

MR. BEZERRA: Sure. And we'll unpack this a little bit.

So, one of the two criterion -- criteria in your methodology is a .5 degree Fahrenheit change in water temperature; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: And your testimony is that you chose that partly because, in your opinion, or someone's opinion, that is a temperature differential that could be resolved by reservoir operations; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: Is it your professional opinion that it matters to a Steelhead whether temperatures increased because of some reservoir operation or could be resolved by some reservoir operation?

MR. BERLINER: Objection: I -- I'm -- This question is vague.

Perhaps it could be narrowed to -- If you're giving an example, give a specific example as to how your premise would function.

CO-HEARING OFFICER DODUC: Mr. Bezerra --

MR. BERLINER: What I think you're saying is, if the Steelhead is on the American River and there's colder water, that would be a relation to the American River Reservoir release.

But if it's on the Sacramento and was being influenced by the American River, it doesn't matter to that Steelhead on the Sacramento whether that influence is from the American River or from Shasta; is that correct?

MR. BEZERRA: No, that's --

CO-HEARING OFFICER DODUC: I think that --

MR. BERLINER: Okay. Then if you could clarify, I'd appreciate it.

CO-HEARING OFFICER DODUC: If I may, I think we're making this a lot more complicated than at least

I believe Mr. Bezerra intended.

Dr. Wilder, as an Engineer and not a Fish Biologist, the -- I think what Mr. Bezerra was asking was the change in temperature is obviously important to the fish, but does -- does it matter how that change is effective? Does it matter what source of water or shade or whatever mechanism that provides that change and difference, does that matter to you as a Fish Biologist?

WITNESS WILDER: Right. And the answer to that question is, it shouldn't matter, no.

MR. BEZERRA: Thank you. That was exactly what I wanted to do.

Now, in assessing the availability of reservoir operations to resolve this sort of temperature change, in your opinion, what operations can Reclamation implement on the Lower American River or at Folsom Reservoir to resolve that sort of change in temperature?

CO-HEARING OFFICER DODUC: Miss Aufdemberge.

MS. AUFDEMBERGE: Objection: He has not established any sort of expert knowledge about Reclamation wishes.

CO-HEARING OFFICER DODUC: Mr. Bezerra.

MR. BEZERRA: He selected this temperature

criteria himself as a Biologist. And, so, to the extent it applies to the American River, he -- there should be some basis for what real-time operations can do this.

CO-HEARING OFFICER DODUC: So, Dr. Wilder, what is the basis for your statement there that you believe -- well, your criterion number 2?

On what basis do you determine that these temperature differential could be resolved in real-time reservoir operations?

WITNESS WILDER: Yeah. This -- This was a -- Let me take a step back.

This was a collective agreement -- not agreement -- but a collective finding. As it says there, fisheries biologist from various agencies in consultation with physical modelers that -- and operations experts that, you know, throughout the process, we discussed, you know, what types of operations could be done at different reservoirs.

So, you know, I can't speak specifically to reservoir operations changes that can -- can reasonably change a temperature difference -- a differential of 0.5 degrees.

CO-HEARING OFFICER DODUC: So you yourself did not make the determination as to the . . . second

factor there.

WITNESS WILDER: It was -- It was myself in combination with the other Biologists, as it says there, yeah.

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

To the best of your knowledge, does any sort of real-time operation like that on the American depend on the amount of water available in storage in Folsom Reservoir?

WITNESS WILDER: I'm not the right person to answer that question, but I believe it could.

WITNESS WHITE: I think I can shed some light on that.

CO-HEARING OFFICER DODUC: Ms. White.

WITNESS WHITE: So I think we have several different ways to manage temperature. Mr. Bezerra's alluding to reservoir storage as one of them.

Certainly, it's a large-scale planning metric.

We also have shutters. That's kind of our I'd say medium scale because they make differences and they're kind of -- they take time to pull out.

We also have blending between the three, depending on what temperature each -- each shutter is pulling from.

And we can make those changes very quickly,

within -- within minutes, actually, although it takes travel time to get down to the specific point.

So we have three different mechanisms to affect temperature. And, then -- I should say four and then there are changes in flow that would affect that as well.

MR. BEZERRA: One quick followup question from Ms. White.

All of those measures you just described all depend on there being sufficient amount of cold water in Folsom Reservoir to actually implement those measures to affect temperatures; correct?

WITNESS WHITE: I'm not sure I understand that question.

Increasing more flow would be -- would be independent. That would just be reducing residence time at Nimbus and reducing the ability for the river to warm up downstream.

MR. BEZERRA: There would still have to be adequate amounts of water available in Folsom Reservoir to actually release that water and remain helpful to fish; correct?

WITNESS WHITE: Are you asking would there have to be water in Folsom in order to release it?

MR. BEZERRA: Sufficient cool water in Folsom

available to affect that.

WITNESS WHITE: Well, that's what I think I just answered, that flow would -- an Increase in flow would be reducing residence time and reducing the ability for the river to flow. It wouldn't be trying to release colder water.

The other ones, one being in the shutters, would be trying to target a different cold water release.

MR. BEZERRA: And to the extent you released more flow in real-time to address the temperature issue, that would affect your later ability to address later temperature problems with the same measures; correct?

WITNESS WHITE: I don't -- I can't say that's correct. It would depend on how we adjusted other operations.

If everything stays the exact same, then sure, but that's not how it works in real-time operations. You're trying to balance the targets for a particular day, for a particular month, for a particular season, and you're looking at how you might balance that with -- with -- not only with that reservoir system but with the entire system.

MR. BEZERRA: And, to the best of your

knowledge, Folsom Reservoir is the one and only source of flow to the Lower American River that Reclamation can control; correct?

WITNESS WHITE: Folsom, in this case, yes.

MR. BEZERRA: Thank you.

I'd like to pull up Exhibit BKS-300, please.

(Exhibit displayed on screen.)

MR. BEZERRA: If we could please go to the fifth page.

This is -- We've discussed this previously. It's a copy of Chapter 2 of the 2008 Biological Assessment for OCAP.

(Exhibit displayed on screen.)

MR. BEZERRA: Dr. Wilder, do you see the highlighted language here that begins accounting language -- "The accounting language"?

WITNESS WILDER: Yes.

MR. BEZERRA: In offering your opinion relying on real-time operations, did you consider any sort of real-time operations such as those described in the highlighted text?

WITNESS WILDER: (Examining document.)

I don't think so.

MR. BEZERRA: Okay. Thank you.

Could we please pull up Exhibit BKS-301?

(Exhibit displayed on screen.)

MR. BEZERRA: This is marked "Excerpts of NMFS 2009 OCAP Biological Opinion." The full exhibit -- The full document is Staff Exhibit SWRCB-84.

Could we please pull up Page 596 here, which I believe is the third page in BKS-301.

(Exhibit displayed on screen.)

MR. BEZERRA: There we go.

Dr. Wilder, do you see Paragraph 5) a) through d) here?

WITNESS WILDER: Yes.

MR. BEZERRA: In offering your opinion concerning the effect of real-time operations, did you consider any sort of real-time operation like this?

And if you'd like to see the rest of the RPA, we, of course, can provide you time to look at it.

WITNESS WILDER: Again, I don't -- Not directly, although this is captured in the physical modeling, CalSim in particular. This and actually the previous mention of operations.

MR. BEZERRA: It's -- It's your opinion that this RPA is captured in the CalSim modeling?

WITNESS WILDER: I don't think it's an opinion. I think it's hard-wired into CalSim.

MR. BEZERRA: Miss Parker, to the best of your

knowledge, is this RPA captured in the CalSim modeling?

WITNESS PARKER: Can we look at exactly which RPA section it is?

MR. BEZERRA: Certainly. We can scroll back up. There's a heading that identifies the RPA, I believe, on the previous page.

(Exhibit displayed on screen.)

WITNESS PARKER: Okay. The specific storage operations elements of the NMFS RPA are not explicitly represented as rules in CalSim.

MR. BEZERRA: Thank you very much.

Okay. Now, Dr. Wilder, I'd like to ask you some specifics about the methodology you're -- on which you're relying.

So if we could please go back to Exhibit DWR-1142.

(Exhibit displayed on screen.)

MR. BEZERRA: And Appendix 5.D.

(Exhibit displayed on screen.)

MR. BEZERRA: There we go. Thank you very much.

Okay. Dr. Wilder, the second prong of that methodology, again, is -- concerns relative temperature differences on a daily basis; correct?

WITNESS WILDER: (Examining document.)

Yes, but I probably should clarify that . . .

(Pause in proceedings.)

WITNESS WILDER: Never mind.

MR. BEZERRA: Okay. If we could go down in this document to Page F.D-2484 (sic).

(Exhibit displayed on screen.)

MR. BEZERRA: And Dr. -- Yes. If we could go to Table 5.D-52.

(Exhibit displayed on screen.)

MR. BEZERRA: Dr. Wilder, these are conversion factors related to daily water temperatures to monthly means, correct, for the American River?

WITNESS WILDER: Yes, that's correct.

MR. BEZERRA: Why did you need conversion factors to convert from monthly means to daily temperatures if you had daily water temperature results?

WITNESS WILDER: It's been awhile. I'm sure it's in the methods there.

But essentially a seven-day average daily maximum needs to -- needs a conversion factor to . . . to have it essentially work with the way the model outputs came. They don't come as seven-day average daily maximums -- maxima.

MR. BEZERRA: So the model outputs on which

you rely are monthly means, not daily results; correct.

WITNESS WILDER: No. They were -- They were daily. This is -- This is just characterizing it by -- in -- in specific months here.

MR. BEZERRA: Okay.

WITNESS WILDER: Splitting it out by month just for -- because we didn't want to do it for every single day.

MR. BEZERRA: So what -- what exactly are you converting for these factors?

WITNESS WILDER: Again, it's been while.

But we needed to take the . . . the daily or -- excuse me -- the monthly temperature and have it work with the seven-day average daily maximum thresholds that we -- that we used in our analysis.

MR. BEZERRA: Okay. So you used a daily threshold; correct.

WITNESS WILDER: Yes. Not seven-day average daily maximum threshold.

MR. BEZERRA: Okay. And what water temperature modeling outputs did you compare to those daily thresholds?

WITNESS WILDER: They were the -- the model outputs that were provided by our team.

MR. BEZERRA: Okay. And were they monthly

means?

WITNESS WILDER: No. They were daily.

MR. BEZERRA: So, again, what -- why did you use a conversion factor?

WITNESS WILDER: A seven-day average daily maximum threshold cannot -- you know, it doesn't -- it just doesn't -- It's not always going to be the same as the value -- the daily value that you get from the model output.

So we needed to convert the -- the values to make them work with each other. And we relied on -- I believe it's in the methods here. We relied on historical data to look at a seven-day average daily maximum over the -- a period of record which should also be in the methods here -- I don't recall -- and compare that to the values that -- that we needed -- compare those to the monthly means of historical data in the American River.

MR. BEZERRA: Okay. Let -- Let me try to unpack this a little bit.

So you're talking about Footnote 1 of this table; correct?

WITNESS WILDER: Yeah, there it is.

MR. BEZERRA: So, the daily temperature data you had was from 2003 to 2014; correct.

WITNESS WILDER: Yes.

MR. BEZERRA: Did you have daily water temperature outputs for the entire 82 years of the CalSim period of record?

WITNESS WILDER: Yes. It's -- It's right around that period, 1920 --

MR. BEZERRA: Okay.

WITNESS WILDER: -- to 1980 -- 2003.

MR. BEZERRA: Okay. I'd like to talk about your temperature thresholds now.

So if we could go back to Exhibit DWR-1229.

(Exhibit displayed on screen.)

MR. BEZERRA: And Lines 11 through 13 on Page 3.

(Exhibit displayed on screen.)

MR. BEZERRA: Okay. Dr. Wilder, these temperature thresholds are the ones you used; correct? 63 degrees mean monthly and 69 degrees seven-daily -- seven-day average daily maximum; correct?

WITNESS WILDER: That's correct.

MR. BEZERRA: Okay. So, on the 63 degrees, that's a mean monthly temperature; correct.

WITNESS WILDER: Yes.

MR. BEZERRA: And what biological function of Juvenile Steelhead is that threshold intended to

address?

WITNESS WILDER: It relates to optimal growth.

MR. BEZERRA: And what effect on Juvenile Steelhead occurs when water temperatures are above that threshold?

WITNESS WILDER: Their metabolism tends to increase. And if their -- if their food consumption doesn't keep up with that, then you start seeing a weight loss.

MR. BEZERRA: And if temperatures continue to increase above that threshold, does that impact get worse?

WITNESS WILDER: If they can't keep up with -- with the weight loss with further consumption.

MR. BEZERRA: And how long does a Juvenile Steelhead have to experience temperatures above that threshold before that biological impact occurs?

WITNESS WILDER: It -- It really depends on the situation.

MR. BEZERRA: Does it take a year for them to have a biological impact?

MR. BERLINER: Objection: Incomplete hypothetical.

The witness has stated several times it depends on food availability. If there's ample food,

presumably --

CO-HEARING OFFICER DODUC: Sustained.

MR. BEZERRA: Okay. Can it take as little as a day in any given situation?

WITNESS WILDER: I suppose it could. I mean, in the American River, there seems to be a very large abundance of food. And some of the temperature thresholds that I've seen in the American River for Steel -- Juvenile Steelhead are as high as 80, 85 degrees before you start seeing a significant effect to Juvenile Steelhead, which is way above all of the thresholds we're talking about now.

MR. BEZERRA: Okay. So scrolling down.

So you used a 69-degree seven-daily -- seven-day average daily maximum as an additional threshold; correct?

WITNESS WILDER: That's correct.

MR. BEZERRA: I'm going to refer to that as seven-datum.

Do you understand that?

WITNESS WILDER: Yeah.

MR. BEZERRA: How do you calculate compliance with a seven-datum temperature threshold?

WITNESS WILDER: I'm not sure really how to answer that question. I don't deal with compliance.

MR. BEZERRA: Okay. How do you calculate whether water temperatures in a river are complying with a seven-datum threshold? What -- What data do you use in how you average it or process it?

MR. MIZELL: I'm going to object as compound.

As to the first part of his question, he, again, asked about compliance which Dr. Wilder's indicated is not his specialty.

CO-HEARING OFFICER DODUC: As a Fish Biologist analyzing temperature effects, how do you calculate the seven-datum number?

WITNESS WILDER: You take the previous seven days and look at the average of the daily maximum in each of those days.

MR. BEZERRA: And what biological function of Juvenile Steelhead were you attempting to address with this threshold?

WITNESS WILDER: This was another method of -- of optimal growth. I believe this is the highest end of where you start seeing a decline above that.

MR. BEZERRA: And so if temperatures continue to increase above this threshold, that effect would get worse?

WITNESS WILDER: As I mentioned earlier, it -- it really depends on the amount of food available to

the fish.

MR. BEZERRA: In analyzing the water temperature modeling you had available to you, how did you analyze the effect of this threshold on -- as it would occur with that modeling?

Let me -- Let me rephrase that.

When you analyzed the water temperature outputs that you had relative to this threshold, how did you determine whether the modeling was complying with the threshold? Did you average every single day in the period of record to determine this?

MR. MIZELL: I'm going to, again, lodge an objection as to the use of the word -- term compliance.

If we could just swap it with a different term, Dr. Wilder's indicated it's a little bit easier to answer the question.

CO-HEARING OFFICER DODUC: How did you make the comparison?

WITNESS WILDER: Well, it had to do with the conversion factors that we previously saw in that table.

And so we -- we used those and adjusted the -- the modeling outputs to -- or I believe we adjusted the thresholds to fit better with the actual modeling data.

MR. BEZERRA: So you -- You adjusted a daily

average threshold in order to assess daily average water temperature outputs?

WITNESS WILDER: No. We adjusted a seven-day average daily maximum threshold to have it work with the daily data.

It's a -- It's a limitation that we had to deal with, and this was the method that we chose to comply, as you say, or to be consistent with the seven-day average daily maximum criteria that had been put forward by the EPA.

MR. BEZERRA: Well, why did you have to adjust a daily maximum criteria to assess daily water temperature results?

WITNESS WILDER: We didn't. It's an average. And so we needed to take the seven -- We needed to adjust the seven-day average criteria to fit with the daily data.

And -- Excuse me. It's a maximum as well. So we needed to consider that. That's probably the most important factor going on.

Otherwise, the outputs that we get in the modeling are, I believe, average daily, and so we needed to convert to average daily maximum, which the model cannot do or does not do, and, therefore, we needed to look at historical data to try to -- try to

make that conversion factor, which we did using the data that you -- that you previously cited.

MR. BEZERRA: And you based the conversion factor on water temperature data from 2003 to 2014; correct?

WITNESS WILDER: Correct.

MR. BEZERRA: And then you applied that conversion factor in assessing the entire 82-year CalSim period of record; correct?

WITNESS WILDER: Correct.

MR. BEZERRA: Okay. I'd now like to turn to the second subject, which is applying Mr. -- applying this methodology.

So if we could please go -- pull up BKS-255 and specifically the last page.

(Exhibit displayed on screen.)

MR. BEZERRA: And this is a plot from a Biological Opinion of water temperature modeling results for August of critical years at Watt Avenue.

And, Dr. Wilder, you're attempting to rebut Mr. Bratovich's opinion that these specific results show that implementing California WaterFix will have an unreasonable effect on American River Steelhead; correct?

WITNESS WILDER: I am rebutting the data that

he provided in his written testi -- and oral testimony. So, if this figure is in there, then yes.

MR. BEZERRA: Do you want to review Mr. Bratovich's testimony to confirm that he relied on this figure?

WITNESS WILDER: I may need to later, but for now, this -- this is fine.

MR. BEZERRA: For the record, why don't we pull up Exhibit ARWA-703.

(Exhibit displayed on screen.)

MR. BEZERRA: And Page 4.

(Exhibit displayed on screen.)

MR. BEZERRA: And if we could show that whole figure.

(Exhibit displayed on screen.)

MR. BEZERRA: Thank you.

Dr. Wilder, does this refresh your recollection that this is one of the figures Mr. Bratovich relied on?

WITNESS WILDER: Yes.

MR. BEZERRA: Okay. Thank you.

If we could please go back to Exhibit -- Well, you know, we'll just stay with this one because it's the same figure.

On this figure, the entire exceedance curve

for both scenarios is above 63 degrees for -- at all times; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: So, under your methodology, there would be no biologically meaningful difference between these curves relative to that 63 degrees threshold; correct.

WITNESS WILDER: No. I don't believe that's how my analysis was done. It also considered the magnitude above the threshold.

MR. BEZERRA: I -- Mr. Wilder -- Dr. Wilder, you previously testified that both prongs of your methodology have to be satisfied for you to conclude a biologically meaningful effect; correct.

WITNESS WILDER: Yes, that's right.

MR. BEZERRA: And in this figure, both of these curves are above your 63-degrees threshold at all times; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: Okay. Relative to your 69-degree datum threshold, these curves indicate -- or both of these curves have the same percentage of time they're above that threshold; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: So, under your methodology,

there is no biologically meaningful difference between these curves, correct, relative to your 69-degree threshold?

(Pause in proceedings.)

WITNESS WILDER: I don't know. I need to look at the other half of that analysis.

MR. BEZERRA: But you previously testified both prongs of the analysis had to be satisfied for you to find a biologically meaningful effect; correct?

WITNESS WILDER: Yes.

MR. BEZERRA: Okay. Thank you.

And for portions of this exceedance curve, the California WaterFix scenario is up to 4 degrees higher than the No-Action Alternative Scenario; correct?

WITNESS WILDER: It looks like, in -- in one month, that was true. The 10 percent exceedance.

MR. BEZERRA: And that -- When you say one month, that data point represents an average daily -- average temperature for the entire month of that data point; correct?

WITNESS WILDER: Yes, that's correct.

MR. BEZERRA: Okay. Thank you.

Now, as you say, there are 12 data points on this figure; correct?

(Pause in proceedings.)

WITNESS WILDER: That's correct.

MR. BEZERRA: And that reflects the fact that there are 12 Augusts in critical years at Watt Avenue; correct?

WITNESS WILDER: That's correct.

MR. BEZERRA: So this curve -- These curves do not capture any potential daily variances in American River water temperatures between the No-Action Alternative and the California WaterFix; correct?

WITNESS WILDER: Yes, that's correct.

MR. BEZERRA: Okay. Is it possible that there could be greater daily differences between the two scenarios?

WITNESS WILDER: It's possible, and that's -- that's exactly why we used the daily model to do our threshold analysis. It looks at frequency and magnitude.

I didn't rely on these plots. And, before, you tried to assert -- make me assert that this analysis -- or this figure was used in my -- my threshold analysis, and it wasn't. We looked at daily outputs.

MR. BEZERRA: You're attempting to rebut Mr. Bratovich's opinion about this figure; correct?

WITNESS WILDER: That's correct, by using my

methods, which I stated in my written testimony.

MR. BEZERRA: Thank you very much.

If we could go back to your testimony, Exhibit DWR-1229, and specifically Page 3, Lines 8 through 18.

(Exhibit displayed on screen.)

MR. BEZERRA: In this portion of your testimony, you're, I guess, attempting to rebut Mr. Bratovich's testimony about 75 degrees being an upper incipient lethal temperature for Juvenile Steelhead; correct?

WITNESS WILDER: No. I don't -- I don't rebut that.

I -- That is what's cited in the literature and -- and is used by -- in some analyses.

MR. BEZERRA: So you -- you agree with Mr. Bratovich that 75 degrees is an upper incipient lethal temperature for Juvenile Steelhead; correct?

WITNESS WILDER: As defined as "upper incipient lethal temperature threshold."

There are a number of lethal thresholds, if you look in the literature, for Juvenile Steelhead. This is the one that you cited, and I agree that it's in the literature.

MR. BEZERRA: And are there -- That's an upper incipient lethal.

What -- Is there a lower incipient lethal in the literature?

WITNESS WILDER: I -- I believe there is. I couldn't recite the -- the actual value.

MR. BEZERRA: Okay. Thank you very much.

Could we please go back to Exhibit BKS-255 and the figure for August of critical years of Watt Avenue.

(Exhibit displayed on screen.)

MR. BEZERRA: Thank you.

Dr. Wilder, for at least these three monthly data points, the California WaterFix is above 75 degrees while the No-Action Alternative is below 75 degrees; correct?

WITNESS WILDER: Yeah. Looking at monthly mean, which is what this plot is, yes.

MR. BEZERRA: Okay. And so these results indicate that, on those three data points, the modeling shows that California WaterFix would increase Lower American River temperatures above the 75 degrees upper incipient lethal threshold for Juvenile Steelhead; correct?

WITNESS WILDER: Again, on a monthly mean basis, yes.

MR. BEZERRA: Okay. Do you have an opinion about what biological effects a Juvenile Steelhead

would experience if it were in a river where the temperature averaged 75 degrees for a whole month?

WITNESS WILDER: It -- It really varies on -- It really depends on a lot of factors: What was the temperature before the temperatures rose to that level? In other words, how accustomed are they to higher temperatures?

There's a lot of evidence in the literature that shows that fish can certainly become acclimated to higher water temperatures. And as I mentioned before, the American River is a perfect example where you find that -- It's a different value called CTMax. It's another measure of thermal effects to Salmon.

That value is -- is --

(Timer rings.)

WITNESS WILDER: -- right around 80 degrees, I believe, for American River specifically, juvenile Salmon in the American River.

So, you know, it -- it could have an effect or it could not have an effect. It also depends on the amount of food that's available.

As I mentioned, the American River has an abundance of food and it's well cited in the literature that there is plenty of food so that temperatures -- as temperatures do rise, the amount of food can't keep up

with the increased metabolism and, therefore, potential for weight loss and other sublethal effects.

MR. BEZERRA: So, is it your opinion that the three data points on this figure showing that California WaterFix would increase American River temperatures above the 75 degrees upper incipient lethal threshold would have no effect on the Lower American River Steelhead?

MR. MIZELL: Objection: Asked and answered.

Dr. Wilder's indicated it takes many -- many circum -- It would require him to know far more facts to answer that question.

CO-HEARING OFFICER DODUC: Sustained.

MR. BEZERRA: I'd like to revisit that.

He is offering an opinion to re -- attempting to rebut Mr. Bratovich's opinion that this specific figure shows that WaterFix would have an unreasonable effect on Juvenile Steelhead in the Lower American.

And I'm just asking him if his opinion is that the three data points do not show that. There is no possibility that there is such an effect.

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

Based on Dr. Wilder's very long answer to your previous question, his answer then was that too many

facts need to be considered for him to answer your previous question, which I would expect would apply to this question as well.

MR. BEZERRA: Okay. I will --

CO-HEARING OFFICER DODUC: Unless I misunderstood, Dr. Wilder.

WITNESS WILDER: No. That -- That's what I was going to say, too.

MR. BEZERRA: Okay.

CO-HEARING OFFICER DODUC: I'd rather you not repeat that long answer again.

MR. BEZERRA: Thank you.

I think I have one further question.

Dr. Wilder, is it your opinion that, if WaterFix were to increase temperatures as indicated in those three data points, there is no possibility of a biological effect on Juvenile Steelhead in the Lower American River?

CO-HEARING OFFICER DODUC: That actually was a different question.

WITNESS WILDER: Yeah. I mean, I can't rule out an effect if that's what you're asking me to do.

But there's certainly a lot more that I could describe in my answer, but I'll -- I'll save all of us.

MR. BEZERRA: Thank you.

I'm -- That completes my cross-examination of Dr. Wilder.

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

Dr. Wilder, I believe Mr. Miliband has 30 minutes of questioning for you.

Would you like to take a break before we get to Mr. Miliband?

WITNESS WILDER: I'm okay.

CO-HEARING OFFICER DODUC: You're okay? All right.

Candace, are you okay going for another 30 minutes?

THE REPORTER: (Nodding head.) Yeah.

CO-HEARING OFFICER DODUC: We'll take our break, then, after Mr. Miliband is finished.

And we're now on the fourth and last hour that was requested for this set of cross-examination.

I believe it has been fruitful and has been efficient, although painful at times.

Thank you, Mr. Bezerra.

MR. MILIBAND: Thank you, Madam Chair. I'll certainly also try to be efficient and effective.

CO-HEARING OFFICER DODUC: And you will not re-cover grounds that Mr. Bezerra has already covered.

MR. MILIBAND: I -- That is not my intention. However, I do wish to ask just three questions related to the daily temperature topic that was explored with Dr. Wilder, if I may --

CO-HEARING OFFICER DODUC: Okay.

MR. MILIBAND: -- and I'll outline a little bit more what I'm really going to address.

But, for the record, good morning, hearing Chair Doduc, Board Chair Marcus and the rest of the team. I am Wes Miliband on behalf of the City of Sacramento within Group 7, as well as The Water Forum, which is Group 11.

The primary topic that I'd like to explore is only with Dr. Wilder and it relates to the redd dewatering analysis and specifically Exhibits 1229, the written rebuttal testimony, as well as DWR-1337, which was a Technical Memorandum, a three-page exhibit.

But before getting there, I would just like to revisit quickly about the daily temperature.

CROSS-EXAMINATION BY

MR. MILIBAND: First, Dr. Wilder, I would like to ask:

What daily model did you use for the daily temperatures that you state you utilized as part of your analysis?

WITNESS WILDER: I'm going to turn to the modelers who actually did the work and not myself.

WITNESS CHILAMKURI: We used the Bureau of Reclamation HEC-5Q model.

MR. MILIBAND: And do you know if -- if that model or the modeling output has been produced by DWR in this proceeding, whether for Dr. Wilder or any other witness?

WITNESS CHILAMKURI: Yes.

MR. MILIBAND: And do any of you know of any data that demonstrates within the Lower American River temperatures between 80 to 85 degrees?

And I'm specifically referring to what Dr. Wilder had testified to during Mr. Bezerra's cross-examination about there being temperatures up to 85 degrees.

WITNESS WILDER: First off, I don't believe I said that. I said there are temperature thresholds that exist in the literature for Juvenile Steelhead in the American River on the order of 80 degrees.

MR. MILIBAND: So is it not your testimony that there is data showing 85-degree temperatures and impacts to Steelhead in the Lower American River?

WITNESS WILDER: That is not my testimony, no.

MR. MILIBAND: Great. Thank you for those

clarifications.

Now moving on to the primary topic on redd dewatering.

If we could have Exhibit DWR-1229 two up, please, specifically Page 3.

(Exhibit displayed on screen.)

MR. MILIBAND: And if we could go to Lines 20 to 27, please.

(Exhibit displayed on screen.)

MR. MILIBAND: Thank you.

Dr. Wilder, now that you have obtained redd dewatering data for the Lower American River from The Water Forum, would you please explain for us what data you obtained from The Water Forum?

WITNESS WILDER: Yeah. There were -- There were a lot of it and we do appreciate getting those data.

It was a -- It was a . . . proportion of redds that were available at various river stages in the river that we primarily used.

MR. MILIBAND: Could you elaborate on that a little bit more.

WITNESS WILDER: Well --

MR. BERLINER: Objection: Vague.

CO-HEARING OFFICER DODUC: Yes. Elaborate in

which -- in what way, Mr. Miliband?

MR. MILIBAND: Well, I was just wondering if -- I was asking for Dr. Wilder to just explain the scope and the type of data that you received from The Water Forum just so we have a clear understanding as to your statement in your written testimony that you received data from The Water Forum.

CO-HEARING OFFICER DODUC: Do you not know what data was provided?

MR. MILIBAND: I do. I just don't know what the witness utilized, so --

CO-HEARING OFFICER DODUC: Ah.

MR. MILIBAND: -- I just wanted to confirm that.

I should have been a little more clear.

WITNESS WILDER: As I said, there was a river stage versus proportion of redds that were available at those different river stages in the -- in the -- the American River.

MR. MILIBAND: And what is your understanding of where The Water Forum obtained that redd dewatering data?

WITNESS WILDER: I believe they were obtained from Fish and Wildlife Service and a Subcontractor -- Contractor for them.

MR. MILIBAND: And did you utilize all of the data that you received in preparing the American River redd dewatering discussion that's contained within your written rebuttal testimony as reflected in DWR-1229 and DWR-1337?

WITNESS WILDER: No. There were a lot of data that were provided but we didn't use.

MR. MILIBAND: And which data that was provided did you not use?

WITNESS WILDER: It's been awhile since I've looked at it, so I -- I really don't remember.

I just remember there were -- there were multiple files that -- that weren't necessary for the analysis.

MR. MILIBAND: I'd just like to try to understand that a little bit better.

If you can't recall which data was not used, do you recall how you made those decisions as to what was necessary or not necessary?

WITNESS WILDER: I'm sorry. Could you repeat that question?

MR. MILIBAND: Well, you're saying you don't -- you didn't use all of the data; correct?

WITNESS WILDER: Correct.

MR. MILIBAND: And you don't recall which

files of the data you did not use.

WITNESS WILDER: (Nodding head.)

MR. MILIBAND: But do you recall how you made decisions as to what to use or what not to use? Was there some checklist or criteria or other mechanism that you utilized to make decisions on what to use and what not to use?

WITNESS WILDER: There were -- There was nothing formal, although all we really wanted was to get those data that provided -- rather than relying strictly on flow outputs, which is what we had done for the BA for lack of what we thought was nothing else, we wanted to know where along those flows the fish were setting up their redds, and that's what -- that's what these data provided and so we used those.

MR. MILIBAND: And if we could turn to DWR-1337, please, up on the screen.

And while that's taking place, Dr. Wilder, you just used a phrase, "setting up."

And I was going to use the word "built" or "constructed" for "redds."

Would you prefer "setting up" or is it pretty synonymous for purposes of Steelhead and redds?

WITNESS WILDER: Yeah. I believe your term is probably the more appropriate, but any will do.

MR. MILIBAND: All right. Thank you.
(Exhibit displayed on screen.)
MR. MILIBAND: Thank you for bringing up the exhibit.
Dr. Wilder, is this Technical Memorandum offered as DWR-1337 intended to support your rebuttal testimony regarding American River redd dewatering, specifically as to your opinion that CWF is reasonably protective of Salmonid eggs in the American River?
WITNESS WILDER: Yes.
MR. MILIBAND: And how -- How do you define "reasonably protective"?
WITNESS WILDER: I believe I answered this many times in the -- in my case in chief testimony.
But, generally, it -- it relies on values that are used in water -- or in -- that agency regulations. And when those regulations don't apply, such as when species are not listed under the ESA, then I relied on my -- on my own professional opinion of whether it would be a reasonable effect or not.
MR. MILIBAND: And if we could scroll down to Page 3 of this three-page exhibit, please.
(Exhibit displayed on screen.)
MR. MILIBAND: Thank you.
Dr. Wilder, I'd like to ask you questions

about the columns and numbers that are listed here on Page 3 of DWR-1337.

To just kind of lay it out there, I'm really focused on what these numbers represent to you and what the differences mean. So that's somewhat of the table and the framework from which I'll be asking questions.

Looking at the leftmost column labeled "Month," does this mean your analysis concerns the Steelhead redds built in each of those months over the CalSim 82-year period?

WITNESS WILDER: Yes, that's correct.

MR. MILIBAND: And looking to the numeric metrics for the month of December, do those numbers reflect the Steelhead redds assumed to have been built in each of the Decembers in the CalSim 82-year period of record?

WITNESS WILDER: The -- The data I present are not those individuals, but they are the results of looking at individuals that built redds during the month of December.

MR. MILIBAND: So, temporally, over what period of time?

WITNESS WILDER: I think it was a two- or three-month -- I think it was a three-month period.

I'm sorry. Could you clarify that just before

I --

MR. MILIBAND: Sure.

What I'm trying to understand is -- is, you just indicated that you looked at the 82-year period of record.

But what I want to confirm is that the December month here that -- for which you have the different water year-types and the following columns have different numbers and representations, is that month for December looking at all of the Decembers over the 82-year period of record?

WITNESS WILDER: Yes.

MR. MILIBAND: And would your answer be the same for the months of January and February?

WITNESS WILDER: Yes.

MR. MILIBAND: Is it accurate to say that the results reflected on Page 3 of DWR-1337 is identifying to what extent Steelhead redds were dewatered after they were built in each of those months?

(Pause in proceedings.)

WITNESS WILDER: Sorry. I was just checking some facts.

Could you repeat that question?

MR. MILIBAND: Sure.

Is it accurate to say that the results

reflected on Page 3 of DWR-1337 is to what extent Steelredd -- Steelhead redds were watered after they were built in each of those months?

WITNESS WILDER: Yes.

MR. MILIBAND: Now, at the top of Page 3 of this exhibit, there are column headings that contain the phrases "BA method" and "ARWA (mod.) method."

Do you see those phrases?

WITNESS WILDER: Yes.

MR. MILIBAND: The columns underneath each of those cells are labeled the "BA method," and that's to reflect the American River redd dewatering methodology used in the Reclamation's Biological Assessment for California WaterFix; is that correct?

WITNESS WILDER: Correct.

MR. MILIBAND: And moving down -- And just to be specific, I'm looking under the BA method, which would be Columns 3 and 4.

You see the BA H3+, plus -- excuse me -- versus NAA; correct?

WITNESS WILDER: Yeah.

MR. MILIBAND: The results in the column below that cell are the redd dewatering results stated in the Biological Assessment; correct?

WITNESS WILDER: Correct.

MR. MILIBAND: And do you recall if those results are specifically from the Biological Assessment, Chapter 5, Table 5.4-80?

WITNESS WILDER: I would have to see that table to commit to that answer.

MR. MILIBAND: Did you utilize the Biological Assessment in preparation of -- of this table, Page 3?

WITNESS WILDER: We utilized the methods which should be representative here.

MR. MILIBAND: If we could take a moment and please go to DWR-1142.

(Exhibit displayed on screen.)

MR. MILIBAND: Chapter 5, please.

(Exhibit displayed on screen.)

MR. MILIBAND: Pages 5-478 and 479, please.

(Pause in proceedings.)

CO-HEARING OFFICER DODUC: Do you have a .pdf number?

MR. MILIBAND: I believe it's accurate. I think they both match, Madam Chair.

Thank you.

MS. RAISIS: Can you repeat the page number?

MR. MILIBAND: 478.

(Exhibit displayed on screen.)

MR. MILIBAND: Thank you.

And if you could just scroll back down just a little bit, please.

(Exhibit displayed on screen.)

MR. MILIBAND: That's perfect. Thank you.

Dr. Wilder, is this the table that was utilized in preparation of Page 3 of DWR-1337?

WITNESS WILDER: (Examining document.)

Could we scroll up just a bit?

(Exhibit displayed on screen.)

WITNESS WILDER: (Examining document.)

Maybe a little farther so I can see the section header.

(Exhibit displayed on screen.)

WITNESS WILDER: What I'm really trying to see is if, indeed, these are the American River.

Could we maybe scroll up maybe a page or so?

(Exhibit displayed on screen.)

WITNESS WILDER: Keep going.

(Exhibit displayed on screen.)

WITNESS WILDER: A little bit more. I think this is the last one.

(Exhibit displayed on screen.)

WITNESS WILDER: Okay. Now can we go back to that table?

(Exhibit displayed on screen.)

WITNESS WILDER: (Examining document.)

So, yes, this looks like the -- a table showing the results from the BA.

MR. MILIBAND: And to extend that, that was also utilized for preparation of the table on Page 3 of DWR-1337; correct?

WITNESS WILDER: I believe so, yes. The methods were used and should be consistent.

MR. MILIBAND: Dr. Wilder, essentially what I'm trying at is, is the question of -- You incorporated the raw difference and relative percent difference results from the BA into Exhibit DWR-1337; is that correct?

WITNESS WILDER: Should be, yeah. We redid the analysis, so they should be consistent.

MR. MILIBAND: Thank you for that.

And if we could jump back now to DWR-1337.

(Exhibit displayed on screen.)

MR. MILIBAND: Thank you.

Now, looking at Page 3 here of 1337, Dr. Wilder, anytime there's a positive number in any one of those four columns to the right of the water year-type column, is it correct to say that the positive number outside of the parenthetical reflects the percentage of redds that the BA's analysis found

would be dewatered by implementing California WaterFix?

WITNESS WILDER: Not exactly.

It's showing the difference between the BA H3+ scenario or the CWF H3+ scenario compared to the No Action.

So it represents whether it's a higher value or lower value than what was found under the NAA.

MR. MILIBAND: Well, how about we approach it this way:

If you can describe for us, please, what -- what the positive numbers in each of those four columns mean that are outside of the parenthetical; and also describe for us what the positive numbers in each of the four columns within the parenthetical means, and the difference between the positive outside parenthetical number and the positive number that's in the inside of the parenthetical.

I'm just trying to get an understanding of what it is you're trying to say here with these positive numbers.

WITNESS WILDER: Sure.

The positive number indicates that there would be essentially more -- there would be a higher percentage of redds dewatered under the BA H3+ or the CWH -- CWF H3+ relative to the NAA.

The raw value indicates the raw percent difference in the parenthetical -- outside the parenthetical value. Inside the parenthetical is a relative difference.

So, in using a -- hopefully what's a simple example:

If you had 5 redd -- 5 percent redds dewatered in the NAA and 10 dewatered in the BA H3+ scenario, you would see a 10 minus, which is 5, divided by the value in the NAA, which is also 5, a 100 percent increase from 5 to 10 in the -- in the parenthetical.

It's sometimes misleading when you have low numbers, which you do have in these cases, so that you see very small values on the outside, but that's because there's a very low number in the NAA resulting. When you divide a low -- a value by a low number, you sometimes get very high values.

So we report both but, you know, it's not always accurate to look at that relative difference, especially during -- when you have low values to start with.

MR. MILIBAND: So let's take a look on Page 3 here at the third column relative to the NAA.

The BA's analysis found that implementing California WaterFix would dewater 5 percent more

Steelhead redds built in the Lower American River in Januarys of critical years; correct?

WITNESS WILDER: Yes, that's what it says.

MR. MILIBAND: And that's consistent with what you just described is generally what these positive numbers mean inside and outside the parenthetical; correct?

WITNESS WILDER: Right.

MR. MILIBAND: And relative to the NAA, that analysis found that implementing California WaterFix would dewater 6 percent more of Steelhead redds built in the Lower American River in Februaries of below-normal years; correct?

WITNESS WILDER: Yes, on a raw scale, exactly.

MR. MILIBAND: And, again, within that same column relative to the NAA, that analysis found that implementing California WaterFix would dewater 7 percent more Steelhead redds built in the Lower American River in Februarys in critical years; correct?

WITNESS WILDER: That's right, on a raw scale.

MR. MILIBAND: And just so we're clear, you or someone helping you to prepare 1337 shaded those figures in red rather than me; correct?

WITNESS WILDER: That's correct.

MR. MILIBAND: Now, moving to the column just

to the right labeled "CWF H3+ vs. NAA." Those are similar American River Steelhead redd dewatering results using the BA's methodology but based on CWF H3+ CalSim modeling; is that correct?

WITNESS WILDER: That's right, essentially swapping the BA H3+ values out with CWF H3+ values.

MR. MILIBAND: And looking to the 39 percent figure in the parenthetical for December of critical years, is it correct that that figure indicates that implementing California WaterFix would increase the dewatering of Steelhead redds built in the American River in December in critical years by 39 percent relative to the NAA?

WITNESS WILDER: On a relative scale. So you switched scales here. But, yeah, 6 percent on a raw scale, 39 percent which I indicated is not always accurate. In this case, I think that would apply, although I don't know the exact values used to determine that 39 percent, but yes.

MR. MILIBAND: But it is your -- Just to kind of back up from that a moment.

Within your rebuttal written testimony, you've indicated that the California WaterFix is reasonably protective of Steelhead on the American River; correct?

WITNESS WILDER: That's correct.

MR. MILIBAND: And you also testified in your written testimony that terms and conditions such as those offered by the American River water agencies and The Water Forum specifically modify flow management standard are not necessary; is that correct?

WITNESS WILDER: They're not necessary as a term and condition under California WaterFix.

MR. MILIBAND: And you're utilizing this table to help support those opinions; is that correct?

WITNESS WILDER: Yes, with the caveat that there's a lot more going into that statement than this table.

MR. MILIBAND: Understood.

But I just want to make sure we're clear when we're talking about what we see here in the red figures, what they mean to you, and how they relate those opinions.

And your testimony a moment ago talking about the relativity of the 39 percent figure, we are now looking at CWF H3+. And you understand that to be the Adopted Project for the California WaterFix; correct?

WITNESS WILDER: That's correct. Using the BA methodology without considering the new data we received from your group, it's a 6 percent raw difference or a 39 percent relative difference between

the CWF H3+ and NAA in December of critical years.

MR. MILIBAND: Right.

I just want to make sure we're understanding each other there. We're talking about the Adopted Project versus the No-Action Alternative when talking specifically about your testimony on the 39 percent relativity figure.

WITNESS WILDER: (Nodding head.) Yes.

MR. MILIBAND: So then looking to the 36 percent figure in February for critical years.

Do you see that, sir?

WITNESS WILDER: Which column are you referring to?

MR. MILIBAND: At the bottom. Same column under the BA method, last red.

CO-HEARING OFFICER DODUC: Mr. Miliband, while Dr. Wilder's looking at that, I'm going to urge you to move along because, so far, we've spent quite a lot of time just reiterating what's being shown.

MR. MILIBAND: Understood, ma'am. And I certainly will be moving along. I'll be wrapping it up shortly.

I anticipated this would be a little cumbersome; just trying to make sure we understand what these figures are intended to show.

CO-HEARING OFFICER DODUC: And he has gone over it repeatedly.

MR. MILIBAND: Understood. Thank you.

So, similar to the previous questions, Dr. Wilder, can you confirm that the 36 percent figure there in the BA method for February of critical years is indicating that California WaterFix would dewater redds by 36 percent relative to the NAA?

WITNESS WILDER: I'll confirm that there's a difference between the CWF H3+ and the NAA of 6 percent on a raw scale and 36 percent on a relative scale.

MR. MILIBAND: Now I'd like to move to the right and the two columns under the cell phrase that is phrased "ARWA (mod.) method."

That indicates that the results in those two columns are the results that you generated using the field data that you obtained from The Water Forum; correct?

WITNESS WILDER: Correct.

MR. MILIBAND: And looking at the row for December of critical years, that row presents results for the BA methodology and the CWF H3+ modeling; correct?

WITNESS WILDER: These results in the two columns to the right -- far right indicate the

difference between the BA H3+ or the CWF H3+ scenarios versus the NAA scenario.

MR. MILIBAND: And I'm just trying to move quickly to just have you state -- confirm whether you can state what you've already stated for the other red figures to be the same for the three remaining figures that are 6 and then in parens 39 percent, 6 and 152 percent, and then 6 at 171 percent.

WITNESS WILDER: That's what the table indicates, yes.

MR. MILIBAND: With, again, each of those figures representing the amount of a redd dewatering increase. Whether under ARWA's modified method for BA H3+ or CWF H3+, that's the amount of redd dewatering that would occur; is that correct?

WITNESS WILDER: That's the difference between either the BA H3+ or CWF H3+ versus the No-Action Alternative.

MR. MILIBAND: Do you agree that the increase of redd dewatering shown on Page 3 here for CWF H3+ under the ARWA (mod.) method is several multipliers higher than for the BA method? Specifically, I'm comparing Column 4 to Column 6, the red figures.

WITNESS WILDER: As I stated, this is a -- In the parenthetical, it shows the relative value. This

is likely -- very likely the result of a -- of lower values under the No-Action Alternative, which is the denominator in the calculation used.

So it does show up as a higher percent difference, but it remains at 6 percent under -- relative to the BA method, or similar to the BA method.

MR. MILIBAND: But would you agree that the parenthetical of 39 percent compared to the parenthetical of 171 percent, there's a little more than a four times difference there?

WITNESS WILDER: (Examining document.)

Having not done the math, that's -- I believe that's what the table is showing in the -- in the parenthetical.

MR. MILIBAND: And you testified in your -- your written rebuttal testimony that you still consider these results to be similar; is that correct?

WITNESS WILDER: That's correct.

MR. MILIBAND: And would you still, sitting here now for oral testimony, still consider these results to be similar?

WITNESS WILDER: Yes. Looking at the raw values, there's a difference between the NAA and the CWF H3+ of 6 percent in -- using the BA method and using the ARWA modified method.

MR. MILIBAND: Dr. Wilder, are you aware that Steelhead in the American River are part of the threatened species listed under the Federal Endangered Species Act?

WITNESS WILDER: Yes.

MR. MILIBAND: And do you agree that the increases in redd dewatering that you have shown potentially result in mortality and potential take of an ESA-listed species?

WITNESS WILDER: I'm sorry. Can you repeat that? That's a lot there.

MR. MILIBAND: Sure.

Do you agree that the increased in redd dewatering that you have shown potentially result in mortality and a potential take of an ESA-listed species?

MR. BERLINER: Objection: If the witness (sic) is asking specifically about WaterFix, that should be clarified because this chart shows both WaterFix -- both the BA method and the ARWA method.

CO-HEARING OFFICER DODUC: Mr. Miliband.

MR. MILIBAND: I could dice it up a lot of different ways but we can try with that. I'll try to do that quickly given the time.

CO-HEARING OFFICER DODUC: Pick a number.

MR. MILIBAND: Then let's go with the BA method, CWF H3+ versus NAA, that fourth column, 6 and 39 percent.

I'd like you to answer relating to that as well as to the ARWA modified method for CWF H3+ versus NAA and the sixth column with the red figure 6 and 171 percent.

CO-HEARING OFFICER DODUC: And your question is?

MR. MILIBAND: Is whether or not Dr. Wilder would agree that those increases under the Project versus the NAA would result in mortality or a potential take of an ESA-listed species.

MR. BERLINER: Are we talking about just the third and fourth columns?

CO-HEARING OFFICER DODUC: Yes.

MR. MILIBAND: Well, the fourth and the sixth, to be clear.

CO-HEARING OFFICER DODUC: Yes, the fourth and the sixth --

MR. MILIBAND: Yes.

CO-HEARING OFFICER DODUC: -- Dr. Wilder.

MR. BERLINER: I'm sorry. I -- I think it's clear, but just to make sure I understand it:

You're asking if the difference in take -- if

there's a difference in take between the fourth and the sixth column and whether that difference is reasonable? Because both show take.

MR. MILIBAND: I -- That's the question I'm asking, is that whether or not Dr. Wilder would agree that, under Column 4 as well as under Column 6, not comparing the difference between the two, but independently show that an ESA-listed species would have mortality or a take under the Project.

WITNESS WILDER: So, there's a -- there's a 6 percent higher redd dewatering value under the CWF H3+ than the NAA in this situation.

There are various other factors that I use in -- in, you know, assessing the results. So, in this one example, this shows a 6 percent difference between NAA and CWF H3+.

MR. MILIBAND: Sorry. I don't know that you've answered my question.

Would you agree that that results in a take or mortality of redds on the American River?

WITNESS WILDER: Redd dewatering generally implies that the redd is lost and there would likely be mortality of -- of the eggs or ailments within that redd.

MR. MILIBAND: And would it be fair to say an

extension of that statement is that there is then a take understand the Federal Endangered Species Act?

WITNESS WILDER: There's a 6 percent higher redd dewatering under the California WaterFix. As I said, you know, redd dewatering implies that the redds -- that the redd would be dewatered and, therefore, the individuals within it would be -- would be -- would likely die or would have to move on downstream or elsewhere.

CO-HEARING OFFICER DODUC: Let's take --

(Timer rings.)

CO-HEARING OFFICER DODUC: -- that answer, Mr. Miliband.

MR. MILIBAND: I'll -- That's what I need to do, so --

CO-HEARING OFFICER DODUC: That's what you need to do.

MR. MILIBAND: -- I have one or two, if I could just very quickly.

Well, I think just one and this is --

CO-HEARING OFFICER DODUC: Just one, because you're out of time.

MR. MILIBAND: Yes. Not a lawyer one that turns into five, but -- At least that's not my intent.

But it does arise -- Thank you.

It does arise from Dr. Wilder's testimony at the beginning of this cross-examination when I asked what does it mean to be reasonably protective.

And you gave an answer that included something, I think, to the effect that if regulations weren't violated.

So I want to tailor that back to what you just answered as it relates to the redd dewatering and the -- at least the potential mortality that could result to Steelhead redds.

And if that resulted in a take under the Federal Endangered Species Act, do you think that would be unreasonably protective to have that sort of increase that results in a take of a listed species?

MR. BERLINER: I'm going to object:

The foundation for this question is that Dr. Wilder said it had to comply with regulations. That means there's a regulation that allows for take. That's the point of the Biological Opinion and the RPAs, et cetera.

So, are you asking for something outside of regulation or something within regulation?

MR. MILIBAND: Well, I -- I suppose I would frame it this way:

If -- If there was a take of a listed species

for which there wasn't an Incidental Take Permit to -- to the specific circumstance, do you think at that point you would have an unreasonably protective mechanism?

CO-HEARING OFFICER DODUC: Stop.

Dr. Wilder, we'll focus on the 6 percent/39 percent for December critical in the fourth column.

Why, in your opinion, is that reasonable?

WITNESS WILDER: Considering all the other factors that go into this analysis, I don't believe that is unreasonable.

CO-HEARING OFFICER DODUC: And why do you believe it's not unreasonable?

WITNESS WILDER: Well, it's a low value to begin with. But also there -- there are multiple other months, different water year-types, that need to be considered in this analysis, as well as several other analyses that -- that come -- go into play for Juvenile Steelhead in the American River, all of which, when in combination put together, I conclude that the American River -- that WaterFix is reasonably protective of Juvenile Steelhead in the American River and, in this case, eggs and the ailments.

MR. MILIBAND: Thank you.

I'll conclude with that, Madam Chair.

CO-HEARING OFFICER DODUC: All right. With that, we will take a short break.

We will -- Candace, how about if we go to 11:15, 11:20? Which one do you refer?

THE REPORTER: 11:15.

CO-HEARING OFFICER DODUC: (Cupping ear.)

THE REPORTER: 11:15.

CO-HEARING OFFICER DODUC: All right. 11:15.

(Recess taken at 11:07 a.m.)

(Proceedings resumed at 11:15 p.m.:)

CO-HEARING OFFICER DODUC: All right. It is -- Is my microphone on? It is on.

MS. RAISIS: Sorry.

CO-HEARING OFFICER DODUC: It is 11:15. We are back in session.

Let's do some time check before we turn to Mr. Ramos for his remaining 30 minutes of cross-examination.

I see Miss Nikkel here. You're up next.

Are you still anticipating 60 minutes of cross?

MS. NIKKEL: Good morning. Meredith Nikkel.

I don't believe I'm next. I believe Miss Taber has some cross still for --

CO-HEARING OFFICER DODUC: You guys are both in Group 7 so it really doesn't matter.

MS. NIKKEL: I'm going in Group 7, 8, 9. I would downgrade my estimate to no more than 30 minutes.

CO-HEARING OFFICER DODUC: Okay. Miss Taber, are you still anticipating 60 minutes?

MS. TABER: I think it could be a little bit shorter, maybe 45 minutes.

CO-HEARING OFFICER DODUC: All right. Because I'm anticipating that Mr. Ramos will take until roughly 11:45 and you're estimating now . . .

MS. TABER: I think it could be 45 minutes.

CO-HEARING OFFICER DODUC: Okay. Which will take us around to 12:30.

So what I'd like to do is complete Mr. Ramos and then complete your cross-examination before we take our lunch break.

Then, assuming we return at around 1:30, we'll have Miss Nikkel for around 30 minutes, so that will get us to 2:00.

So, next, I would then have . . . Who are my next -- Who's next? Who's next?

Miss Taber, are you back up again?

Miss Taber, you're then up for Group Number 13 and 22 with an estimated, at the time, two hours.

MS. TABER: It might be closer to an hour and a half.

CO-HEARING OFFICER DODUC: That's right, because we have removed two witnesses.

So that would get us to around 3:30, which then we'll get to Mr. Etheridge.

Are you still anticipating 60 minutes?

MR. ETHERIDGE: Yes, I am, for East Bay MUD.

So that would mean that we'll finish the end of today? Is that where it puts us?

CO-HEARING OFFICER DODUC: Okay. So that will give us to about 4:30 with the break.

Yes, I should anticipate breaking at the conclusion of Mr. Etheridge's cross-examination and then we will begin tomorrow with Group Number 18, Mr. O'Laughlin or others, for their present -- for their cross-examination.

MR. ETHERIDGE: Yeah. Thank you.

CO-HEARING OFFICER DODUC: And let me go out and plan ahead, so . . .

Okay. So tomorrow, then, we'll have Mr. O'Laughlin, then we'll have Mr. Herrick, then Mr. Keeling, Mr. Wolk, Mr. Emrick, and we'll see if we can get to Mr. Jackson.

But I think that, assuming that the estimate I

received earlier is still correct, that's two, three, four, five, six, seven hours. So we'll -- we'll see how it goes.

Actually, since I have your attention, does anyone -- can anyone give me revised time estimates?

Mr. Keeling, you had requested 45 but that was before we removed two witnesses.

MR. KEELING: That is exactly right, and I'm revising my estimate down to 10 minutes.

CO-HEARING OFFICER DODUC: Ah. I liked you even without your Cal -- Cal towel.

What about -- Mr. Herrick is not here so he can't answer.

Mr. Wolk, I do not see.

Mr. Emrick, I do not see.

Mr. Jackson is here. Are you still anticipating two and a half hours?

MR. JACKSON: Perhaps closer to two.

CO-HEARING OFFICER DODUC: All right. With that, we will now turn to Mr. Ramos.

MR. RAMOS: Good morning. Andrew Ramos appearing for the Cities of Folsom, Roseville, San Juan Water District, Sacramento Suburban Water District.

In terms of where I'll be heading with my cross, I have one or two minutes' worth of questions

for Dr. Chilmakuri, perhaps Mr. Reyes, regarding authentication of an exhibit. And after that, I'll be asking Dr. Chilmakuri some questions regarding his opinion on Folsom Reser -- Reservoir storage.

CROSS-EXAMINATION BY

MR. RAMOS: Dr. Chilkamuri (sic), I'll ask you first.

In response to a ruling by the Hearing Officers in May 2018, did you assist in extracting the miracle results from the modeling conducted by DWR?

WITNESS CHILAMKURI: Could you refer me to the ruling?

MR. RAMOS: Are you aware of a ruling in May 2018 requiring DWR to present numerical modeling results for certain categories of modeling?

WITNESS CHILAMKURI: Yes. But I -- I answered the question that you -- I am aware of it.

MR. RAMOS: You are aware of it.

Did you assist in extracting those results?

WITNESS CHILAMKURI: No.

MR. RAMOS: Have you reviewed them?

WITNESS CHILAMKURI: No.

MR. RAMOS: Mr. Reyes, similar question for you:

Are you aware of a Hearing Officer ruling in

May 2018 regarding DWR to extract certain modeling results and present them?

WITNESS REYES: Yeah, I think I'm generally aware of that.

MR. RAMOS: Did you assist DWR in extracting those results?

WITNESS REYES: I did, yes.

MR. RAMOS: You did.

Could we please pull up SVWU-406.

(Exhibit displayed on screen.)

MR. RAMOS: Sir, I don't know if you've reviewed the exhibit that's marked as SVWU-406 before. If not, I can give you an opportunity to review it. I'll warn you it's quite lengthy.

And I'll represent to you that, generally, it consists of the modeling results that DWR submitted in response to the May 2018 ruling that we were just discussing.

Sir, have you reviewed SVWU-406 before?

WITNESS REYES: Not to any great depth, no.

MR. RAMOS: Would you be able to recognize it based on what's on the screen right now?

WITNESS REYES: Not what's on the screen right now, no.

MR. RAMOS: Could we please scroll at least to

the first page of modeling results.

(Scrolling through document.)

MR. RAMOS: Sir, do you recognize these as the modeling results that you assisted DWR in extracting?

MR. BERLINER: At this point, I'm going to object unless the questioner can establish a link to Exhibit 1143, which is the scope of Mr. Reyes' testimony in this part of the proceeding.

CO-HEARING OFFICER DODUC: Mr. Ramos.

MR. RAMOS: It's pretty easy. I'm just asking to authenticate this exhibit. It's something the DWR presented in response to the May 2018 Hearing Officers' ruling. Simply looking to authenticate it and then we can move on.

MR. BERLINER: With all due respect, I don't hear that response as being how it's linked to 1143. If there's a link, then that's fine. If there's not, he can clarify that because his testimony pursuant to the Board's Order is limited to 1143.

CO-HEARING OFFICER DODUC: Thank you for that clarification.

Mr. Ramos.

MR. RAMOS: With respect, Hearing Officer Doduc, we're simply trying to authenticate this exhibit. It's subject to a Motion to Admit by the SVWU

parties.

It sounds like Mr. Reyes was the one who prepared this exhibit, and we're simply looking to establish that it's a correct copy of those modeling results.

CO-HEARING OFFICER DODUC: Help me out here.

Why is this necessary?

MR. RAMOS: I don't know that this item has been the admitted into evidence yet.

CO-HEARING OFFICER DODUC: I believe there was a motion made; there was an objection filed. We gave it an exhibit number so that parties may refer to it when conducting cross-examination.

So you may refer to it when conducting cross-examination.

MR. RAMOS: Thank you.

And we're only looking to establish that it's an authentic copy of the results that Mr. Reyes extracted.

CO-HEARING OFFICER DODUC: Again, why is it necessary?

MR. DEERINGER: Do you have further questions about this exhibit other than authenticating it?

MR. RAMOS: I do. I have questions for Dr. Chilkamuri (sic) regarding this exhibit or at least

a few pages of it.

WITNESS CHILAMKURI: I'm sorry. You've been saying my name wrong.

MR. RAMOS: I'm sorry. I apologize.

Please point that out. How do I say it correctly, sir?

WITNESS CHILAMKURI: It's Chilmakuri.

MR. RAMOS: Chilmakuri. Thank you.

CO-HEARING OFFICER DODUC: So, let's just ask your questions, please.

MR. RAMOS: Did -- I'm sorry. I think there was an objection pending.

If I could just ask Mr. Reyes to authenticate the exhibit.

CO-HEARING OFFICER DODUC: Is this a lawyer thing about authenticating?

(Laughter.)

CO-HEARING OFFICER DODUC: It is what it is. It was submitted. It was the object of a motion. It was the subject of an objection. We gave it a number. It is what it is, Mr. Ramos.

MR. RAMOS: Thank you. I'll move on.

CO-HEARING OFFICER DODUC: Thank you.

MR. RAMOS: I'd like to ask Dr. Chilmakuri some questions regarding his opinions in the rebuttal

testimony.

In terms of a roadmap of where my cross is headed: We're first going to discuss dead pool conditions at Folsom Reservoir and then carryover storage.

Dr. Chilmakuri, under CalSim, each model reservoir is assigned a minimum storage amount that the model's logic will not allow the reservoir to decline below; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: And the minimum storage amount is intended to represent what is termed "dead pool conditions" at the reservoir; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: Under CalSim, the minimum storage amount, or dead pool, that the model will allow for Folsom Reservoir is 90,000 acre-feet; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: And as part of your rebuttal testimony in this hearing, you calculated the number of months when Folsom Lake storage experienced near dead pool conditions under CWF H3+ and the No-Action Alternative; correct?

WITNESS CHILAMKURI: Correct. It's the near dead pool conditions.

MR. RAMOS: Yes. And, in your opinion, near dead pool conditions constituted 100,000 acre-feet or less of storage in a month; correct?

WITNESS CHILAMKURI: That's the threshold I used, yes.

MR. RAMOS: To calculate that number of months of near dead pool conditions, you reviewed numerical modeling results for Folsom storage; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: And that review involved counting the number of months in the CalSim period of record when storage conditions would experience, as you said, 100,000 acre-feet or less storage; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: And you did that for both the CWF H3+ and the No-Action Alternative; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: And in terms of your conclusion, you concluded the number of months when Folsom Lake storage declined to near dead pool conditions decreased by one month under CWF H3+ compared with the No-Action Alternative; correct?

WITNESS CHILAMKURI: That's the number I counted up, but my conclusion is that they're similar. That's what I said.

MR. RAMOS: Yes.

WITNESS CHILAMKURI: CWF H3+ does not exacerbate the frequencies of dead pool conditions compared to No-Action Alternative.

MR. RAMOS: And your conclusion based on this, as you said, was that it did not increase the incidence of dead pool conditions.

WITNESS CHILAMKURI: Or I should say near dead pool conditions, because I was using 100,000 acre-feet as a -- close to dead pool.

MR. RAMOS: Thank you.

Please pull up BKS-306 at Page 1.

(Exhibit displayed on screen.)

MR. RAMOS: Now, sir, this is the excerpt from SVWU-406 that I was just referring to that's been marked as BKS-306. It's two pages long. And you can see at the top there, it says, "Folsom storage . . . under the NAA."

We are going to briefly review these results. And to make counting easier, I'll represent to you that I have prepared the highlighting in each place where monthly storage shows 90,000 acre-feet, which you said earlier represents dead pool conditions.

Now, sir, I know that it may be a little bit difficult from where you're sitting, but would you

agree with me that, on this first page, the number of months where Folsom is at 90,000 acre-feet under the No-Action Alternative is 15?

WITNESS CHILAMKURI: I can only see five there or -- sorry -- seven.

MR. RAMOS: Seven so far. Okay.

Could you please scroll down to see the rest.

(Exhibit displayed on screen.)

WITNESS CHILAMKURI: That's 15.

MR. RAMOS: 15 under the No-Action Alternative. Thank you.

Please go to Page 2.

(Exhibit displayed on screen.)

MR. RAMOS: And now you see we are looking at the results for Folsom storage under CWF H3+.

I'll ask you to again count and confirm for me that there are 17 months where Folsom storage is 90,000 acre-feet under CWF H3+.

(Pause in proceedings.)

WITNESS CHILAMKURI: Yes.

MR. RAMOS: So would you agree that using the metric of 90,000 acre-feet, which we've agreed is dead pool conditions at Folsom Reservoir, the modeling shows an additional two months where Folsom Reservoir would be at dead pool conditions under CWF H3+ compared with

the No-Action Alternative?

WITNESS CHILAMKURI: Yes. That's number of months that we assumed, correct.

MR. RAMOS: Thank you.

So we'll move quickly to the second part of my cross-exam, and we're going to discuss Dr. Chilmakuri's -- Chilmakuri's testimony regarding carryover storage at Folsom Reservoir.

Could we please pull up DWR-1312 at Page 1.

(Exhibit displayed on screen.)

MR. RAMOS: Thank you.

Now, sir, it's your opinion in your rebuttal testimony that CWF H3+ would not significantly impact Folsom Reservoir carryover storage; is that correct?

WITNESS CHILAMKURI: Correct.

Actually, let me clarify that.

I -- My opinion is that CWF H3+ does not exacerbate low storage conditions, which was the opinion Mr. Gohring testified about in the case in chief for ARWA.

MR. RAMOS: And does that opinion encompass impacts to carryover storage at Folsom Reservoir?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: Now, the table on DWR-1312, Page 1, which we've pulled up contains exceedance

probabilities that show model Folsom Lake end-of-month storage under CWF H3+ and the No-Action Alternative scenarios; correct?

WITNESS CHILAMKURI: Correct.

MR. RAMOS: Focusing on the month of July, in the 90 percent exceedance scenario, the model results show 10 percent less storage under CWF H3+ compared with the No-Action Alternative; correct?

(Pause in proceedings.)

WITNESS CHILAMKURI: Correct. And that needs to be looked at in reference to that -- what the storage levels were in Folsom, so -- which are over 300,000 acre-feet.

MR. RAMOS: Now, turning to August, the difference is 20 percent less storage in Folsom Reservoir in the 90 percent exceedance scenario in that month; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: And to be clear what the 90 percent exceedance scenario means, so I understand the 90 percent exceedance for August is the month where storage is lower than 90 percent of all other Augusts in the CalSim record; correct?

WITNESS CHILAMKURI: Could you repeat that?

Sorry. I -- That was fast. Could you repeat

that, please?

MR. RAMOS: Sure.

The 90 percent exceedance for August is the month -- excuse me -- is the month where storage is lower than 90 percent of all other Augusts in the CalSim period of record.

WITNESS CHILAMKURI: For a given scenario, the 90 percent of exceedance means that there are 90 percent values that in the dataset would exceed that number.

MR. RAMOS: Thank you.

Now I'd like to draw your attention to a different portion of DWR-1312. This is the bottom rows, the two tables that are labeled "Water Year Types."

And, specifically, could you look to the row labeled "Dry (24%)."

WITNESS CHILAMKURI: Yes.

MR. RAMOS: In this context, the phrase "Dry (24%)" means that, in the CalSim simulation period, approximately one-quarter of all water years are considered dry years; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: And looking to the month of June, the table states end-of-month storage in June for a dry

year would be on average 7 percent lower under CWF H3+; correct?

WITNESS CHILAMKURI: Correct.

MR. RAMOS: Similar question for July and August so we can quickly . . .

In dry years, the table states end-of-month storage for July and August would be on average 10 percent lower under CWF H3+; correct?

WITNESS CHILAMKURI: Correct.

MR. RAMOS: Are you familiar with the correlation between lower June and July storage in Folsom Reservoir and warmer temperatures in the Lower American River?

WITNESS CHILAMKURI: What correlation? Is there something that you have specifically that I -- that I can -- I can verify?

MR. RAMOS: Are you familiar with any correlation between those two at all?

WITNESS CHILAMKURI: I mean, generally, but it varies depending on what other conditions there are. Any meteorological conditions or flows in the river depends on many factors.

So which particular correlation and what circumstances?

MR. RAMOS: Just to tie this back to your

rebuttal testimony: It didn't appear to me that a correlation between Folsom Reservoir storage in those months -- It didn't appear to me that a correlation between Folsom Reservoir storage and temperatures in the Lower American River was part of your testimony; is that correct?

WITNESS CHILAMKURI: Correct. That's -- Yeah. I never touched on that subject.

MR. RAMOS: So you didn't consider that as part of the basis for your opinion that there were not significant impacts to Folsom Reservoir storage under CWF H3+; correct?

WITNESS CHILAMKURI: Yes. My opinion was specifically related to the storage conditions.

MR. RAMOS: Thank you.

Looking back briefly to DWR-1312, Page 1.

Looking now to September and October, the table shows if there's a 90 percent exceedance scenario, model Folsom storage would decrease by 15 percent and 9 percent, respectively, under CWF H3+ versus the No-Action Alternative; is that correct?

WITNESS CHILAMKURI: Correct.

MR. RAMOS: And looking again to the water year-types near the bottom of the table.

For dry water years, September and October

storage in Folsom Reservoir would be on average 10 percent and 8 percent lower respectively in dry years.

(Pause in proceedings.)

WITNESS CHILAMKURI: Yes.

If you like, I can -- I need to explain why I still believe the reason -- not citing those differences why I think result your impact.

MR. RAMOS: Well, I have a couple more questions for you and I think I'm running out of time. I'd ask you to just bear with me at this point.

Are you aware with the fact that fall-run Chinook Salmon spawn in the American River below Nimbus after October?

WITNESS CHILAMKURI: I don't know the specific timing.

MR. RAMOS: Would it be fair to say that that fact was not one that you considered in rendering your opinion for your rebuttal testimony?

WITNESS CHILAMKURI: No. As I said, I was just looking at the storage results.

MR. RAMOS: Earlier, I mentioned carryover storage. I want to make sure that we're talking about the same term.

As I understand it, carryover storage means

the amount of reservoir storage that gets carried over from one water year to the next; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: So do you consider storage amounts in September and October to be carryover storage?

WITNESS CHILAMKURI: I would call them -- Generally, we use carryover storage for end-of-September storage.

MR. RAMOS: Thank you.

And one of the reasons that the amount of carryover storage matters is that the amount of inflow in the next winter will vary often; correct?

WITNESS CHILAMKURI: Yes.

MR. RAMOS: And it's not possible to know how wet the succeeding winter will be in September; correct?

WITNESS CHILAMKURI: Correct.

MR. RAMOS: Given that annual variation, is it possible a dry water year may be followed by a critical water year?

WITNESS CHILAMKURI: Hypothetically, yes.

MR. RAMOS: And do you know whether that sequence of a dry year followed by a critical water year occurs in the CalSim period of record?

WITNESS CHILAMKURI: I don't know

specifically. I can't recall right -- right now whether they have that dry followed by critical.

But, yes, there are periods where we have dry conditions in sequence.

MR. RAMOS: Now, given that the CWF H3+ modeling shows up to 10 percent reductions in monthly carryover storage in dry years, and a dry year can be followed by a critical year, then isn't it true that the model indicates CWF H3+ would reduce Folsom carryover storage in dry years that potentially lead into critical years?

WITNESS CHILAMKURI: I'm sorry. I didn't follow the question.

Please rephrase.

MR. RAMOS: It was a long question. I agree with you. I'll try and break it up a little bit.

We talked earlier about dry years and the fact that, as we established, the modeling shows, in September of dry years, Folsom storage would be reduced versus the No-Action Alternative; right?

WITNESS CHILAMKURI: Correct.

MR. RAMOS: And we agree that there's the potential at least for a critical year to follow a dry year.

WITNESS CHILAMKURI: Sure.

MR. RAMOS: So you would disagree with me that DWR's modeling for this hearing shows there's a potential at least for Cal WaterFix to reduce Folsom Reservoir storage in a dry year heading into a critical year.

(Pause in proceedings.)

WITNESS CHILAMKURI: When you're looking at the modeling results from CalSim, we need to take into account all the -- and how it was applied for WaterFix, we need to take into account all the limitations.

One of the major limitations, as Miss Parker described yesterday, the model has very rigid rules with respect to how the storage in the CVP North-of-Delta reservoirs is managed.

And just because the model is showing that there's a 10 percent change doesn't mean that there would be an affect due to WaterFix to the reservoir, because when you look at the combined North-of-Delta CVP storage, you actually see similar levels or actually slightly higher in most cases.

MR. RAMOS: I appreciate that, but my question was specific to Folsom Reservoir and storage --

WITNESS CHILAMKURI: I understand --

MR. RAMOS: -- carryover storage.

WITNESS CHILAMKURI: -- your question.

What I'm trying to explain to you is that you cannot just look at the numbers that I'm showing for Folsom just to characterize whether there would be an impact due to WaterFix, especially when you're using CalSim II results.

MR. RAMOS: I understand, sir.

But looking only to Folsom Reservoir -- and I think we've probably -- we've probably hit what we need to on this.

But looking only to Folsom Reservoir and carryover storage, which is what my clients care about in this hearing, you would agree with me that there's a potential in a dry year to reduce Folsom Reservoir storage heading into a critical year.

MR. MIZELL: Objection: This has been asked and answered.

CO-HEARING OFFICER DODUC: Sustained.

MR. RAMOS: That's all my questioning.

Thank you.

CO-HEARING OFFICER DODUC: Thank you.

Miss Taber.

(Pause in proceedings.)

CO-HEARING OFFICER DODUC: Miss Taber, your topics you'll be exploring.

MS. TABER: I have some questions for

Miss Parker regarding her testimony in DOI-43, Table 5, on Delta outflows and exports; and also some questions for Mr. Reyes regarding SVWU-406, also known as DWR-1143, and how that relates to statements in the Draft Supplemental EIR.

CO-HEARING OFFICER DODUC: All right.

CROSS-EXAMINATION BY

MS. TABER: Good morning. My name is Kelley Taber. I represent the Placer County Water Agency as well as Glenn-Colusa Irritation District and the Biggs-West Ridley Water District, and . . .

Before I start with my questions for Miss Parker, I did want to ask a clarifying question with regard to some answers that were provided in response to Mr. Bezerra's cross-examination and particularly some statements by Mr. Wilder and Mr. Reyes regarding the existence of daily temperature model information.

I believe I heard Mr. Reyes confirm that there was daily temperature model output that had been submitted in the proceeding, and I thought I saw Dr. Chilmakuri acknowledge that.

Did I understand that correctly, Dr. -- Mr. Reyes?

WITNESS REYES: No, you did not, because I did

not state that.

MS. TABER: Okay. So, then, I guess I'll -- I would ask the Modeling Panel:

Has Reclamation prepared daily temperature modeling data for CWF H3+?

WITNESS CHILAMKURI: Give me a moment. I need to remember. One second.

WITNESS REYES: And, also, if you could provide some specificity. You're talking about daily temperatures, but where?

MS. TABER: Well, I don't know where, so I'm interested whether any daily temperature modeling analysis has been provide -- produced and submitted in this proceeding for any location -- .

CO-HEARING OFFICER DODUC: Let's --

MS. TABER: -- at all.

CO-HEARING OFFICER DODUC: I'm sorry. Let's restrict that to data that Dr. Wilder used in his rebuttal testimony.

(Witnesses confer.)

WITNESS CHILAMKURI: Sitting here, I don't recall exactly whether we did C -- daily temperature modeling for CWF H3+ or not, but we definitely did daily temperature modeling for BA H3+ on the American River, which is what Dr. Wilder relied on.

MS. TABER: Okay. All right. Thank you.

Okay. I will start with Miss Parker.

And my questions address, as I mentioned, in your testimony regarding Delta conditions and specifically exports and outflows.

If we could please pull up Miss Parker's testimony, Exhibit DOI-43, and go to Page 18.

(Exhibit displayed on screen.)

MS. TABER: And if you could re -- scrolling to Table 5b, please.

(Scrolling through document.)

MS. TABER: Thank you.

Miss Parker, do you see Table 5b?

WITNESS PARKER: I do.

MS. TABER: I have a few questions just to confirm what the information in this table represents.

The columns with the orange or yellow shaded heading entitled "ARWA Hydrology with No SLR" mean those modelings results are from the CalSim testimony that The Water Forum presented without any modifications by you; correct?

WITNESS PARKER: Not quite.

So, the 2006 FMS study that's labeled there, that is an ARWA model.

But the 2006 FMS CWF is a modeling study that

I performed just by adding WaterFix to their baseline.

And then the 2006 FMS -- oh, sorry -- MODFMS CWF is another modification of their ModFMS study that also includes the WaterFix.

MS. TABER: Okay. So the second column under the yellow heading reflects modifications by you.

WITNESS PARKER: Yes, both studies.

MS. TABER: And on the row below that header, the yellow header labeled "Total Delta Outflow," those results show that, as modeled with The Water Forum's model, implementing the California WaterFix would reduce Delta outflows by an average annual of 236,000 acre-feet; correct?

WITNESS PARKER: That's correct.

MS. TABER: And one of the fundamental purposes of the Project is to capture water that presently flows out the Golden Gate in the winter and spring; correct?

WITNESS PARKER: That's correct.

MS. TABER: Thank you.

Lower down below that same header, the row labeled "Total Export" indicates that, in the modeling, implementing California WaterFix would increase total Delta exports by an annual average of 221,000 acre-feet; correct?

WITNESS PARKER: That's correct.

MS. TABER: And moving over to the columns with the blue shaded header, "Q5 Hydrology with 15 centimeters of Sea-level Rise," those columns are results from your analysis in which you imported the Q5 climate change hydrology and sea-level rise into The Water Forum's modeling; is that correct?

WITNESS PARKER: Into The Water Forum's modeling with the additions of WaterFix to both of their studies.

So it's the same three-study sequence, but the orange headed columns use ARWA's hydrology and no sea-level rise, where the blue headed columns use Q5 hydrology and 15 centimeters of sea-level rise.

MS. TABER: Okay. Thank you.

On the row below the blue shaded header labeled "Total Delta Outflow," those results show that, as modeled with The Water Forum's model and including Petitioner's climate change and sea-level rise assumptions, implementing California WaterFix would reduce Delta outflows an annual average of 244,000 acre-feet; correct?

WITNESS PARKER: Correct.

MS. TABER: And lower down below that same header, the row labeled "Total Export" indicates that,

in that modeling, implementing California WaterFix would increase total Delta exports by an annual average of 232,000 acre-feet; correct?

WITNESS PARKER: Correct.

MS. TABER: Moving over to the column with the green shaded header labeled "Petitioner," the results in this column are from Petitioners' CWF H3+ modeling; correct?

WITNESS PARKER: It's the difference between CWF H3+ model and the No-Action Alternative for Petitioners' model.

MS. TABER: Okay. On the "Total Delta Outflow" row below that header, that row shows that, in the CWF H3+ modeling, annual average Delta outflows would be reduced by 237,000 acre-feet with California WaterFix; correct?

WITNESS PARKER: Correct.

MS. TABER: And on the Total Export row below that header, that row shows that, in the CWF~H3+ modeling, total Delta exports would increase by 222,000 acre-feet; correct?

WITNESS PARKER: Correct.

MS. TABER: Now, on the row labeled "CVP SOD" -- South-of-Delta delivery -- those results are for annual average CVP deliveries South of Delta;

correct?

WITNESS PARKER: Correct.

MS. TABER: In the first column that shows that, with The Water Forum's assumed hydrology, CVP deliveries South of Delta actually would be reduced an annual average of 9,000 acre-feet with California WaterFix; is that correct?

WITNESS PARKER: Correct.

MS. TABER: Thank you.

And in the third column, that shows, using The Water Forum's model with your Q5 hydrology and 15 centimeters of sea-level rise, CVP deliveries South of Delta actually would be reduced an annual average of 6,000 acre-feet under California WaterFix; is that correct?

WITNESS PARKER: Correct.

MS. TABER: In the fifth column that shows, using the Petitioners' modeling, CVP deliveries South of Delta actually would be reduced an annual average of 7,000 acre-feet a year with California WaterFix; correct?

WITNESS PARKER: Correct.

MS. TABER: So this table shows that, depending on the model and the modeling assumptions, implementing California WaterFix would increase annual

average Delta exports by between 221,000 and 232,000 acre-feet; correct?

WITNESS PARKER: Using ARWA's model as a baseline, correct.

MS. TABER: Okay. And this Table --

WITNESS PARKER: ARWA models --

MS. TABER: -- also shows --

WITNESS PARKER: -- could have some slightly different assumptions than our baseline.

MS. TABER: Thank you. I acknowledge that.

The table also shows that, depending on the modeling and modeling assumptions, implementing California WaterFix would reduce annual average Delta outflows be -- out -- Delta outflows by between 236,000 and 244,000 acre-feet; is that correct?

WITNESS PARKER: That's correct.

MS. TABER: But this table also shows that, with California WaterFix, the CVP South-of-Delta Contractors actually would get less water on an annual average with the Project than without it; is that correct?

WITNESS PARKER: That's not a correct interpretation of this table.

MS. TABER: Can you correct my misunderstanding?

WITNESS PARKER: So, as we've explained many times in Part 1 testimony, the exports that are achieved by the use of the California WaterFix are intended to be viewed in a combined manner between the State Water Project and the Central Valley Project.

No effort was meant -- was made in the modeling to depict any type of sharing or split benefit between the two Projects.

MS. TABER: So what is the purpose, then, in breaking it down in the table like this?

WITNESS PARKER: So, my purpose was to demonstrate that, other than the impacts to storage, most of the -- of the other impacts to the rest of the system from my modeling exercise were quite similar.

So the main differences between -- For each section, the changes between the first section, first column and the second column, so the changes between Columns 2 and 3, and the changes between Columns 4 and 5, were focused on the storage because that was my goal in my testimony was to describe the incoherency of the American River Water Association's ModFMS proposal.

So, all of the other differences in implementing the ModFMS are very, very small, but the differences in storage are significant. So that was the point of this table.

MS. TABER: Okay. I guess I'm still struggling with viewing the table South-of-Delta exports increase by up to 230,000 acre-feet but combined CVP and SWP deliveries increase by only 87,000 to 93,000 acre-feet, depending on which scenario you consider.

WITNESS PARKER: So, we've been over the -- the impact of the WaterFix on Project operations in -- in separate parts of this proceeding.

But the take-home message from this table should be that, when we implement the ModFMS relative to whether or not it has the WaterFix or -- so with . . .

The point of the ModFMS from The Water Forum was to address impacts of -- So the point of the ModFMS was to address impacts of the WaterFix.

What I'm trying to show here is that the WaterFix has no impact on the ModFMS. So, by demonstrating that the impact of the ModFMS has a positive impact on Folsom but redirected impacts on other storage facilities for the C -- for the CVP but no other apparent impacts on the effect of the WaterFix on all of those other multiple aspects of Project operations, that was the point of the table.

MS. TABER: Thank you.

I understand that was the point of your testimony, but I -- it still raised questions because you did present this other information about exports and deliveries.

And I'm seeing what appears to be an unaccounted-for 143,000-acre difference between exports and deliveries. And I don't understand where the difference between the increased exports and the changes in the South-of-Delta deliveries is accounted for, where the missing water is going.

MR. MIZELL: I'm going to object to this line of questioning at this point.

Miss Parker has been rather patient in explaining this several times now, both over the course of Monday and the questions that Miss Taber just asked.

The purpose of this table is not to explore South-of-Delta exports. It's to explore North-of-Delta storage.

And we can have Miss Parker continue to repeat that answer, but she's said it three times now.

CO-HEARING OFFICER DODUC: I understand what the purpose of this table is, but now that Miss Taber has pointed out the discrepancy, I am curious.

Miss Parker.

WITNESS PARKER: Sorry. Would you please

repeat the question?

MS. TABER: So, according to the information in the table, South-of-Delta exports increase up to 230,000 acre-feet --

WITNESS PARKER: Okay. I remember now. I'm sorry.

MS. TABER: -- but combined CVP and SWP deliveries increase by only 87,000 to 93,000 acre-feet, depending on which scenario you consider.

And I asked if you can explain where the difference between the increased exports and the changes in South Delta deliveries shown in the table, which I indicate is as much as 143,000 acre-feet, is going.

WITNESS PARKER: So I -- I have an incomplete answer for you.

I haven't studied up real well on what that exact issue is, but I do know that -- So, fundamentally, the -- the delivery operation associated with the export operation has not been refined or was -- That was not the purpose of Petitioners' modeling was to identify specifically what would be done with all the water.

I do know that, in the WaterFix studies, generally speaking, we had significant impacts to

San Luis storage. Some of the water justs gets stored in San Luis.

And there are other operational complications for both the Central Valley Project and State Water Project on the Delta-Mendota Canal and the California Aqueduct that would help to explain what -- what those are.

I do not have that specific information at my disposal right now.

MS. TABER: Is that something that someone else on the panel could clarify, essentially Miss White would be qualified to address?

WITNESS WHITE: I do not have information on the specifics of the CalSim comparison between deliveries.

I see that the largest difference is between Banks and the State.

I'm wondering if DWR has another reason.

MS. TABER: Okay. Well, if --

WITNESS CHILAMKURI: I mean, without looking at the full -- at the numbers behind these differences, we can't really explain what's going on.

But as Miss Parker was trying to explain there, the -- there is an increase in San Luis storage with WaterFix. That's not being showed -- I mean,

this -- You should account that into the -- when you are running up the exports.

And there is -- there are also losses along Banks that are not necessarily in those numbers, so . . .

MS. TABER: Okay. All right. Thank you. That was helpful.

Thank you, Miss Parker. That's all I have.

And I do have some questions for Mr. Reyes relating to the modeling assumptions for California WaterFix and statements in the Draft Supplemental EIR and SVWU-406.

If we could please put up my cross-examination Exhibit PCWA-73, which I gave to you this morning on a thumb drive.

(Exhibit displayed on screen.)

MS. TABER: You can just scroll -- Yeah, we'll need to scroll through.

(Scrolling through document.)

MS. TABER: Thank you. That's -- Stop right there.

This is a page from Appendix 3a to the public review draft of the Supplemental EIR for the California WaterFix, Page 3A-6. And it's discussing why funding decisions about the WaterFix Project do not require any

modeling.

Mr. Reyes, are you familiar with this document?

MR. MIZELL: I'm going to object.

We haven't laid the proper foundation to link this to DWR-1143, which is the extent of Mr. Reyes' scope of cross.

MS. TABER: I'll get there in the course of my questioning. I think it will be apparent.

CO-HEARING OFFICER DODUC: All right.

WITNESS REYES: Could you scroll up to the title of this document, please?

MS. TABER: So, I only provided one page. This is from the Draft Supplemental EIR/EIS that is -- that was released for public review by the Department of Water Resources. And . . .

WITNESS REYES: No, I'm not.

MS. TABER: You're not familiar with the document.

WITNESS REYES: I'm not familiar with this, no.

MS. TABER: So you didn't prepare in the preparation of the Draft Supplemental EIR/EIS?

WITNESS REYES: No. I've only reviewed one.

MS. TABER: Okay. Well, that's it. Not a

problem. I don't think it affects my questions.

If you could refer to the language that I highlighted starting on Page -- Line 10 that begins "Any clarifications" and just read that sentence, please.

And let me know when you're finished.

WITNESS REYES: (Examining document.)

MS. TABER: Okay. Have you finished reading the sentence?

WITNESS REYES: Yes, I have.

MS. TABER: Thank you.

The sentence, in essence, says any clarifications to the modeling assumptions about water delivered through California WaterFix that occurred after certifying the Final EIR did not change any of the modeling or impact analyses, and it didn't warrant additional analysis.

Mr. Reyes, the SEIR does not explain what these clarifications that are -- are that occurred after certification of the Final EIR.

Can you please explain what specific clarifications relating to the modeling assumptions regarding SWP and CVP water delivered through California WaterFix have occurred after certification of the Final EIR?

CO-HEARING OFFICER DODUC: Mr. Mizell.

MR. MIZELL: Yes. I'd like to re-lodge my objection that we haven't been shown a proper foundation as to how this relates to DWR-1143.

He's also indicated he has no knowledge of this document, so asking questions about specific language within it seems to go beyond the scope of his knowledge.

MS. TABER: He has provided --

CO-HEARING OFFICER DODUC: What is the linkage, Miss Taber?

MS. TABER: Pardon?

CO-HEARING OFFICER DODUC: What is the linkage to --

MS. TABER: Well --

CO-HEARING OFFICER DODUC: -- 1143?

MS. TABER: -- he's here to testify about the modeling assumptions and the current state of all of the modeling as reflected in DWR-1143 or SVWU-406.

And this is the only opportunity that the parties to the proceeding have to ask questions about the information in the Supplemental EIR and how it relates to the information that's been presented in this proceeding in SVWU-406.

So I believe that the questions that relate to

the modeling, as it's presented in the Supplemental EIR, and statements about whether or not it -- that modeling has changed or been clarified are within the scope of cross-examination of Mr. Reyes because they encompass the information included in DWR-1143.

CO-HEARING OFFICER DODUC: Understood.

Overruled, Mr. Mizell.

MS. TABER: So, again, Mr. Reyes, can you explain what specific clarifications related to modeling assumptions regarding SWP and CVP water delivered through the California WaterFix have occurred since certification of the Final EIR?

WITNESS CHILAMKURI: Miss Taber, I'll try to --

MS. TABER: Okay.

WITNESS CHILAMKURI: -- answer these questions.

But would you mind scrolling down to -- so I can look at the Footnote 1, please.

(Scrolling through document.)

MS. TABER: And I was going to ask about that as well.

(Pause in proceedings.)

WITNESS CHILAMKURI: For the record, I -- I was not involved in preparation of this document, so

I'll try and help you get to your -- answer your questions as best as I can.

MS. TABER: Okay. Well, just to confirm: So Mr. Reyes, you aren't able to explain what the clarifications are that are referenced in this document?

WITNESS REYES: No. I'm not familiar with that.

MS. TABER: Okay. And Dr. Chilmakuri, you were not involved in preparing it, so you would be -- Would you be speculating about what these clarifications are?

Or do you feel like you have -- are able to provide an informed answer as to what the clarifications would be?

WITNESS CHILAMKURI: I understand what the modeling was -- what kind of modeling was performed for WaterFix over the period, so, given that information, I'll try to answer.

MS. TABER: Okay. So did -- Are you able to summarize briefly what those clarifications are that are referenced in the Supplemental EIR text?

WITNESS CHILAMKURI: So --

MS. TABER: I'm trying to understand how it changed after the Final EIR.

WITNESS CHILAMKURI: Correct.

MS. TABER: And certainly you can reference DWR-1143, if you -- if it's helpful.

WITNESS CHILAMKURI: So the . . .

What -- The way I interpret that statement -- I'm not sure what fish is really meant there.

But as far as the modeling is concerned for WaterFix, the last version of it is the CWF~H3+, which is already presented in here.

MS. TABER: Okay. So you would define "clarifications" to mean the changes from -- that are reflected in CWF H3+?

WITNESS CHILAMKURI: Correct.

MS. TABER: But CWF H3+ was not -- did not exist at the time the Final EIR was certified.

WITNESS CHILAMKURI: It did.

MS. TABER: Okay. So -- But you don't have more information about what clarifications to CWF H3+ were made since Final EIR certification.

WITNESS CHILAMKURI: As best as I know, there are no other changes to CWF H3+ since the certified Final EIR/EIS has been released.

MS. TABER: Okay. Well, I noticed you were looking at Footnote 1. And this -- Either -- If either you or Mr. Reyes can answer this question.

Footnote 1 references confusion on the modeling assumptions, which is appropriate for me to be asking about, confusion about modeling assumptions.

And it says (reading):

"For example, there is some confusion on the modeling assumptions used for the impact analysis for California WaterFix operations. Although the deliveries South of Delta follow the general split of 55 percent SWP and 45 percent CVP . . . the model always used a -- utilized a 'float' approach for California WaterFix operations that resulted in approximately 67 percent SWP water and 33 percent CVP water solely moving through California WaterFix facilities."

Can you -- The footnote doesn't explain what the confusion on the modeling assumption is.

Can you explain what the EIR meant when it referenced confusion?

WITNESS CHILAMKURI: Again, I don't know who wrote this. I wasn't part of it.

MS. TABER: Okay.

WITNESS CHILAMKURI: Yeah.

MS. TABER: Is -- And I'll just pose these questions to anyone on the panel who might be able to answer them because it sounds like there's a low level of familiarity.

Is the float approach that's described in this Footnote 1 in the SEIR an operating assumption?

WITNESS CHILAMKURI: That's the . . .

In the CWF H3+ model, how the -- It reflects the assumptions of the CWF H3+ model. That's what the float means.

It's basically saying that the -- the sharing of the WaterFix North Delta Diversion and the tunnel capacity is not defined. It's float -- I mean, it's floating in the model. It is unspecified in the model.

And the model decides how much of the capacity will be used by CVP versus the SWP. That's all it's meaning to say. The float is -- That -- What -- That float is -- The CWF H3+ is reflective of that float.

MS. TABER: So that would -- Just to confirm:

That would be a modeling assumption instead of an operating assumption?

WITNESS CHILAMKURI: It's not an assumption at all. It's just saying there is no assumption as to -- There is no specific assumption in the model as to how much CVP versus SWP will use. That's all it's saying.

There is no assumption. Instead of saying "no assumption," I think the word "float" was used.

MS. TABER: Okay. Is that approach identified anywhere specifically in DWR-1143?

Or is this something that you could only discover by inspecting the model data?

WITNESS CHILAMKURI: It's not -- Again, I'm trying to explain.

That is not the modeling assumption. There isn't anything in the model that's specifying who gets to use the North Delta diversion capacity. When I say "who," I mean SWP or CVP.

Because there is no assumption in the model, the word "float" is reflecting that we are letting the model decide who gets to use the capacity.

MS. TABER: Okay. So --

WITNESS CHILAMKURI: Based on -- Just to add a little bit more.

Based on the remaining constraints that are in the system, including the COA and all the other restrictions.

CO-HEARING OFFICER DODUC: So, if you were to run another run of the model using different constraints but not assigning a split, it would result -- it could result in a different split.

WITNESS CHILAMKURI: Exactly.

MS. TABER: Okay. So what specific modeling logic, then, in Exhibit DWR-1077 implements that float approach?

CO-HEARING OFFICER DODUC: I'm sorry. What is 1077?

MS. TABER: Is that the CWF H3+ modeling, I believe.

CO-HEARING OFFICER DODUC: And I don't understand the question, Miss Taber.

MS. TABER: Well, I guess I'm -- I'm just trying to get some clarification on -- I've heard him explain that it just exists in the modeling. It's -- The modeling is trying to -- The model's trying to implement all these different requirements that affect operations of the Projects.

CO-HEARING OFFICER DODUC: Of which the split is not a requirement.

MS. TABER: Right.

CO-HEARING OFFICER DODUC: That's what he said.

MS. TABER: Right.

So is -- But -- So there's no modeling logic that implements that float approach?

CO-HEARING OFFICER DODUC: Miss Morris?

MS. MORRIS: Objection: Misstates the testimony again.

There is no -- As has been testified, there is no specific operation or requirement, which is what 1143 plus all of the other tables that DWR has previously submitted were trying to set forth.

And since there is no specific regulation or requirement, there wouldn't be anything. The model is choosing.

CO-HEARING OFFICER DODUC: Yes. And I believe that's what Miss Taber is trying to confirm.

MS. TABER: Right.

WITNESS CHILAMKURI: And I would -- She misstated what I said earlier, which is, there isn't anything in the model. That's what I was trying to say when Miss Taber used --

MS. TABER: I apologize. I didn't -- I'm not understanding, so I'm not intending to misstate what you said.

(Pause in proceedings.)

MS. TABER: Give me a minute to look at my questions in light of your answers and I'll see if I can wrap up here.

(Pause in proceedings.)

MS. TABER: So, are there any -- Are there any

agreements between the CVP and SWP to share export capacity that are consistent with the float approach?

CO-HEARING OFFICER DODUC: The float approach --

MR. BERLINER: Objection.

CO-HEARING OFFICER DODUC: -- does not define any sharing.

I'm confused.

MS. TABER: Well, it talks about an allocation of -- In the SEIR, it talks about an allocation of water between the SWP and the CVP.

So I just -- I'm using the language of the SEIR and just confirming that there's no agreement that would share capacity that reflects the approach that Dr. Chilmakuri has described that is reflected in the modeling. Sharing.

CO-HEARING OFFICER DODUC: Sharing.

Are you able to answer?

Miss Morris?

MS. MORRIS: I have an objection, just that it calls for a legal conclusion as to requirements or agreements.

She specified agreements and interpretation of agreements is a legal opinion.

CO-HEARING OFFICER DODUC: Miss Morris, I'm

trying to understand not the legal aspect but the practical aspect of how it's modeled.

And my understanding is that this sharing allocation is not specifically modeled.

WITNESS CHILAMKURI: That's correct.

CO-HEARING OFFICER DODUC: And your --

MS. TABER: And I'm asking to confirm that there's no agreement that it reflects the allocations that the model makes.

CO-HEARING OFFICER DODUC: Ah. Okay. That might be beyond his knowledge.

MS. TABER: Okay.

CO-HEARING OFFICER DODUC: Does -- I mean, can anyone else answer?

WITNESS CHILAMKURI: Yeah, I don't know.

MS. MORRIS: Same objection: It calls for a legal conclusion.

MS. TABER: Okay. I disagree that it's a legal conclusion. I think it's just whether there's an existence of the --

CO-HEARING OFFICER DODUC: Exactly.

MS. TABER: It sounds like there is --

CO-HEARING OFFICER DODUC: Is there --

MS. TABER: -- no one on this panel --

CO-HEARING OFFICER DODUC: -- anyone else on

this panel able to answer that question?

Which actually is a different question than I thought you were answering.

Okay. Miss White.

WITNESS WHITE: So can you specify? You said an agreement specifying allocations? Are you referring to allocations or division?

MS. TABER: I guess division between -- allocating water between CVP and SWP were dividing.

WITNESS WHITE: Okay. Yeah. I think we use "allocations" in a very different way.

MS. TABER: Yes, I'm sorry.

WITNESS WHITE: Yeah. I'm not aware of any -- any agreement on division between the CVP and SWP. I think that's exactly what the model is trying to say is since there's no --

MS. TABER: Right.

WITNESS WHITE: -- nothing said, we let the modeling choose.

MS. TABER: So we don't know, then, as of today how close the modeling results that are based on this so-called float approach are to how water exported through the California WaterFix might actually be allocated; is that correct?

CO-HEARING OFFICER DODUC: You mean divided.

MS. TABER: Divided. Pardon me.

WITNESS CHILAMKURI: Again, none of this is in my testimony. This is definitely out of scope.

But . . . Yes, there is no agreement. We -- the -- We -- We don't know exactly how to -- how the split will work.

But the testimony from the -- in the previous phase of this hearing is that, whatever the split is, it's going to be South of Delta.

And in the Delta, the net effects would be what we are showing in CWF H3+.

MS. TABER: Okay. Thank you.

So, then, turning to Exhibit SVWU-406. This is DWR-1143 --

(Exhibit displayed on screen.)

MS. TABER: -- Second Revision at Page 2.

(Exhibit displayed on screen.)

MS. TABER: Scrolling up.

(Scrolling through document.)

MS. TABER: Further in, too.

(Scrolling through document.)

MS. TABER: Maybe I'm wrong. My copy --

MS. RAISIS: Is that 406 or 1143?

MS. TABER: DWR-1143. I'm sorry. I thought that had been given the title SVWU-406. I apologize.

MS. RAISIS: It has, but they're two different documents.

MS. TABER: Okay. So DWR-1143. My apologies. This is the Second Revision on Page 2.

(Exhibit displayed on screen.)

CO-HEARING OFFICER DODUC: Okay. Hold on. Hold on. I have too many people whispering in my ears.

Mr. Deeringer has a clarification with respect to these two exhibits.

MR. DEERINGER: Right. I just wanted to clarify for the record that SVWU-406 is the DWR cover letter and the modeling results that DWR provided as of June 4th, I believe, which is distinct from the Second Revised DWR-1143.

I just want to make sure that's clear on the record.

MS. TABER: Thank you. That was helpful. And I apologize for the confusion in referencing the other document.

At the top of this document -- or this Page 2, first paragraph, it says (reading):

> "DWR has presented extensive testimony in . . . the hearing demonstrating that the modeling submitted by DWR . . . and used in determining the

permit conditions, is an appropriate and a reasonable representation of the SWP/CVP operations with and without California WaterFix."

And my question for Mr. Reyes would be:

Is the float approach -- and I'm just going to use that term because that's what the SEIR uses -- described in the SEIR an appropriate and reasonable representation of the SWP/CVP operations without the California WaterFix?

MR. BERLINER: Objection: Asked and answered at length.

Mr. Chilmakuri has already explained the whole float approach. Asking the witness in a slightly different form doesn't change the answer.

MS. TABER: I asked him if it was a represent -- referencing DWR-1143 an appropriate and reasonable representation of the Project operations without California WaterFix.

It seems like a simple enough question based on the language in 1143.

CO-HEARING OFFICER DODUC: So, let me ask it this way:

Is the float approach reflected in past and current modeling of existing operations?

Which is, I think, what you're asking.

MS. TABER: Yes.

CO-HEARING OFFICER DODUC: Ms. Morris.

MS. MORRIS: I have an objection to this question because, again, it's presuming that the float approach doesn't take into consideration COA, which the witnesses have already said it does take into consideration COA, and it's just letting the modeling choose according to COA and other requirements.

Additionally, I think this is irrelevant and beyond the scope of 1143 and these proceedings because, to the extent that we're dealing with exports, it's all divided based on contract basis, and between the Bureau, DWR and their Contractors, which is not subject to this hearing.

So there could be no injury because the allocation is based on the contracts that Miss Taber's clients hold with USBR.

MS. TABER: Without knowing -- That's -- That really was far beyond the --

CO-HEARING OFFICER DODUC: Far beyond.

MS. TABER: -- scope of my question.

And --

CO-HEARING OFFICER DODUC: Yes.

MS. TABER: -- I appreciate the discourse

about what is and is not in the modeling.

CO-HEARING OFFICER DODUC: But it is also in the Supplemental EIR, which is part of -- for lack of a better term -- the rebuttal testimony and the cross-examination of rebuttal. It is part of the rebuttal phase that we're in.

So, are you able to answer, Mr. Reyes?

WITNESS REYES: I guess I would like to clarify: If -- Or get clarification on if that question's referring specifically to without California WaterFix? That's what I heard.

MS. TABER: Correct.

WITNESS REYES: Right. So, the float concept or -- or -- And really what it means is, like we said, it's a lack of an assumption for the California WaterFix.

And so without WaterFix, we don't have the float, either, because it's . . . we don't have WaterFix.

MS. TABER: Okay. Thank you.

So you would say that the float approach is an appropriate and reasonable representation of the SWP/CVP operations with California WaterFix; correct?

WITNESS REYES: In total.

MR. BERLINER: Objection: Misstates --

Misstates testimony.

The float --

MS. TABER: Well, I was interpreting his response to my question that -- regarding whether the float approach is an appropriate and reasonable representation of operations without WaterFix and his prior comments that it was part of the modeling that was done to mean that he would agree that it was -- using that approach as reflected in the CWF H3+ modeling is an appropriate and reasonable representation of Project operations with the WaterFix.

CO-HEARING OFFICER DODUC: Mr. Berliner.

MR. BERLINER: The split would be part of Project operations; the float is part of modeling. They're two different things.

So that's the problem I have with the question. It's been asked in the context of operations, where all sorts of factors come into play, as opposed to how's the model work and what to do with the float, which I think has been well explained. It just assigns it.

The Operators may be doing things that are very different depending on circumstances.

CO-HEARING OFFICER DODUC: But the -- the -- the . . .

I think what Miss Taber is asking is, does Mr. Reyes concur that that is a reasonable representation of operations?

MS. TABER: Correct.

WITNESS CHILAMKURI: Can you please repeat.

MS. TABER: The SEIR has said that it is and so I'm asking the modeling experts if they agree that, as it's been described in the SEIR, that's an appropriate and reasonable representation of Project operations with WaterFix?

WITNESS CHILAMKURI: Could you show me where the SEIR is stating that, please?

MS. TABER: Sure.

We could go back to the Exhibit PCWA-73, and this is only one page of the Draft Supplemental EIR/EIS.

(Exhibit displayed on screen.)

MS. TABER: And there's discussion here, starting on Line 10, about clarifications relating to the modeling assumptions, and that language is footnoted.

And when you go down to Footnote 1, there is a discussion illustrating that. It says (reading):

"For example, there is . . .

confusion on the modeling assumptions" --

And then it goes on to describe the model always utilizing a, quote (reading):

". . . Float approach for . . . operations that resulted in approximately 67 percent SWP water and 33 percent CVP water solely moving through California WaterFix facilities."

WITNESS CHILAMKURI: That doesn't say anywhere that it's representative of your actual question. I didn't see anything --

MS. TABER: Correct.

So, the exhibit we were just referring to, which is DWR-1143, at the top of Page 2, did make a statement that the modeling of CWF H3+ is an appropriate and reasonable representation of the SWP and the CVP operations.

So, I -- My question is attempting to link and confirm that the information in the S -- and statements in the SEIR are consistent with the statements of DWR-1143.

WITNESS REYES: CWF H3+ we feel like is representative of the combined operations of the CVP/SWP.

MS. TABER: Okay. And you would say that's -- By "representative," you would say -- you would define

that to be appropriate and reasonable representation?

WITNESS REYES: Of the combined operation, yes.

MS. TABER: Thank you. Okay.

(Pause in proceedings.)

MS. TABER: Looking back here again at PCWA-73, scrolling up to Line 18.

(Exhibit displayed on screen.)

MS. TABER: SEIR -- If you could read the sentence that begins -- I guess Mr. Reyes and Dr. Chilmakuri, since you both have been responding to my questions, if you could both read that sentence that begins, "Current information on the record."

(Pause in proceedings.)

MS. TABER: And that sentence states that (reading):

". . . Information on the record indicates the most likely scenario for use of this capacity would be consistent with current modeling assumptions."

Can anyone on the panel describe to me what part of the modeling assumptions is being referred to here where the text describes how the capacity will be shared between the CVP and the SWP?

WITNESS CHILAMKURI: It's talking about the

6733 in the footnote.

MS. TABER: Okay.

CO-HEARING OFFICER DODUC: Would that be Footnote 1?

WITNESS CHILAMKURI: Correct.

(Pause in proceedings.)

MS. TABER: Those are the only questions I have.

Thank you for your patience.

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

I have asked the staff to send an e-mail to those parties that are next on my list for conducting cross-examination so that they might make any adjustment necessary to their cross-examination time request.

I want to be able to, after lunch, get a good indication of who will be up tomorrow to conduct cross-examination.

So if you have not responded to the staff's e-mail, please do so during our lunch break.

With that, we will return at 1:30 when Miss Nikkel will conduct her cross-examination.

(Lunch recess taken at 12:28 p.m.)

* * *

Thursday, August 9, 2018 1:30 p.m.

PROCEEDINGS

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CO-HEARING OFFICER DODUC: All right. It is 1:30. We are resuming.

Let's do a -- two housekeeping matters before we turn to Miss Nikkel.

First of all, thank you to all the groups who responded with your revised time estimates for cross-examination.

I now have -- And this is what the schedule looks like for tomorrow:

Group 18 for 60 minutes; 21, Mr. Herrick, for 30; 24, Mr. Keeling, with 10; Mr. Wolk, 25, with 45; Mr. Emrick, 30 to 45 maximum and might be reduced, depending on the cross-examination later on today; then 31, Mr. Jackson, with two; and that means we should have another hour that we should get to with 35, NRDC.

The three remaining groups for cross-examination of this panel have all estimated more than two hours, so there's -- so there's no flexibility for me to move people around, unless someone wants to reduce their requested time.

Not seeing any.

So that means that, for Miss Poole, who's

here, we're likely to get to you tomorrow for only maybe about an hour at most.

MS. POOLE: Thank you.

CO-HEARING OFFICER DODUC: Miss Womack.

MS. WOMACK: Yes. I was -- On Monday, I had to go work. The pumps at my ranch were out so my people didn't have water.

I would like to cross this panel -- would that be Monday -- for 43.

CO-HEARING OFFICER DODUC: What is your time estimate?

MS. WOMACK: About 45 minutes.

CO-HEARING OFFICER DODUC: Miss Poole, would you mind if Miss Womack goes tomorrow? That way, we will just get to you on Monday.

MS. POOLE: Certainly. That's fine.

CO-HEARING OFFICER DODUC: That way, we won't have to split up anyone's cross-examination.

Why did I need to see that? Thank you.

Miss Womack, you can do your cross-examination tomorrow.

MS. WOMACK: It will be toward the end?

CO-HEARING OFFICER DODUC: You will be after Mr. Jackson.

MS. WOMACK: Perfect.

CO-HEARING OFFICER DODUC: Then another item:

Apparently it is a lawyer thing an Engineer will never understand.

Regarding the authentication of SVWU-406 -- You know what? I'm going to toss this in your lap since you insisted. Mr. Deeringer, do what you wish with that exhibit.

MR. DEERINGER: Thank you, Hearing Officer Doduc.

So I guess in whatever way is appropriate, we just want to confirm that SVWU-406 is, in fact, the cover letter that DWR submitted on June 4th, 2018, and the modeling results that it was submitting in compliance with the Hearing Officers' May 21st, 2018 ruling. That's really the purpose of any questions that come next.

I guess, first, I would ask if Mr. Mizell is willing to represent just on the record that the cover letter part of that exhibit is a true and correct copy of the one that you signed and submitted with those modeling results.

MR. MIZELL: Yes, certainly.

The Exhibit SVWU-406 does appear to be an identical copy to what we submitted in response to the Board's order.

MR. DEERINGER: That's perfect. I think that's all we need.

Thank you.

CO-HEARING OFFICER DODUC: There. The legal Is have been dotted and Ts have been crossed.

Miss Nikkel.

MS. NIKKEL: Magic words.

Thank you, Chair Doduc.

Good afternoon. Meredith Nikkel. I'm here today on behalf of -- bear with me -- The Sacramento Valley Group, which is part of Group 7; the Tehama-Colusa Canal Authority, which is Group 8; and the North Delta Water Agency, which is Group 9.

And, first, I'd like to start with a few cleanup. So if the panel and the Hearing Officers will bear with me, we'll revisit a few issues but I'll keep it as brief as possible regarding the Supplemental EIR.

Also a few questions about the tables that Miss Parker has testified about.

And then I'll turn to DWR-1143, the Second Revision.

CROSS-EXAMINATION BY

MS. NIKKEL: So, first, if we could return to the Draft Supplemental EIR document that Miss Taber -- And, for ease of the record, if it's

still available, if we could pull up PCWA-73.

(Exhibit displayed on screen.)

MS. NIKKEL: Thank you. Right there is perfect.

And I'd actually like to direct Ms. White, if I could, to the last sentence of the paragraph shown there, the highlighted sentence.

You recall that various other witnesses were asked about this sentence and, in particular, I'm interested in the last portion that states, read together, that (reading):

"The current information on the record . . . indicates that the most likely scenario for use of this capacity would be consistent with current modeling assumptions."

Miss White, my question is for you as the only operations witness who's here today.

Would you agree that the most likely scenario for use of the capacity of the Project would be consistent with the current modeling assumptions contained within CWF H3+?

(Pause in proceedings.)

WITNESS WHITE: So, can you repeat that one more time?

MS. NIKKEL: Sure.

Would you agree that the most likely scenario for use of the capacity of the CWF Project would be consistent with current modeling assumptions in CWF H3+?

MS. AUFDEMBERGE: I'd like to object: This goes way beyond the scope of Miss White's testimony. She's here to talk about storage and release.

CO-HEARING OFFICER DODUC: But the Supplemental EIR/EIS is within the scope of this rebuttal cross-examination phase or scope.

So, Mr. Mizell, who is it that can answer that question?

MR. MIZELL: As I recall your order, the scope of the cross-examination on the Supplemental is only to items that have changed between the Final EIR and the Supplemental --

CO-HEARING OFFICER DODUC: Understood.

MR. MIZELL: -- document.

The modeling has not changed. And this particular statement doesn't reflect a change in the Supplemental, either.

MS. NIKKEL: If I could direct the Hearing Officers' attention to the June 18th ruling --

CO-HEARING OFFICER DODUC: All right.

MS. NIKKEL: -- at Page 2.

And there, it was allowed that the Petitioner -- Protestants may contradict conclusions in the Draft -- at the time, it was the Administrative Draft -- Supplemental EIR by cross-examining Petitioners' witnesses, which is exactly what the question's intended to do.

CO-HEARING OFFICER DODUC: Contradict conclusion --

MS. NIKKEL: Or test. If it's not --

CO-HEARING OFFICER DODUC: As it relates to the changes being proposed in the Supplemental EIR/EIS.

Has this -- Is this a change, or is this as a result? I guess I'm asking Petitioners' witnesses now.

This is a -- This is a -- indeed text from the Supplemental EIR/EIS, but is it text reflecting a change from a previous version?

MS. NIKKEL: It's a difficult section of the Supplemental EIR to interpret.

However, I believe it's describing changes that have occurred since certification of the Final EIR and how those changes may or may not change conclusions in the Supplemental EIR, or to the Project.

CO-HEARING OFFICER DODUC: Um-hmm.

MS. NIKKEL: However, it's unclear how those

conclusions are supported, and that's the basis for the question.

CO-HEARING OFFICER DODUC: Miss Morris.

MS. MORRIS: I would just direct the Board's attention to Line 12 which says the Final EIR did not change the actual modeling or associated impact.

So it's clear there's no changes in the modeling.

The modeling as to splits, which these questions appear to go to, has been the same throughout this entire process, and they've had ample opportunity. No one has really probed into this before. It's really beyond the scope of rebuttal as well as any change in the Supplemental.

CO-HEARING OFFICER DODUC: So does that mean that there is no change not only in the modeling but in the analysis, interpretation and potential application of the modeling?

Do I get an answer on the record on that?

MR. MIZELL: I believe that we're presenting witnesses who discuss the biological implications of the modeling and how it would relate to any changes related in the Supplemental document.

The Supplemental document was focused on footprint changes, not upon operational changes and not

upon modeling changes.

So, to the extent that a footprint change contained in the Supplemental has a biological impact, we have Biologists here to answer those questions.

CO-HEARING OFFICER DODUC: Miss Nikkel, are you able to make that connection?

MS. NIKKEL: My conn -- My connection to the Supplemental EIR is not based on a change to the modeling assumptions.

However, it is based on a change to potential operations of the Project, which is discussed by this sentence. And it identifies various activities that have occurred since certification of the Final EIR that relate operations of the Project and use of the capacity of the Project to the modeling assumptions, which I understand Petitioners have stated have not changed since certification of the Final EIR.

CO-HEARING OFFICER DODUC: Miss Morris.

MS. NIKKEL: The --

CO-HEARING OFFICER DODUC: Hold on. Let me hear her out.

MS. MORRIS: I did -- The Supplemental, if you just look at it, the line above starting at 9, it says (reading):

"The Draft Supplemental EIR/EIS does

not address California WaterFix operations or operations-related impacts."

It doesn't change because the operations don't change.

CO-HEARING OFFICER DODUC: And, Mr. Mizell, that includes possible analysis, interpretation and application of the modeling results as it applies to operations.

MR. MIZELL: Absolutely.

CO-HEARING OFFICER DODUC: The objection is sustained.

Miss Des Jardins, did you have something else?

MS. DES JARDINS: Yes. I did want to speak. I didn't get recognized, although I did come up.

But to the extent there are Modelers and Operators here that are testifying, I think it is they who can answer the questions and not the attorneys for the Modelers.

Thank you.

CO-HEARING OFFICER DODUC: And they certainly should answer questions that are appropriate within the scope of rebuttal.

Miss Nikkel.

MS. NIKKEL: Thank you.

Another question regarding the Supplemental EIR.

If Mr. Long could move to the bottom to Footnote 1, please.

(Exhibit displayed on screen.)

MS. NIKKEL: And the witnesses will recall a discussion prior to the lunch break regarding the float approach that is identified and stated in this footnote.

This question is directed to Miss Parker or Dr. Chilmakuri or Mr. Reyes as the Modelers.

Does the float approach account for a potential for a 0 percent allocation to the CVP and 100 percent allocation to the State Water Project?

CO-HEARING OFFICER DODUC: I think I hear Miss Morris rushing up to the microphone.

MS. MORRIS: I will be brief.

It's the same objection: It's outside the scope. The operations -- The allocations haven't changed from the supplement to the final so it has nothing to do with 1143 or the supplement.

CO-HEARING OFFICER DODUC: I'm curious: Was this sentence, footnote, or this aspect of modeling included in the previous environmental documents?

MS. NIKKEL: (Shaking head.)

MR. MIZELL: In terms of the exact text of the footnote?

CO-HEARING OFFICER DODUC: Yes.

MR. MIZELL: I believe --

CO-HEARING OFFICER DODUC: I mean, it's one thing to say that parties conducting cross-examination are revisiting things that they should have seen and should have addressed in previous parts of the hearing.

But if this is something that is new in the Supplement . . .

MR. MIZELL: What is described in Footnote 1 is not new in the supplement. What is described in Footnote 1 has existed in all the modeling runs conducted for CWF H3+.

It's being called out by the EIR/EIS Team in this footnote because, as it states, they had been recognizing that, through comment letters in the CEQA process, there was confusion expressed about the allocations South of Delta. That doesn't mean it's new.

What they were trying to do, through the environmental document process, was take into consideration public comment and respond appropriately.

But it has not produced a new concept for the Supplemental. It's reflecting what has always been the

case with the modeling.

CO-HEARING OFFICER DODUC: Ms. Morris.

MS. MORRIS: I'd just add that the -- I think if you look at the actual modeling results, which this group has -- Mr. Bourez looking at it -- this is in there. This is shown in the modeling, this exact flow and these exact splits.

CO-HEARING OFFICER DODUC: Miss Meserve and then Miss Taber.

MS. MESERVE: I don't -- Osha Meserve for LAND, et al.

I don't think it would be correct to say that this footnote is in response to comments on the Final EIR.

I understand the 67 percent/33 percent split is a result of the Metropolitan deciding to fund a larger portion of the Project than they had previously.

So, to the extent that's new information that is discussed in the SEIR and that may affect the modeling, I believe this is within the realm of cross.

I believe that's completely misleading to say it was in -- There haven't even been public comments on the SEIR yet, so that could not be true.

CO-HEARING OFFICER DODUC: Mr. Mizell, I recognize that she was making arguments.

Let's hear from the rest of the people lining up before I allow you to respond.

MS. TABER: Thank you. Kelley Taber for Placer County Water Agency, et al.

Miss Morris stated that this -- the float approach was -- existed in the modeling that was in the Final EIR and, therefore, all the parties should have known about it, including Mr. Bourez, and objected vigorously when I tried to question the Modeling Panel to identify where exactly in the CWF H3+ modeling the specific logic was that represented this float approach.

So, we're being told that we can't -- that it was there all along, even if we couldn't see it. We can't ask questions about it. We should have known.

And that seems contrary to the point of this proceeding, which is to clarify the questions that the Protestants have about the nature of the Project.

And we've just been given a document for public review that your Board presumably will need to consider as well that provides information that was never stated in any of -- explicitly in any of the public review documents.

And, so, for most of the parties, this is new information. It appeared to be something that the

Board didn't recognize, and I think this is an appropriate opportunity for Ms. Nikkel to ask the experts to explain it in a way that the average person can understand.

And I can make an offer of proof that, if we were have surrebuttal, Mr. Bourez might testify that he has no idea where this float approach is reflected in the CWF H3+ modeling, contrary to the inference raised by counsel.

CO-HEARING OFFICER DODUC: Miss -- I'm sorry.

Mr. Jackson, have you been waiting?

MR. JACKSON: I am but --

CO-HEARING OFFICER DODUC: Okay.

MR. JACKSON: -- I would line up after.

CO-HEARING OFFICER DODUC: All right.

MS. DES JARDINS: Dierdre Des Jardins.

And the particular assumption of approximately 67 percent SWP water and 33 percent CVP water that is stated in Footnote 1, I would request that Mr. Mizell identify the page of the Final EIR/EIS where that is specifically mentioned, because I have been over the modeling assumptions very carefully and I did not see it anywhere in the Final EIR/EIS.

To the extent that they're now stating the modeling is not just 55 percent SWP and 45 percent

CVP -- and I did ask questions on that in cross-examination -- that represents a broader range of potential export sharing.

That is not information that I saw anywhere in the Final EIR/EIS when I was preparing my cross-examination questions on Part 2 case in chief.

CO-HEARING OFFICER DODUC: Mr. Jackson.

MR. JACKSON: I think Footnote -- Footnote Number 1 is . . . relatively obscure and a change from what we've all known in the water business for many, many years, that the split, in general, South of the Delta is 55 percent to 45 percent. And now it's been changed in the modeling to get the results that turned out to be fairly important here to 67 and 33.

It reopens a couple of questions:

One, does the SWP have enough water without the CVP in order to meet this increased ability to export?

And, two, are all of the impacts that are being examined in this thing reflective of the 67 to 33 split rather than the 55/45 split? And that will change every single impact.

And we're just trying to find out whether or not the model runs are consistent with what's in the COA and the law.

CO-HEARING OFFICER DODUC: Ms. Sheehan.

MS. SHEEHAN: Hi. Becky Sheehan for State Water Contractors.

I just wanted to clarify: There seem to have been some misrepresentations as to -- as to anything having to do with funding of the Project or potential funding of the Project that is not stated anywhere in these documents.

I also wanted to say that, in the Part 1 proceedings, there was extensive cross-examination on splits between the State and Federal Water Contractors, so we have gone down this road and discussed this issue at length in Part 1.

CO-HEARING OFFICER DODUC: Now, Mr. Mizell, Mr. Berliner, or Miss Aufdemberge.

MR. MIZELL: Thank you.

So I'd like to draw our attention to the actual text of Footnote 1 in the last three lines, beginning at the very end of the third line and going on to the fourth and fifth line.

The model always utilized this approach, always.

This footnote is not disclosing anything new. It's simply representing to the public what, through the EIR/EIS Project -- process, appeared to be

confusing to folks.

Secondly, contrary to Miss Des Jardins' assertions, the witnesses have already answered that this was not a modeling assumption. This was a modeling result. And we went over that before lunch.

Thirdly, because this has always been a part of the model, this footnote does not raise any new questions. It raises no new questions about allocations South of the Delta. It raises no new questions about the impact analysis that we've been presenting in this hearing. It's all been disclosed before.

So I would, again, go that . . .

Group 7 has a Modeler with a rather distinguished pedigree, by his standards. And . . . And he was employed to jump into the modeling and diagnose what assumptions were in there, what results were produced, how the model operated.

They went insofar as for him to modify the model to what they believed to be a more appropriate result set.

So to say that this could not have been discovered until this footnote was placed into a document indicating that nothing has changed, I think, is not quite accurate.

CO-HEARING OFFICER DODUC: Miss Nikkel, you may have the last word.

MS. NIKKEL: Thank you. I appreciate that.

I just have one brief comment.

My understanding, having sat through this, as many of us have, for several years and working closely with Mr. Bourez, is that the concept of a, quote, float approach is a new concept that we've never heard before in this proceeding. And the intent of the question is to better understand what that float approach was designed to do.

It's not really a question about the modeling results, which I understand has not changed and we've asked a lot of questions about already.

CO-HEARING OFFICER DODUC: Okay. Let me ask you this question, Miss Nikkel:

While it's true that the term "a float approach" has not been -- at least, I haven't heard it before given the context of this hearing, as I recall the testimony -- previous testimony in this matter, it has always been presented that there is not a fixed -- I don't -- I want to use the right term; it's not allocation -- a fixed division sharing of, you know, the water built into the model.

So while the term "float approach" has not

been used, it's also at least my understanding that it was never a fixed assumption or built-in part to the model.

So now that there is float approach terminology, why is that different? I'm trying to understand where you're coming from.

MS. NIKKEL: Sure.

I think it's different because it implies that there was an approach taken to the split of the capacity of the WaterFix facilities.

And the testimony regarding the modeling results, that not being assumptions or modeled logic behind the split, I take that at face value.

And my question is simply: If there's a -- If there's a float approach that was utilized, does that approach, whatever it is from a modeling perspective, account for a potential that the -- the resulting split of the capacity is 0 percent CVP and 100 percent SWP?

CO-HEARING OFFICER DODUC: Would that be, however, a result of the modeling or a result of the Coordinating Operating Agreement that has yet to be finalized?

MS. NIKKEL: Well, I believe my question actually goes to the modeling approach on this particular question and not to the -- the -- the

operations related to the Coordinated Operations Agreement or how the Project would be operated but, rather, just how the modeling approach described in this footnote did or did not account for a potential zero to 100 percent split.

CO-HEARING OFFICER DODUC: I'm not going to take any more arguments on this. I've heard enough.

Miss Nikkel, I'm going to give you a little bit of leeway, not too much. I'm hoping that you're not going to draw this out into a two-hour cross-examination.

MS. NIKKEL: I believe I've asked my question three or four times now, so I'll look for the answer.

CO-HEARING OFFICER DODUC: But it is -- it is -- it is an interesting aspect that, if there is an approach involved that somehow is used to perhaps . . . I don't want to use the wrong word. Not allocate, not divide, but to somehow affect the proportional sharing.

And if there is such an approach, if it could be articulated, then I would like to hear about it.

WITNESS CHILAMKURI: There is no approach like that.

MS. NIKKEL: Okay. So it's unfair to characterize this as having an approach that the model took to split the capacity of the tunnels. Is this --

Is that a fair characterization of your response?

MS. MORRIS: Objection: Mischaracterizes the witness' testimony.

MS. NIKKEL: That's my question. I want to understand it.

CO-HEARING OFFICER DODUC: Yes. Then let's let him explain.

WITNESS CHILAMKURI: As the -- As the statement says there, when we did not specify a sharing in the model, the result was 67/33.

We -- As I said, "float" is just a symbol -- or it's just trying to capture the fact that there is no sharing specified in the model.

MS. NIKKEL: Thank you. I think that answers my question on that point.

CO-HEARING OFFICER DODUC: And, hopefully, that answers all other questions regarding this float approach that does not exist.

Ms. Nikkel.

MS. NIKKEL: Apparently, it doesn't. Now we know.

Okay. Thank you.

I'm going to turn now to a couple of followup questions regarding tables in Ms. Parker's testimony.

Let's start with Table 5b on Page 18 of

Ms. Parker's testimony, which is DOI-43.

(Exhibit displayed on screen.)

MS. NIKKEL: Thank you.

Before the break, Miss Parker, Miss Taber was asking some questions about this panel -- or about this table and the fact that there was a difference between the export values shown on this table and the delivery -- South-of-Delta deliveries of 140,000 acre-feet on average.

And my question is actually for Miss White.

And my question is whether it would be realistic from an operations perspective to export 140,000 acre-feet and deliver that to San Luis, which is what I understood the potential places it could have gone other than deliveries.

Is that a realistic operations scenario from your perspective?

WITNESS WHITE: Okay.

MR. BERLINER: Objection: First, the question is vague and ambiguous; and, secondly, it's beyond the scope of -- of this proceeding.

Why we're talking about South-of-Delta exports, I don't know, but it's been made clear from the beginning that's not a subject.

And now to ask, "Well, gee, what about the

South-of-Delta exports and is that reasonable" seems to me to go to the heart of South-of-Delta issues that are beyond this proceeding.

CO-HEARING OFFICER DODUC: Miss Nikkel.

MS. NIKKEL: I disagree.

There's -- If we recall, back in Part 1, there was a lot of discussion, including testimony from Mr. Bourez, rebuttal testimony from Miss Parker, as well as other Reclamation operations witnesses about the realistic -- a realistic operations involving how much water would be exported and where it would go south of the Delta.

So I believe it is clearly within the scope of the key issues of this hearing.

It's also clearly related to this table that Miss Parker submitted, as well as Miss White's testimony, which was to, as I understand it, provide support from an operations perspective for Miss Parker's testimony.

CO-HEARING OFFICER DODUC: Yup. And as we have been told many times, the system operates as a whole.

So objection overruled.

WITNESS WHITE: Can you clarify: Were you asking is it feasible to export 140,000 acre-feet?

MS. NIKKEL: No. My question is whether it would be a realistic operations, from your perspective, to export 140,000 acre-feet to deliver it to San Luis Reservoir for storage.

MR. BERLINER: I'm going to ask -- I'm going to object, and I'm going to ask the Board to take judicial notice that, on a routine basis, amounts well in excess of 140,000 acre-feet are exported to the Delta and San Luis Reservoir. That's a well-known fact that the Board could take judicial notice of.

MS. NIKKEL: And if I could just interject that that was not a proper objection and, in my view, was inappropriately coaching the witness.

CO-HEARING OFFICER DODUC: So what do I do with it? Strike Mr. Berliner's --

MS. NIKKEL: I would move to strike Mr. Berliner's statement.

CO-HEARING OFFICER DODUC: So struck.

Miss White, now that you've been coached, can you answer the question?

WITNESS WHITE: I just want to say for the record, I don't personally see that as coaching. It doesn't affect what my answer was.

First, I want to point out that 140,000 acre-feet -- and I'm not exactly sure what -- where

those numbers -- which column they came from.

But we would be exporting more than that. That's -- That's just the difference, I think, that you're seeing with the WaterFix and without.

MS. NIKKEL: No, sorry.

Let me clarify: The 140,000 acre-feet was the number that was discussed with Miss Parker before the lunch that has to do with the difference -- and this is on a long-term average basis, which I understand this table to be representing -- the difference between total exports and the -- and the total South-of-Delta deliveries in a given year, on a long-term average of 140,000 acre-feet.

WITNESS WHITE: So -- Thank you for that.

So, there's been a lot of talk about this table.

MS. NIKKEL: Yes. Understood.

WITNESS WHITE: I think, from an actual operations, this is not -- I can't answer what CalSim was doing with that -- with that water.

From an actual operations standpoint, it's certainly feasible to be exporting water and storing it in San Luis and then not delivering everything. I mean, that -- that happens every year. That's -- We have rescheduling, which was brought up in an earlier

phase. That's part of that.

And there's just -- A lot of these results are based on a -- I don't remember whether this table was a water year, or a calendar year, or a contract year, but --

WITNESS PARKER: Water.

WITNESS WHITE: It's a water year?

And some of the contracts don't line up with those years.

So there could certainly be times when there's water sitting in San Luis waiting to be delivered at another time that's outside the group that's being analyzed in this period.

MS. NIKKEL: So, just so I understand your testimony:

Would you agree that it's realistic on a long-term average to export 140,000 acre-feet on a long-term average annually for storage in San Luis?

WITNESS WHITE: I'm not -- I'm not really sure how to think about that from an operations perspective. It's hard to think about a long -- long-term average in real-time operations, because these numbers came from a slew of different scenarios that are higher and lower, so I -- Sorry.

But in -- in a single-year situation, looking

at historical, those -- those are feasible.

MS. NIKKEL: I'll move on to another question following up on some tables in Miss Parker's testimony.

If we could move to Page 12, Table 2.

(Exhibit displayed on screen.)

MS. NIKKEL: Miss Parker, this was the subject of your direct testimony earlier this week.

And this is a table in which you are showing the average shortfall in the reservoir fill at Shasta.

And I want to focus your attention, if I could, on the scenario right in the middle of the table. I believe it's 2060Q5 scenario, and you have numbers there for the dry and critical years.

And am I correct in understanding this table to show that, on average, in dry years, there's approximately 157,000 acre-feet of a fill shortage, as you put it, at Shasta under this scenario?

WITNESS PARKER: That's correct.

MS. NIKKEL: And just so I understand how this relates to your conclusions:

This is among the data that supports your conclusion that the NMFS proposed RPA adjustment is infeasible; correct?

WITNESS PARKER: That's correct.

MS. NIKKEL: So, in other words, would you

agree that a shortfall of about 150,000 acre-feet in a dry year can be quite significant?

WITNESS PARKER: I -- I think you're misrepresenting my testimony.

Using historical hydrology, what we can show is that, for a certain number of years in below normal, dry and critical water year-types, there are -- out of 18 below-normal years, there are three years with a fill shortfall that, in those three years, averages 249 and so on.

For that one data point for -- in the late long-term Q5 inflow scenario, there are four dry years that have an average impact of 157.

Yes, that one data point might not seem significant to you, but taken in the context as a whole of all of the data points, I think there's a pretty significant shortfall in meeting THAT flow criteria.

MS. NIKKEL: Thank you.

I'll move now to DWR-1143 Second Revision.

(Exhibit displayed on screen.)

MS. NIKKEL: If we could move to Page 6, please.

(Exhibit displayed on screen.)

MS. NIKKEL: And I'm sorry, I'm not sure exactly who to direct these questions to so I'll direct

it to the panel and whoever knows the answer can answer.

So, first --

Thank you. That's exactly where I wanted.

I'm looking under the objective and -- Or, actually . . .

So, under the objective, which I understand to be the objective of the California WaterFix Adopted Project criteria, there, it says that the (reading):

"Initial operations will maintain . . . March through May average Delta outflow that would occur with existing facilities and climate conditions under the operational criteria described in the 2008 . . . and 2009 . . . BiOps . . ."

So my under -- My -- My question is to understand what that objective means.

Does it mean that the objective is to maintain outflow that is similar to the conditions that we see out there today?

WITNESS CHILAMKURI: Yes.

MS. NIKKEL: Thank you.

(Pause in proceedings.)

MS. NIKKEL: And, generally, the -- I

understand that the Petitioners' position is that that objective is the same as the objective that's stated in the Incidental Take Permit; correct?

WITNESS CHILAMKURI: It is, yes.

MS. NIKKEL: Okay. So if we could pull up the Incidental Take Permit itself, which is SWRCB-107.

WITNESS CHILAMKURI: I should add the Incidental Take Permit and associated clarifying letter in combination.

MS. NIKKEL: All right.

(Exhibit displayed on screen.)

MS. NIKKEL: And if we could go to Page 188.

(Exhibit displayed on screen.)

MS. NIKKEL: And that's a perfect spot for it.

I'm interested in that first paragraph, which I believe the second sentence there identifies the objective of the spring outflow.

In the sentence that starts, "These outflows will" and then identifies three what I see as objectives, the third one states that it will -- the outflows will (reading):

". . . Dedicate water to maintain Longfin Smelt habitat quality and quantity at levels consistent with recent conditions."

Isn't that objective focused on the habitat quality and quantity . . . consistent with recent conditions?

WITNESS CHILAMKURI: My understanding is that that's talking about the outflow.

MS. NIKKEL: But meeting this objective, couldn't it require more outflow than is existing today if that's required in order to maintain the quality and quantity of habitat at levels consistent with today?

MR. MIZELL: Objection: Calls for speculation.

Miss Nikkel hasn't indicated anywhere in this Permit that it calls for additional outflow, so to ask the witness whether or not it could is a purely speculative matter. It should be answered in -- within the Permit itself actually.

CO-HEARING OFFICER DODUC: Miss Nikkel.

MS. NIKKEL: I'm simply trying to understand the witness' understanding of what this sentence means. And if it could mean that there's additional outflow required, then, I think that's a fair question.

CO-HEARING OFFICER DODUC: Please answer.

Oh. Mr. Jackson.

MR. JACKSON: Yes. I'd just like to put out for the record that there is no Permit at the present

time.

So, we are looking at what will provide reasonable protection for fish and wildlife and sustain the public trust, and that may require more water, but you haven't decided that yet.

MS. NIKKEL: If I could clarify: My question is regarding the Incidental Take Permit which has been issued by the California Department of Fish and Wildlife, so . . .

MR. MIZELL: As per --

MR. JACKSON: Different --

MR. MIZELL: -- my response.

CO-HEARING OFFICER DODUC: All right. Let's all refocus.

Your question again, please, Miss Nikkel after that.

MS. NIKKEL: Thank you.

Isn't it possible that meeting the objective to maintain Longfin Smelt habitat quality and quantity at levels consistent with recent conditions could require more outflows than are existing today?

WITNESS CHILAMKURI: The modeling we presented was deemed sufficient to get there, and the criteria.

MS. NIKKEL: Deemed sufficient to get where?

WITNESS CHILAMKURI: To meet the objective --

Whatever that statement -- And I don't know what DFW mean by that exactly. But my understanding is that is the outflow. And our modeling is representative to the outflow they were seeking.

MS. NIKKEL: Does the outflow in your modeling meet the criteria as stated in the Incidental Take Permit?

WITNESS CHILAMKURI: It meets the objective of the -- which is the existing outflow requirement -- maintaining the existing outflows.

MS. NIKKEL: So isn't it true that the modeling doesn't meet the actual criteria in the Incidental Take Permit?

MR. MIZELL: Objection: Asked and answered.

MS. NIKKEL: I believe it was not answered.

MR. MIZELL: The interaction of the ITP with the clarification memo was actually explored quite thoroughly by Miss Nikkel herself on the Part 2 cases in chief cross-examination. We've been over this quite a bit in that process.

CO-HEARING OFFICER DODUC: So Dr. Chilmakuri?

WITNESS CHILAMKURI: Yes.

CO-HEARING OFFICER DODUC: I believe I heard your answer to Miss Nikkel as that the modeling meets the current outflow levels --

WITNESS CHILAMKURI: (Nodding head.)

CO-HEARING OFFICER DODUC: -- that currently exist, and it is your understanding that it then meets the requirements of the ITP.

WITNESS CHILAMKURI: Correct.

MS. NIKKEL: My question is actually different.

My question is whether the outflow in CWF H3+ meets the outflow criteria stated in the Incidental Take Permit, which is something different than the objective, or however one might interpret the objective.

The criteria is actually stated on the next page, in the Sub Table B, it's -- and I'm not going to go through it.

But my -- my question is not whether it meets the objective but whether the outflows are meeting the outflow criteria as stated in the Incidental Take Permit.

WITNESS CHILAMKURI: As I explained yesterday, the Commissioners proposed an approach to meet -- to meet an objective of maintaining current spring outflows.

When DFW issued the Permit, they changed the approach -- or how the targets would be determined in

each of those months.

However, we are going -- The DFW clarified in a letter following up saying that the -- those targets will be achieved through export cuts, which is exactly what Petitioners' model also did.

Therefore, it is my opinion that the CWF H3+ is representative of the criteria that's under the Smelt ITP.

MS. NIKKEL: If we could pull up the infamous Nikkel exhibit. It's SWRCB-107. It's the clarification memo that Mr. Chilmakuri just referred to.

(Exhibit displayed on screen.)

MS. NIKKEL: Sorry. If you go towards the bottom -- there we go -- the last link that says "California" --

(Exhibit displayed on screen.)

MS. NIKKEL: Yup. Thank you.

CO-HEARING OFFICER DODUC: Yes. I don't think we have it labeled as the Nikkel attachments.

MS. NIKKEL: It should be because it's pretty hard to find.

I think we all know what we're talking about.

(Exhibit displayed on screen.)

MS. NIKKEL: Thank you.

If we could move to Page 2 at the top, if I'm recalling correctly.

(Exhibit displayed on screen.)

MS. NIKKEL: Yes.

So in the paragraph starting with the word "Therefore," the second sentence states (reading):

"Modeling that evaluated these operations demonstrated that the targets would not be met in every year or month, but showed that using the targets as an Operational Criteria, as described here and in Condition of Approval 9.9.4.3, would be expected to achieve outflows consistent with existing conditions in March, April and May."

So I'm interested in that first part of the sentence.

Doesn't that sentence -- the beginning of that sentence mean that there was a modeling analysis conducted that demonstrated that the targets used or specified in the Incidental Take Permit would not be met in every year or month?

WITNESS CHILAMKURI: I'm not sure I -- Can you clarify that?

I thought I heard a couple of questions there.

Could you please --

MS. NIKKEL: So --

WITNESS CHILAMKURI: -- ask again.

MS. NIKKEL: Sure.

My question is whether -- I'll ask it -- I'll ask it this way -- whether you're aware of a modeling analysis that was conducted that demonstrated that the targets in the -- and by "targets," I mean the outflow criteria specified in the Incidental Take Permit -- would not be met in every year or month.

WITNESS CHILAMKURI: The question is whether I am aware of that?

MS. NIKKEL: Yes. And I believe that's what the modeling described here is.

WITNESS CHILAMKURI: Yes, I am aware of such modeling.

MS. NIKKEL: And did that modeling show that the outflow results of the CWF H3+ did not meet the targets of the Incidental Take Permit outflow criteria in every year of every month -- or every month of every year?

WITNESS CHILAMKURI: I don't agree with your characterization of what the criteria is. Because the criteria, as stated in this clarifying letter, in the second part of that last sentence that you just read,

it says that "would be expected to achieve outflows consistent with existing conditions in March, April, and May."

And that's -- The criteria is not to meet the targets specified in Sub Table B. The criteria is to maintain the outflows consistent with existing conditions.

MS. NIKKEL: Was there a modeling analysis conducted to support the conclusion that the outflow achieved by the ITP criteria would -- or, I'm sorry -- the outflow of the CWF H3+ would achieve the outflows of the objective of the ITP?

WITNESS CHILAMKURI: Yes, by CDFW.

MS. NIKKEL: And that modeling analysis has not been presented in this proceeding; is that right?

WITNESS CHILAMKURI: No.

(Pause in proceedings.)

MS. NIKKEL: If we could look at Footnote -- Oh, I'm sorry.

Let's go back to DWR-1143 Second Revision.

(Exhibit displayed on screen.)

MS. NIKKEL: Page 6 and the Footnote 38.

(Pause in proceedings.)

MS. NIKKEL: And while that's being pulled up, I'm interested in the second sentence of this footnote

which states that (reading):

"Any changes in the PA will be implicated consistent with the California WaterFix Adaptive Management Program, including coordination with U.S. Fish and Wildlife Service and National Marine Fisheries Service."

Isn't it true, though, that the Adaptive Management Program does not require that the Department return to the State Water Board to prove that the changes to the criteria would not result in injury to other legal users of water?

WITNESS CHILAMKURI: I cannot answer that. I'm not informed enough about the AMP.

MS. NIKKEL: Is there someone else on the panel who can answer that question?

(Pause in proceedings.)

MS. NIKKEL: I'm not hearing anything, so I think the answer is no.

I'll try asking that during are DWR's third panel and if there's no witness, we might have to figure out how to get an answer to that question.

MR. MIZELL: Just so I'm clear, Miss Nikkel:

You're looking for a witness to testify as to whether or not the California Department of Fish and

Wildlife believes they put a condition that would come back to the Water Board.

MS. NIKKEL: No. I'm asking a question about whether the Adaptive Management Program would require that the Department come back to the State Water Board for changes discussed in this footnote.

WITNESS CHILAMKURI: I guess I can --

CO-HEARING OFFICER DODUC: Mr. --

WITNESS CHILAMKURI: Sorry. I can one thing regarding that.

The Petitioners presented two scenarios, Boundary 1, Boundary 2, in the document. And the purpose of those two scenarios is to demonstrate that if the Adaptive Management Program results in a cri -- shifting the regulatory requirements based on whatever the science is on that day, or in that time, and the changes for Within-WaterFix assumes Boundary 1 and Boundary 2, the purpose -- the intent of the -- the intent of Petitioners was to prove that those scenarios did not cause any injury to Part 1 issues.

So, we . . .

In my opinion, the -- the Petitioners' modeling in the Part 1 is giving you a range of more the potential adaptive management actions could result in.

Now, if that -- the Adaptive Management Program results in a totally different action that's not part of either Boundary 1 or Boundary 2, then I don't know the answer to your question.

But as long as it falls within that range, I believe the Petitioners' modeling that was presented in Part 1 is sufficient.

MS. NIKKEL: So I'm a little confused now. I thought that witnesses during Part 2 testified that the Adopted Project was CWF H3+, no longer the boundary analysis.

WITNESS CHILAMKURI: I'm talking about adaptive management, if adaptive management results in a changed from CWF H3+.

MS. NIKKEL: So -- Okay. Thank you for that clarification.

If adaptive management resulted in a change that was outside of the boundary analysis, would DWR be required to come back to this Board to prove that that change would not result in injury to other legal users of water?

WITNESS CHILAMKURI: That -- As I said, I cannot answer that part because I don't know what the process would be.

But as for insofar adapt -- if the Adaptive

Management Program would result in a change that's within Boundary 1 and Boundary 2, I believe the definition is already present in information in this proceeding.

MS. NIKKEL: Okay. But you don't know the answer to my question.

Does anybody else know the answer to my question?

MR. MIZELL: No. But I would object to the question as trying to draw a legal conclusion as to what the Board will require in their Permit terms and conditions if this Project is approved to move forward.

CO-HEARING OFFICER DODUC: I interpret Miss Nikkel's question as to understanding what's required in the WaterFix Adaptive Management Program, rather than what might be our order.

MS. NIKKEL: That's correct. That's -- My question is interpreting the Adaptive Management Program.

MR. MIZELL: Thank you for that clarification.

In which case, Dr. Earle will be on Panel 3 and can discuss the Adaptive Management Program.

MS. NIKKEL: Thank you.

(Pause in proceedings.)

MS. NIKKEL: Looking more generally at the

Operational Criteria described on DWR-1143, Second Revision.

How, if at all, would any of the operational criteria in this table change if there were no CVP Contractor participating in the California WaterFix?

MR. MIZELL: Objection: Calls for speculation.

CO-HEARING OFFICER DODUC: Overruled.

If you know.

WITNESS CHILAMKURI: I need more information than that. I cannot answer the way you -- I don't -- I don't know what you're trying to get to.

MS. NIKKEL: I'm interested in whether any of the Operational Criteria on this table would change if there was zero CVP water delivered through the tunnels.

WITNESS CHILAMKURI: The criteria represents the permits the Project holds currently. That's all I can say.

MS. NIKKEL: So you don't know if any of these Operational Criteria would change if there was zero CVP water through these tunnels?

WITNESS CHILAMKURI: I cannot speculate what would happen in that situation.

MS. NIKKEL: Thank you.

I have no further questions.

CO-HEARING OFFICER DODUC: Thank you, Miss Nikkel.

Miss Taber, you're back up again.

(Pause in proceedings.)

CO-HEARING OFFICER DODUC: This time on behalf of Group 13 and 22, I believe?

MS. TABER: Correct. Thank you.

Kelley Taber. I'm here on behalf of the Sacramento Regional County Sanitation District and City of Stockton.

And my questions, I believe, will be exclusively for Dr. Chilmakuri.

And they'll relate to the portion of his testimony that responds to Dr. Susan Paulsen's testimony on behalf of Regional County Sanitation District.

CO-HEARING OFFICER DODUC: Okay.

Mr. Etheridge, before you depart, may I ask, for the sake of the other witnesses, if you have particular witnesses that you are focusing your cross on today?

MR. ETHERIDGE: Yes, I do. Thank you.

Just two witnesses, and it's Dr. Chilmakuri and Dr. Greenwood.

CO-HEARING OFFICER DODUC: I will leave it to

you, Mr. Berliner, Miss Aufdemberge and Mr. Mizell, as to whether or not you want your other witnesses to remain or leave, because Ms. Taber and Mr. Etheridge are our remaining cross-examiners for today.

MR. BERLINER: When will we -- When will we be taking a break?

CO-HEARING OFFICER DODUC: When did we resume? At 1:30?

MR. BERLINER: Yes, please.

CO-HEARING OFFICER DODUC: Yes. So why don't we take a break around 3:00.

MR. BERLINER: Can I get back to you at that time? I'd like to speak to a couple of the witnesses.

CO-HEARING OFFICER DODUC: All right. You don't have to get back to me.

MR. BERLINER: Well, there is some support for both of those witnesses that will have to stay. But to the extent that other witnesses might not be needed, then, if they would like to go, then they could go.

CO-HEARING OFFICER DODUC: Yeah.

MR. BERLINER: So --

CO-HEARING OFFICER DODUC: All right.

MR. BERLINER: -- we can sort that out at the break.

CO-HEARING OFFICER DODUC: Thank you.

All right, Miss Taber.

MS. TABER: Thank you.

Could we please bring up Dr. Chilmakuri's testimony? It's at DWR-1217, I believe.

(Exhibit displayed on screen.)

MS. TABER: Thank you.

And if you could go to Page 18 of the testimony and . . .

(Exhibit displayed on screen.)

CROSS-EXAMINATION BY

MS. TABER: Okay. Dr. Chilmakuri, referring to your testimony on Page 18, Lines 16 through 21, you state that -- and I'll refer to the Sacramento Regional County Sanitation District as Regional San -- that Regional San failed to provide information regarding the Sacramento Regional Wastewater Treatment Plant operations model, including inputs, outputs and assumptions.

Did you prepare this portion of your written testimony, Dr. Chilmakuri?

WITNESS CHILAMKURI: Yes, I did.

MS. TABER: And you work for Metropolitan Water District OF Southern California; correct?

WITNESS CHILAMKURI: Correct.

MS. TABER: Did you consult with a

representative from the Department of Water Resources regarding the availability of the Sacramento Regional Wastewater Treatment Plant operations model and the other information requested by DWR?

WITNESS CHILAMKURI: Yes, but in general, with an attorney team, yes.

MS. TABER: So with whom did you consult?

WITNESS CHILAMKURI: Mr. Mizell, Miss Morris.

MS. TABER: And what did they tell you about the availability of that information?

WITNESS CHILAMKURI: I don't specifically recall what the exact response was. In general, though, that modeling was not available.

MS. TABER: Since preparing your written testimony, have you become aware of any information that would contradict your statement that Regional San failed to provide the information that had been requested?

WITNESS CHILAMKURI: Yes. It was a filing by you, I believe, which basically showed an e-mail exchange that somebody else provided.

MS. TABER: So, is it still your testimony that Regional San has failed to provide this information?

WITNESS CHILAMKURI: No. But I -- In that

regard, the information -- My testimony's -- Except for that piece there that says Sac Regional has failed to provide this information, I still didn't have access to the modeling so my testimony stays okay except for that one sentence there.

MS. TABER: Okay. Thank you.

So did you wish to withdraw that final sentence of your testimony that says, "However, to date"?

WITNESS CHILAMKURI: Yeah, that's fine. Yeah, we can strike that out.

MS. TABER: Okay. So, I'll move to strike that last sentence based on his testimony. Thank you.

Thank you.

Moving on, Dr. Chilmakuri, to your Opinion Number 6, that (reading):

> "California WaterFix is not expected to impact Sacramento Regional County Sanitation District and its Sacramento Regional Wastewater Treatment Plant operations."

I have some questions regarding the Sacramento Regional Wastewater Treatment Plant diversions and discharge.

And refer to Page 20 of your testimony.

(Exhibit displayed on screen.)

MS. TABER: You identified a maximum effluent discharge rate from the Treatment Plant of 395 cfs; is that correct?

WITNESS CHILAMKURI: Correct.

MS. TABER: Do you know the hydraulic capacity of the Treatment Plant diffuser?

WITNESS CHILAMKURI: No.

MS. TABER: Are you -- So you're not aware that the diffuser can discharge up to 634 cfs?

WITNESS CHILAMKURI: Probably, but I didn't have any of that information.

As I said in my testimony, I was relying on the -- Dr. Paulsen's testimony, Appendix A, Table 1 and Table 2, to arrive at that information.

The way I interpreted those tables is, Table 1 was showing the monthly discharge volumes from the Treatment Plant, and Table 2 was basically showing the proportion of the discharge coming each hour out of the Distri -- Treatment Plant.

MS. TABER: I see.

So, just to make sure I understand: On Page 19 of your testimony, you calculated the effluent discharge rate of 395 cfs by using a value from Table 1 --

(Exhibit displayed on screen.)

MS. TABER: -- this Table 1 that's shown in your testimony; correct?

WITNESS CHILAMKURI: Correct.

MS. TABER: Okay.

WITNESS CHILAMKURI: And I believe, in my PowerPoint presentation, I also show Table 2.

MS. TABER: Okay.

WITNESS CHILAMKURI: I'm pretty sure, yeah.

MS. TABER: So you relied on Table 1 and Table 2?

WITNESS CHILAMKURI: Correct.

MS. TABER: Can you just please describe for me how you calculated the maximum effluent discharge rate?

WITNESS CHILAMKURI: Could you please bring up my testimony -- PowerPoint? I think it's DWR-1294.

(Exhibit displayed on screen.)

WITNESS CHILAMKURI: I'll give you a slide number.

(Pause in proceedings.)

WITNESS CHILAMKURI: Slide 19, please.

(Exhibit displayed on screen.)

WITNESS CHILAMKURI: So, I believe I explained this very briefly on -- when I presented this

information on Monday.

But the way I interpreted these tables were, the first month -- the first table, Table 1, shows the -- for each month, what is the average discharge -- or from the monthly average discharge from the Treatment Plant.

And the second table is showing the fraction of that monthly discharge, which I'm assuming -- I assumed would be exactly the same every day of the month, how that value would be discharged to the river at each hour.

So I multiplied the third column.

For example, if you take, for February, the value is 220 mgd for that month, that would be the monthly discharge. I multiplied that number with the hourly . . . Actually, not multiply but . . .

Hold on one second. So . . .

Yes. So I multiplied that number with the ratio -- the factor in Table 2 for each hour. So, so far, zero -- Let's say 1 a.m., the fraction is 1.1. So the -- For -- At 1 a.m., the discharge would be 220 times 1.1 mgd that I converted into cfs, which would be . . . That's how I got it.

And 395 would be the hourly maximum.

MS. TABER: Okay. Thank you.

So you used the information from Table 1, and I thought I heard you refer to that data as presenting discharge information.

Dr. Chilmakuri, if you look at Table 1, the title of that table refers to influent flows; correct?

WITNESS CHILAMKURI: Correct. The --

MS. TABER: Not effluent.

WITNESS CHILAMKURI: Yes.

MS. TABER: Not discharge.

So, when you made your calculation, you relied on influent data; correct? In Table 1?

WITNESS CHILAMKURI: The way I understood, based on Dr. Paulsen's written testimony and her -- my read of her oral testimony, the discharge -- the values represented in the third column are where -- what were assumed as the discharge.

MS. TABER: Okay. And in making your calculation about effluent discharge rates, did you account for the volume of effluent returning from storage?

WITNESS CHILAMKURI: No. I just assumed whatever the -- what -- So, for maximum, for example, I think the maximum is in February, which is 220 mgd.

And the maximum actual hourly fill would be somewhere around 5 p.m. You see 1.16 there.

MS. TABER: Yes.

WITNESS CHILAMKURI: So that would be roughly 395 cfs.

MS. TABER: All right. Okay. Thank you.

So, I -- I -- Just confirming that your -- you interpreted Table 1 to -- the third column of Table 1 to represent effluent discharge.

WITNESS CHILAMKURI: Correct.

MS. TABER: You would agree, Dr. Chilmakuri, that there are times when the Treatment Plant is not allowed to discharge to the river due to low river flows; correct?

WITNESS CHILAMKURI: Based on Dr. Paulsen's testimony, yes, that's what I understand.

MS. TABER: And, therefore, you would agree that the Treatment Plant is not always able to discharge treated wastewater immediately after it's been treated; correct?

WITNESS CHILAMKURI: Possibly.

MS. TABER: Are you aware of what happens to the treated water if the plant is unable to discharge it immediately?

WITNESS CHILAMKURI: Again, based on her -- Dr. Paulsen's testimony, it's stored on on-site storage basins.

MS. TABER: But, eventually, that stored water's discharged to the river; correct?

WITNESS CHILAMKURI: Yes.

MS. TABER: So in periods when the Treatment Plant is discharging both treated flows directly from the plant and water from the emergency storage basins, the total effluent flow would be higher than the influent flow; correct?

WITNESS CHILAMKURI: Yes.

MS. TABER: So, would you agree that whenever the Treatment Plant is discharging water from the Emergency Storage Basins, discharges to the river will be greater than influent flows to the plant?

WITNESS CHILAMKURI: I cannot say for sure. I don't know whether the Treatment Plant is releasing anything. I don't know is there any more information --

MS. TABER: Okay.

WITNESS CHILAMKURI: -- for me to answer that.

MS. TABER: Fair enough. Thank you.

In your testimony, Dr. Chilmakuri, on Page 19 -- if we could go back --

(Exhibit displayed on screen.)

MS. TABER: -- thank you -- to Page 19, Lines 2 to 4.

(Exhibit displayed on screen.)
MS. TABER: You state -- Let me see this.
You state that Regional San's (reading):
". . . NPDES Permit allows the plant to discharge a maximum ADWF of 181 mgd."
Correct? Average dry weather flow.
WITNESS CHILAMKURI: That's what I got from, again, Dr. Paulsen's testimony.
MS. TABER: And you also state that (reading):
". . . Influent flows in recent years are" below the "permit limit . . ."
Correct?
WITNESS CHILAMKURI: Correct.
MS. TABER: Over what timeframe will the WaterFix Project operate?
WITNESS CHILAMKURI: I know the construction finishes, I don't now, roughly around 2030.
MS. TABER: That's when it'll begin operations?
WITNESS CHILAMKURI: Roughly.
MS. TABER: And it will continue to operate after that?
WITNESS CHILAMKURI: Yes.
MS. TABER: Do you know how long the expected Permit life is that -- for the operations?

WITNESS CHILAMKURI: (Shaking head.)
MS. TABER: Okay.
WITNESS CHILAMKURI: I don't know. I can't speculate.
MS. TABER: Do -- Are you familiar or do you have any knowledge of what flows Regional San projects will occur in the future over the timeframe under which the California WaterFix would be operating?
WITNESS CHILAMKURI: No, I don't know.
But I'm just quoting what the -- I was explaining the discrepancy between the recent historic inflow and inflows coming into the Treatment Plant which was in the testimony of Dr. Paulsen and also as shown in the footnote on that same page, SRCSD-28 -- I forget whose testimony was that.
It clearly showed that, over the last decade, the influent to the -- or the discharge from the Treatment Plant was 133 mgd relative to what was assumed in Dr. Paulsen's analysis of 181 mgd.
So that's what I was pointing out, that there is a large discrepancy between what was analyzed as to their discharge would be and what recently happened.
MS. TABER: Thank you. Yes, I understand that.
So, your testimony indicates that you believe

Regional San and Dr. Paulsen should have used flow rates for the existing condition to estimate flow rates over the life of the WaterFix Project; correct?

WITNESS CHILAMKURI: No, that's not what my testimony says.

All I'm saying was that, assuming that the plant would be operating at 191 -- or the maximum permit limit for all the 16 years, the affects Dr. Paulsen was presenting in analysis were overestimated.

MS. TABER: Why do you believe that Regional San should have evaluated impacts on the Project against its existing plant conditions?

WITNESS CHILAMKURI: No, I'm not saying they should have -- what you're trying to say.

If you consider -- If one considers recent historic discharges, the effect -- in Dr. Paulsen's analysis, the effects would be much smaller than what she's reporting, which, by the way, were already pretty small.

MS. TABER: Do you know whether or not adjusting the effluent flow rate would affect the number of diversion events?

(Pause in proceedings.)

WITNESS CHILAMKURI: Could you be more

specific? I'm sorry. I'm not sure I'm following the question.

MS. TABER: Does the -- If -- If -- Does the rate of effluent discharge from the Treatment Plant affect the number of diversion events that must occur to comply with the NPDES Permit conditions?

MR. MIZELL: Objection: Incomplete hypothetical.

That's simply restating the question Mr. Chil -- Dr. Chilmakuri had asked for more information on.

It would depend upon river flows and any number other criteria -- circumstances at the time.

MS. TABER: Thank you, Mr. Mizell. And I would expect that the witness might be able to offer that testimony unless you're testifying for him.

WITNESS CHILAMKURI: No.

MR. MIZELL: Object as --

CO-HEARING OFFICER DODUC: Hold on.

MR. MIZELL: -- incomplete hypothetical.

CO-HEARING OFFICER DODUC: Hold on.

Are you able to add any --

WITNESS CHILAMKURI: (Shaking head.)

I need more information.

CO-HEARING OFFICER DODUC: Yeah, okay.

MS. TABER: Does the Regional San effluent flow rate to the river affect river flows?

MR. MIZELL: Objection: Incomplete hypothetical.

CO-HEARING OFFICER DODUC: Seems pretty light.

MS. TABER: Yeah, I don't -- It's not really a hypothetical.

I guess I'm asking -- I'm trying to understand his knowledge of the existing conditions in the river and at the Treatment Plant.

CO-HEARING OFFICER DODUC: Overruled.

MS. TABER: And if he doesn't know, he doesn't know.

WITNESS CHILAMKURI: Can you restate that, please.

MS. TABER: Yes.

Does the Regional San effluent flow rate to the river affect river flows?

WITNESS CHILAMKURI: Eventually, yes.

MS. TABER: Did you use the DSM-II model to simulate the flow rates at Freeport that you used in your analysis?

WITNESS CHILAMKURI: Correct.

Actually, I used the flow rate roughly at the location of the outflow.

MS. TABER: Thank you. And DSM-II?

WITNESS CHILAMKURI: Correct.

MS. TABER: All right. Thank you.

So, just to clarify: You would agree that flow rates in the Sacramento River at Freeport are a function of effluent flow rate from the Treatment Plant?

WITNESS CHILAMKURI: Not just that, but it can affect the flows --

MS. TABER: All right.

WITNESS CHILAMKURI: -- yes.

MS. TABER: Do you know if the effluent flow rate to the river from the Treatment Plant is included in the DSM-II model input files?

WITNESS CHILAMKURI: Not explicitly. But the CalSim model recognizes the -- the -- which is the source of the boundary conditions into the DSM-II model -- recognizes all the diversions in the Sacramento, City of Sacramento, and the American River Basin. And all their outflow is coming from the basin, which also should account for any water that would go through Sac Regional.

MS. TABER: Okay. Do you know if that return flow information is included as hourly flow information or as a long-term average?

WITNESS CHILAMKURI: It's a monthly output.

MS. TABER: Okay. Would there be more reverse flow events in the river or fewer events if the Regional San -- Regional Treatment Plant discharge rate were to increase?

WITNESS CHILAMKURI: That's incomplete. I mean, I need more information than that.

MS. TABER: Okay.

(Pause in proceedings.)

MS. TABER: What -- I'll try to ask it a different way.

How would changing effluent flow rates impact the number of diversion events? Would it have a large or small effect on that?

CO-HEARING OFFICER DODUC: Mr. Berliner.

MR. BERLINER: Objection: I don't understand the question.

CO-HEARING OFFICER DODUC: Miss Taber, I'm not sure I follow, either.

MS. TABER: All right. I'll move on from that.

Dr. Chilmakuri, I refer you to Page 21 of your testimony.

(Exhibit displayed on screen.)

MS. TABER: You provide the opinion that the

changes that you calculated in -- are minor.

You describe the results of your analysis and the amount of time the Regional Treatment Plant would be unable to discharge to the Sacramento River under both the No-Action Alternative and the CWF H3+ conditions; correct?

WITNESS CHILAMKURI: What I'm saying there is that the relative change between the WaterFix -- or CWF H3+ and No-Action Alternative are minor, yes.

MS. TABER: And, specifically, on -- in -- at Lines 14 to 18, you state that, under the CWF H3+, no discharge periods might increase from 13 percent to 14 percent of the time on average in the month of October and from 8 percent to 12 percent of the time on average in the month of September; correct?

WITNESS CHILAMKURI: Correct.

MS. TABER: And you assert that these changes amount to a 1 percent change in October and 4 percent in September, correct, on average?

WITNESS CHILAMKURI: Yes.

MS. TABER: So -- And then you -- After citing these figures, you state that the changes are minor; correct?

WITNESS CHILAMKURI: Yes.

MS. TABER: Is it fair to say that your

characterization of the changes as minor is based on an evaluation of these percentages, 1 and 4 percent, alone?

WITNESS CHILAMKURI: No, it's not fair to characterize that way.

Because my analysis assumed, as I was explaining to you on Monday, that the Treatment Plant will be discharging 395 cfs every hour of 82 years when coming to those changes of 4 percent increase.

And as I explained on Monday, again, that the Treatment Plant does not release the maximum value every hour of the day. Therefore, that's why -- Taking that into consideration with -- plus the change that we are seeing here in terms of 4 percent increase in only one month.

But that's -- That's the whole basis for my conclusion.

MS. TABER: Okay. So, in making your -- reaching your conclusion, did you -- that they're minor, did you consider the additional operational costs of these potential percentage changes?

(Pause in proceedings.)

WITNESS CHILAMKURI: No, but . . .

Again, my conclusion was talking about the incremental difference on when -- how -- how long the

Treatment Plant would have to stop their diversion.

And what I'm trying to say there is that they would -- if you compare CWF H3+ to No-Action Alternative, the amount of time they would have to stop diversions would be about the same -- or they would be a very minor increase under CWF H3+.

MS. TABER: Thank you.

I think I heard you mention earlier that you may have reviewed Exhibit SRCSD-28, which is the testimony of Reuben Robles.

Did you review that testimony, Dr. Chilmakuri, in preparing your testimony?

WITNESS CHILAMKURI: I did, but very generally. I was -- I found the reference from his testimony, obviously.

MS. TABER: All right. So are you aware, from your review, that that testimony correlated the projected percentage changes under CWF H3+ with operational cost changes at the Regional Treatment Plant?

WITNESS CHILAMKURI: I vaguely recall that.

MS. TABER: Do you recall that Regional San calculated that CWF scenarios H3 and H4 would result in ESB storage costs between 4.7 million and $6.8 million relative to the No-Action Alternative?

WITNESS CHILAMKURI: I -- I don't recall exact numbers.

MS. TABER: Would you . . .

Assuming those numbers are correct, would you agree that those costs are minor?

WITNESS CHILAMKURI: That's not what I'm saying.

Again, my -- the sentence -- my sentence means the incremental change in the amount of time Sac Regional would have to stop discharging at the rate of 395 cfs under CWF H3+ compared to the No-Action would be minimal, and that effect is minor.

MS. TABER: Okay. So your testimony is limited and your opinion is limited to the percentage of time and doesn't account for costs associated with changes in operations; is that correct?

WITNESS CHILAMKURI: That's fair.

And it's important to note that I posit assuming a pretty large discharge all -- almost -- all day for a two-year period continuously.

MS. TABER: Thank you.

Let's move on to the portion of your opinion that addresses possible impacts to Regional San's operations from increased salinity in the Delta.

And if I could refer to Page 15 of your

testimony, Lines 8 through 9.

You offer the opinion . . .

Sorry. I'm ahead of her scrolling.

(Exhibit displayed on screen.)

MS. TABER: You note that (reading):

"Dr. Paulsen offers an opinion that 'WaterFix will cause an increase in salinity in the Delta.'"

But you state that (reading):

". . . She fails to explain how, even if true, this would affect SRCSD."

Dr. Chilmakuri, are the proposed WaterFix intakes drinking water intakes?

WITNESS CHILAMKURI: That could be one of the uses, yes.

MS. TABER: When you prepared your testimony, did you review Exhibit SRCSD-37, which is the testimony of Tom Grovhoug?

WITNESS CHILAMKURI: Again, very briefly, yeah. I was mostly focused on Dr. Paulsen's.

MS. TABER: Right.

Is high salinity a water quality concern within the Delta currently?

WITNESS CHILAMKURI: I don't know that it is a concern throughout the Delta. Maybe some specific

areas.

MS. TABER: Is it a concern to Metropolitan Water District?

WITNESS CHILAMKURI: In general, yes.

MS. TABER: Do you anticipate that salinity will be measured as an important water quality parameter in the future?

WITNESS CHILAMKURI: Yes.

MS. TABER: Are you aware of whether there are regulations and efforts to address high salinity within the Delta?

WITNESS CHILAMKURI: There are.

MR. MIZELL: Objection: At this point, we're going well beyond the scope of Dr. Chilmakuri's testimony, talking about speculative, future regulations of salinity in the Delta.

I'd like to see if she can connect this to the cross -- appropriate cross-examination.

CO-HEARING OFFICER DODUC: Miss Taber.

MS. TABER: Yes. He offered the opinion that Dr. Paulsen fails to explain how increased salinity would affect SRCSD.

And Dr. Paulsen's testimony specifically references the testimony of Tom Grovhoug, links increases in salinity addressed in Dr. Paulsen's

testimony to the increased regulatory risk and Permit compliance concerns of the Regional Sanitation District.

So, I think it's relevant to his opinion that -- and the inference that I can draw from his opinion that Dr. Paulsen's testimony does not relate to impacts to SRCS -- regarding salinity, it's not related to impacts to SRCSD.

CO-HEARING OFFICER DODUC: When you reviewed Dr. Paulsen's testimony, or this particular component of her testimony, did you also review those examples? And, if so, why did you not take it into account in making your rebuttal testimony?

WITNESS CHILAMKURI: Actually, I didn't find any references with respect to salinity changes to the exhibit Miss Taber is referring.

I couldn't -- I don't recall seeing any references to that.

MS. TABER: Okay. That's fine. I'll move on.

CO-HEARING OFFICER DODUC: And I do want to take a break for the court reporter, so if there's a natural time in your line of questioning . . .

MS. TABER: Now would -- Now would be fine. I've got sort of segments of questions.

CO-HEARING OFFICER DODUC: Is there a short

segment that you can do in about six minutes?

MS. TABER: I think so.

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

MS. TABER: I'll certainly try.

Okay. So, moving on to Dr. Chilmakuri, if we could address the portion of your opinion, Page 15, Lines 10 through 12, where you state (reading):

> "Dr. Paulsen's opinion is based on an incomplete characterization of expected salinity conditions under California WaterFix. The conclusion was based solely on an analysis of expected changes at Antioch under Boundary 1 scenario."

If we could please pull up Exhibit SRCSD-31?

(Exhibit displayed on screen.)

MS. TABER: Scroll down to Group 13.

CO-HEARING OFFICER DODUC: 13?

MS. TABER: You can go back up there to -- It's in Group --

CO-HEARING OFFICER DODUC: 13.

MS. TABER: -- 13 and 31.

(Exhibit displayed on screen.)

MS. TABER: There we go. Thank you.

Dr. Chilmakuri, this exhibit is Dr. Paulsen's expert report entitled (reading):

"Impacts of the California WaterFix Project Affecting Sacramento Regional County Sanitation District."

Did you review this report when you prepared your testimony?

WITNESS CHILAMKURI: Yes.

MS. TABER: Did you notice that it clearly evaluates salinity at more locations than just at Antioch?

And I would specifically refer you to the discussion regarding impacts at Contra Costa Canal Pumping Plant No. 1 and then Stockton.

WITNESS CHILAMKURI: Can you please point me to that.

MS. TABER: If we can look at Page 15 of this -- of the report. This is the selection addressing salinity in the Delta.

(Exhibit displayed on screen.)

MS. TABER: And if you'd scroll down.

(Scrolling through document.)

MS. TABER: Here -- There's discussion here on the bottom of 15 continuing through Page 18 regarding salinity in the vicinity of Contra Costa Canal Pumping

Plant No. 1 as well as, if we could go to Pages 19 through 20, there's a discussion of Stockton and salinity impacts as being representative of the interior Delta.

(Exhibit displayed on screen.)

WITNESS CHILAMKURI: My opinion is that the part where I talk about the incomplete characterization of salinity is that -- that's referring to Dr. Paulsen not presenting what the salinities would look like in the Sacramento main stem channel from the vicinity of the outfall all the way to 30 miles downstream out to Cache Slough where the salinities are not expected to change with WaterFix.

That's what I was talking about incomplete characterization.

MS. TABER: Okay. So is it your opinion, then, that the salinity would only be a con -- salinity conditions would only be of concern to Regional San in that geographic area that you just described below the outfall?

WITNESS CHILAMKURI: I don't have any specific opinion on that.

But it definitely seems like you cannot use the salinity results at Antioch, Contra Costa Canal or Stockton, which are probably -- I don't know exactly

how many miles away, but 10s of miles away from Sac Regional outflow and claim that there would be impacts to Sac Regional.

My point is, there needs to be more description of what the salinity conditions would be in the main -- Sacramento River main channel.

MS. TABER: So, am I understanding you that you would contend that salinity changes outside of that smaller geographic area in the Sacramento main stem are not -- would have no effect on Regional San's permit conditions or Treatment Plan?

MR. MIZELL: Objection: Misstates the witness' testimony.

CO-HEARING OFFICER DODUC: Ms. Taber.

MS. TABER: So, I am -- I'm trying to understand Dr. Chilamkuri's point.

And I understand his testimony to be -- his critique of Dr. Paulsen's report to be that she should have focused her discussion of salinity and the area immediately at and below the Treatment Plant, because that, if I understand it, in his opinion is the only area that should be of concern to Regional San based on its operating conditions.

There should be no effect outside of that area that would affect Regional San.

CO-HEARING OFFICER DODUC: Do you agree with that?

WITNESS CHILAMKURI: To an extent.

I would say that, yes, at Sac Regional, they have a -- I'm not entirely familiar with their Permit, but obviously you would have a mixing zone where -- which would be, I would assume, in the immediate vicinity of your outfall.

I think that's -- it's important to understand how salinity changes would be if WaterFix in that area, more than the salinity changes that would be tens of miles away from their intake outflow. So that's one consideration.

And the other point is that, even if we look at what Dr. Paulsen presented for City of Antioch or Rock Slough, the WaterFix scenarios do not show, at least other than Boundary 1 scenario, none of the other three scenarios show that it would make it any worse than No-Action Alternative.

So that's, in whole, what I am basing my opinion that WaterFix would not cause any salinity that would affect Sac Regional.

MS. TABER: Okay. But you would agree that the daily average chloride concentrations will be greater at Antioch under the California WaterFix

Boundary 1 scenario than for either the No-Action Alternative or the EBC2 scenario; correct?

WITNESS CHILAMKURI: Under the Boundary 1 compared to No-Action, yes. And we have discussed at length why that is.

And the -- In Boundary 1 scenario, we did not include Fall X2, whereas in the No-Action, we assume Fall X2. That's the reason why --

MS. TABER: Thank you.

WITNESS CHILAMKURI: -- there are differences.

MS. TABER: But you will agree that, despite your difference of opinion, it's the importance of her evaluation that Dr. Paulsen actually did evaluate salinity at multiple locations within the Delta and from multiple WaterFix model scenarios; correct?

WITNESS CHILAMKURI: Again, if you read her testimony, she focuses her analysis on City of Antioch's chain -- the chain of City of Antioch and, specifically, for the Boundary 1 scenario. And she does not cite what the changes would be in any other scenarios, even for City of Antioch.

So that's what I was trying to say that that's an incomplete characterization because there are other scenarios which are showing there wouldn't be any facts. Further, if you look at the other locations in

the Delta, there are no changes due to WaterFix.

MS. TABER: That's -- That's fine. We'll move on because we're talking across each other here.

CO-HEARING OFFICER DODUC: Would now be a good time for a break, Miss Taber?

MS. TABER: It would be a great time.

CO-HEARING OFFICER DODUC: All right. Then let's return at 3:15.

(Recess taken at 3:02 p.m.)

(Proceedings resumed at 3:15 p.m.:)

CO-HEARING OFFICER DODUC: All right. It's 3:15. We're back in session.

Miss Taber, please continue.

MS. TABER: Thank you.

Dr. Chilmakuri, I would like to address the portion of your opinion regarding residence time in the Delta and your critique of Dr. Paulsen's testimony on residence time.

If we could please bring up the cross-examination Exhibit SRCSD-43.

(Pause in proceedings.)

MS. TABER: And it's on the thumb drive I provided this morning.

(Exhibit displayed on screen.)

MS. TABER: Thank you.

This is Page 8-198 from the California WaterFix Final EIR. I believe the exhibit number is SWRCB-102 for the full document, and it's a table showing residence time data.

Dr. Chilmakuri, are you familiar with this table?

WITNESS CHILAMKURI: Generally.

MS. TABER: Okay. Did DWR model residence time for CWF H3+?

(Pause in proceedings.)

WITNESS CHILAMKURI: No.

MS. TABER: Do you know which of the model scenarios presented in this table are closest to CWF H3+?

WITNESS CHILAMKURI: Actually, none of them, I would say.

What we are looking for would be -- In the EIR context, it would be Alternative 4A.

MS. TABER: So, none of the scenarios presented in this table, in your opinion, reflect the Alter -- are close to CWF H3+?

WITNESS CHILAMKURI: I mean, there are some common -- Like, Alternative 4 Scenario H3 obviously has some common elements to it but it does not fully reflect CWF H3+.

MS. TABER: Okay. Would you expect there to be measurable differences if you -- between each three and CWF H3+ in residence time?

WITNESS CHILAMKURI: Differences and more.

MS. TABER: In residence time?

WITNESS CHILAMKURI: Yeah. And there could be, yes, depending on which month, which year, yes.

MS. TABER: Okay.

WITNESS CHILAMKURI: And where in the Delta.

MS. TABER: But, to your knowledge, DWR has not evaluated what those differences would be.

WITNESS CHILAMKURI: We -- DWR has conducted the residence time analysis for BA H3+, which is the Alternative 4A that I was mentioning earlier, and that's not included in this table, as I can see.

MS. TABER: And, to your knowledge, are the BA H3+ residence time results the same as the results shown here for Scenario H3?

WITNESS CHILAMKURI: I wouldn't . . .

No, I don't think so. There will be differences. And they may be coincidentally similar values, but just based on the criteria differences, there will be changes.

MS. TABER: Are you -- Can you describe with any specificity what some of those changes are?

WITNESS CHILAMKURI: For example, there is -- Relative to H3+, we -- additional spring outflow in March. That's one change.

MS. TABER: And, specifically, with respect to the residence time, because that's what I'm interested now, in terms of this table and your testimony and Dr. Paulsen's opinion.

I know you mentioned outflow, but can you comment specifically on the changes in residence time that are implicated by that change?

WITNESS CHILAMKURI: Actually, I cannot, because part -- I need to find out that the approach used for the converting residence times in this table is different than the approach used to quantify residence times for BA H3+. So I don't even know that the numbers would come out to be the same.

MS. TABER: Okay. Well, can you explain how the approach differed in -- between H3+ and what was in the EIR?

WITNESS CHILAMKURI: Again, I'm not saying that the BA H3+ approach is not in the EIR. I'm just saying it's not in this --

MS. TABER: In the table.

WITNESS CHILAMKURI: -- table.

MS. TABER: Okay. Can you explain the

difference in the BA H3+, because I'm looking at the Final EIR here, so apparently this doesn't include BA H3+.

Can you summarize how the BA H3+ approach differed from the approach reflected in the results in this table?

WITNESS CHILAMKURI: I can explain, but it's -- You're showing me one table. It doesn't mean that the condition is not there in the Final EIR for Alternative 4A.

Notwithstanding that, the differences are the -- Both the approaches used the DSM-II particle tracking model. However, the differences are in this -- the numbers presented in this table assume that the residence time would be -- I don't recall exactly whether it's 50 percent or 75 percent, but the amount of time it would take for the particles inserted from Day 1 to whatever the -- If it -- Let's assume 50 percent for the moment. The amount of time it takes for the particles inserted -- or 50 percent particles inserted to leave the Delta.

What I don't remember is whether it's 50 percent or 75 percent in our -- We'd need to go through the approach to clearly understand.

So that's this approach.

Whereas for the BA H3+, which is described in our WaterFix Biological Assessment Plan, it was done more on a -- on a regional basis. It's clearly described in the Appendix 5.A of the WaterFix Biological Assessment.

Again, we used the particle tracking model. However, it wasn't just based on the amount of time a certain number of particles are leaving. Rather, it was an accumulation of -- or a weighted average of how much time the particles are residing within a subregion in the Delta. So it's like a different way of characterizing water residence time is for the BA.

CO-HEARING OFFICER DODUC: Okay. Miss Ansley.

Hold on, please.

MS. ANSLEY: Yes. I'd like to object that pulling up this table -- And I don't recall if it's from the FEIR or the RDEIR when she pulled it up.

But this is beyond the scope of Dr. Chilmakuri's testimony. In his testimony at Pages 16 to 17, Line 27, then over to Page 17, Line 14, Dr. Chilmakuri provides a critique of Dr. Paulsen's computations or analysis of residence time.

At no time does he provide testimony which was provided by different DWR witnesses quite extensively in Part 1 and Part 2. At no time does he refer to this

chart nor provide an analysis by the DWR that was done by different witnesses. What he does is explain why Dr. Paulsen's calculations are not appropriate here.

So, I believe that asking in-depth questions on a subject matter that we've gone over quite extensively and pulling up a table from -- if indeed this was SWRCB-102 -- pulling up this table out of context is outside the scope of what he is exactly talking about in his testimony.

CO-HEARING OFFICER DODUC: Miss Taber.

MS. TABER: Where I was going with my line of questioning -- and I will acknowledge that we got a little bit derailed because I wasn't expecting to hear that the CWF H3+ results are not represented by the information in this table in the Final EIR -- was to address how Dr. Paulsen's calculations of residence time presented in her Exhibit SRCSD-31 compare to the results shown in the Final EIR.

So, I think that's relevant because -- to his opinion because he has criticized her conclusions as being oversimplified. And her -- And so I think a comparison of the results with what the Department was relying on in the Final EIR is within the broader scope of his rebuttal testimony.

CO-HEARING OFFICER DODUC: I agree, but let's

get there faster, Miss Taber.

MS. TABER: Okay.

MS. ANSLEY: And I would add that pulling this one document out of context after so much testimony by Dr. Bryan is inappropriate when she's not calling up the epilogue document to the FEIR which has additional Microcystis testimony -- or residence time testimony.

So, asking Dr. Chilmakuri this -- these questions is going over again testimony that we've done in Part 1 and Part 2 quite extensively and outside the scope of his exact rebuttal, so thank you.

CO-HEARING OFFICER DODUC: Keeping that in mind, show us how you believe Dr. Paulsen's analysis is comparable to those you believe to have been done by Petitioners.

MS. TABER: Sure. Let me see if I can speed this up.

(Pause in proceedings.)

MS. TABER: Let's go ahead, Dr. Chilmakuri, to -- On this same page of the Final EIR 8-198, there's a statement -- I believe it's after the table, if we scroll down a little bit.

(Scrolling through document.)

MS. TABER: Oh, I'm sorry. It'll be above the table, in Line 4 of the -- So if you scroll back to the

top.

(Scrolling through document.)

MS. TABER: Sorry about that.

It begins, "The data do not represent."

If you could read to yourself that statement.

(Pause in proceedings.)

WITNESS CHILAMKURI: Okay.

MS. TABER: Okay. Dr. Chilmakuri, based on your familiarity with the various modeling -- residence time modeling information that has been presented in this proceeding, in the Final EIR and in Dr. Bryan's testimony, would you agree that the California WaterFix will increase residence times in the Delta?

CO-HEARING OFFICER DODUC: Miss Ansley.

MS. ANSLEY: I'm going to raise the same objection.

If you look at his testimony, in the pages and line numbers I referenced, he at no point discusses in depth the DWR modeling of residence time which, obviously, Dr. Chilmakuri has some knowledge of. That was extensively presented by Dr. Bryan.

And what he is doing is critiquing a different methodology presented by Dr. Paulsen, and that question in no way goes to Dr. Paulsen's analysis or his critique.

What it's doing is further delving into a chart that we've had in this proceeding for more than a year and that we have talked about extensively.

So this does not tie back to his rebuttal testimony in any way, which was very short on this topic.

CO-HEARING OFFICER DODUC: So tie it back, Miss Taber.

MS. TABER: At the top of Page 18, he does -- of his testimony, he does address the experts' conclusions about CWF having negligible effect on temperatures, frequency of Microcystis blooms, and all of the factors that could affect cyanobacteria blooms which I believe he includes residence time as among those factors.

I think that this is a relevant line of questioning. I don't have many more questions on this.

MS. ANSLEY: So, on the top of Page 18, what he's doing --

CO-HEARING OFFICER DODUC: I'm sorry. Can I see that?

WITNESS CHILAMKURI: That's my testimony, which is DWR 1217.

(Exhibit displayed on screen.)

MS. TABER: This is the conclusion to the

preceding section that discusses residence time.

CO-HEARING OFFICER DODUC: And you're using this one sentence to reopen --

MS. TABER: I'm going to ask him a question based on . . .

CO-HEARING OFFICER DODUC: And what is your question?

MS. TABER: I'm going to skip the questions that I had intended to ask. And I'm going to ask him the question I -- as a foundation, the question I had before, that compared to existing conditions of the No-Action Alternative, the California WaterFix will increase residence times within the Delta; correct?

MS. ANSLEY: And I would raise the same objection that it's outside the scope of his testimony.

In his testimony, as you can see in Lines 5 through 6, he is merely pointing to the expert witness conclusions of Dr. Bryan in DWR-81, and Dr. Bryan was indeed here for cross.

And, so, having Dr. Chilmakuri, who's merely referencing another DWR expert, repeat that conclusion is outside the scope.

CO-HEARING OFFICER DODUC: And, Miss Taber, how does that conclusion tie into his critique of Dr. Paulsen's testimony?

MS. TABER: Well, it's -- He's provided an opinion about the conclusions regarding frequency and magnitude of cyanobacteria blooms relative to the No-Action Alternative, and residence time is a factor of that, and I'm asking him some questions about that opinion.

CO-HEARING OFFICER DODUC: Miss Meserve.

MS. MESERVE: Hello.

Yeah, I would just point out here that he's got a page and a half of out-residence time. This is the witness that DWR chose to send up in order to rebut the opinions that Dr. Paulsen put forth, and now he should be able to answer questions about them, and he cross-references to Bryan, but they did not send Dr. Bryan to this particular panel or to the rebuttal phase at all.

So, if we are not allowed to ask about this, I don't understand how this could be proper rebuttal.

CO-HEARING OFFICER DODUC: Miss Meserve, he makes one statement with a passing reference to other studies and other factors. I don't see that as sufficient basis to pull all of those additional factors and studies back in front of us.

But if you want to focus specifically on his critique of Dr. Paulsen and her analysis of residence

time, then that would be appropriate.

MS. TABER: Okay. I will -- I'll move on, because I think we're going to keep disagreeing about any approach I planned.

Let's move on to my -- to temperature.

Referring to Page 17 of Dr. Chilmakuri's testimony, Line 24.

(Exhibit displayed on screen.)

MS. TABER: Where you -- Lines 23 and 24, where you note that Dr. Paulsen (reading):

". . . Did not perform any analysis or cite to any evidence to show potential effects from California WaterFix on Delta water temperatures."

Am I correct in remembering from the discussion this morning that DWR did not present any daily location-specific temperature data in this proceeding?

WITNESS CHILAMKURI: Miss Taber, we were talking about temperatures in the American River.

MS. TABER: Okay.

WITNESS CHILAMKURI: And that testimony was that we did present daily temperatures.

MS. TABER: Okay. Did you present any of that data in the Delta?

WITNESS CHILAMKURI: Yes, for the BA H3+.

MS. TABER: BA H3+. Okay.

And would you expect that daily average water temperatures would be the same at a given location within the Delta for each day of a given month?

WITNESS CHILAMKURI: That's not what I'm saying.

MS. TABER: Okay. I know it's not what you're saying. I'm just asking you if you would expect that.

WITNESS K: No.

MS. TABER: No? Okay.

(Pause in proceedings.)

WITNESS CHILAMKURI: But, again, I am talking about Dr. Paulsen making statements in her testimony without any basis. We, in fact, presented data which showed that there were very minimal changes in temperature.

My -- My whole testimony's talking about Dr. Paulsen's statements without any basis.

MS. TABER: Okay.

WITNESS CHILAMKURI: Same goes for the residence time.

MS. TABER: Was the temperature model that you referred to calibrated?

WITNESS CHILAMKURI: Yes.

MS. TABER: And do you know what time step that model runs on?

MR. BERLINER: I'm going to object.

We spent quite a bit of time on model calibration in Part 1. I don't know where this is going.

If Ms. Taber could give an offer of proof because, otherwise, we could find ourselves deep into model calibration again.

CO-HEARING OFFICER DODUC: Miss Taber.

MS. TABER: I have about four questions about the temperature modeling, and he is a modeling expert.

I'm not sure if we'll have the opportunity to have surrebuttal, so I was hoping to use this opportunity to clarify the remaining questions that we had based on a subject that is addressed in his testimony.

CO-HEARING OFFICER DODUC: Regarding a subject that is addressed in his testimony.

But is it directly related to his rebuttal of Miss -- of Dr. Paulsen's testimony?

MS. TABER: Well, he does reference the DWR temperature modeling to buttress his opinion that the Project will not have significant impacts with regard to cyanobacteria formation, which is in response to

Dr. Paulsen's contrary opinion.

CO-HEARING OFFICER DODUC: Point that out to me, please.

(Pause in proceedings.)

MS. TABER: His opinion that spans -- on residence time, Pages 16 to 18 of his testimony, addresses Dr. Paulsen's residence time results.

CO-HEARING OFFICER DODUC: And pointing out what he believes to be the shortcomings in her analysis; right?

MS. TABER: Yes.

CO-HEARING OFFICER DODUC: And you're responding to that by asking him basic questions about the modeling that was conducted?

MS. TABER: Yes. Because that modeling -- He -- He says she incorrectly characterizes DWR temperature analysis presented in DWR-653 as flawed, and he cites some reasons.

And so I'm asking him some questions about that modeling in DWR-653.

CO-HEARING OFFICER DODUC: Miss Ansley.

Before I ask Miss Taber, go ahead, Miss Ansley.

MS ANSLEY: I'd raise the exact same objections.

Looking at the two sentences Miss Taber is referencing, he is only pointing out and giving his exact reasons why Miss -- Dr. Paulsen's analysis was flawed.

In no way should this reopen testimony concerning DWR's temperature modeling, which is not put at issue by that one sentence on Lines 26 through 28.

CO-HEARING OFFICER DODUC: I would agree.

MS. ANSLEY: It is merely a contrast.

CO-HEARING OFFICER DODUC: I would agree.

MS. TABER: Okay. Thank you all. I'll move on.

My last questions -- series of questions address Page 22 of Dr. Chilmakuri's testimony and, specifically, Lines 17 through 20.

(Exhibit displayed on screen.)

MS. TABER: Where you state that the Final EIR/EIS included it. And you corrected the testimony orally, I believe, to say included in Environmental Commitment to work with SRCSD on an operations protocol to minimize any impacts to SRWTP operations.

Do you see that, Dr. Chilmakuri?

WITNESS CHILAMKURI: Yes.

MS. TABER: Are you aware that the

Environmental Commitment you reference was not included in DWR's adopted Mitigation Monitoring and Reporting Program with the other Environmental Commitments set forth there?

WITNESS CHILAMKURI: I don't.

MS. TABER: Okay. Can you describe:

What would this Environmental Commitment or measure look like? How would it work?

WITNESS CHILAMKURI: Do you want me to speculate how it would be?

MS. TABER: Do you -- You don't know?

WITNESS CHILAMKURI: I don't know.

MS. TABER: Okay. Have you ever discussed this particular commitment and how it might be developed with anyone?

WITNESS CHILAMKURI: No, I didn't.

MS. TABER: Okay. Do you know who at DWR might have -- be able to answer those questions?

(Pause in proceedings.)

WITNESS CHILAMKURI: I was merely referring to the statement that was in the Final EIR/EIS that DWR make an Environmental Commitment to work with Sac Regional to develop protocol.

MS. TABER: But you yourself haven't conducted any sort of analysts or tried to . . . outline what

such a protocol would look like.

WITNESS CHILAMKURI: No.

MS. TABER: Okay. And you don't know if anyone at DWR has?

WITNESS CHILAMKURI: No.

MS. TABER: Okay. That completes my questions. Thank you.

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

Mr. Etheridge.

MR. ETHERIDGE: Good afternoon. My name is Fred Etheridge on behalf of the East Bay Municipal Utility District.

My cross-examination today, I have two primary topics: The first is the Delta Cross Channel openings in the fall as they relate to Adult Mokelumne Salmon; and the second is spring South Delta exports as they relate to Juvenile Mokelumne Salmonids. I have questions for Dr. Chilmakuri and Dr. Greenwood on each of these topics.

I'd like to start with Dr. Chilmakuri on the subject of Delta Cross Channel Gate operations.

If you could please display his rebuttal testimony, DWR-1217, starting on Page 3 at the bottom of that page at Line 27.

(Exhibit displayed on screen.)

CROSS-EXAMINATION BY

MR. ETHERIDGE: Dr. Chilmakuri, I take it from this portion of your testimony that you agree that the H3+ modeling results indicate the Delta Cross Channel gates would be open longer under H3+ than under the No-Action Alternative; is that correct?

WITNESS CHILAMKURI: Yes, the modeling results do show longer opening, but based on the -- what I described earlier and why I believe under real-time operations that would not occur.

MR. ETHERIDGE: Thank you.

And, in fact, on Table 2 of your testimony, which is at the top of Page 6, the second column of that table --

(Exhibit displayed on screen.)

MR. ETHERIDGE: -- is entitled (reading):

"Number of Years with Longer DCC . . . openings (sic) . . . in (sic) CWF H3+ compared to the NAA."

It shows 31 additional years in October and 31 additional years in November based on the modeling; is that correct?

WITNESS CHILAMKURI: Correct.

MR. ETHERIDGE: But it's your opinion -- Is it

your opinion that these model results are not likely to occur under real-world conditions because the results are due to what you call simplifications in the CalSim II model?

WITNESS CHILAMKURI: Correct.

MR. ETHERIDGE: Thank you.

I want to explore those simplifications.

Your testimony states there are two reasons for the differences between the modeling and what is expected in real-time; is that correct?

WITNESS CHILAMKURI: Correct.

MR. ETHERIDGE: So let's discuss the first of those reasons. It's on Page 4 of your testimony at the bottom, starting at Line 26.

(Exhibit displayed on screen.)

MR. ETHERIDGE: Thank you.

And this is what you'd call a simplified representation in the CalSim II model of the real-time DCC Gate closure triggers; is that correct?

WITNESS CHILAMKURI: Correct.

MR. ETHERIDGE: Now, under the 2009 NMFS Biological Opinion, there's a fairly complex combination of alerts and triggers that govern DCC Gate closures in October and November; is that correct?

WITNESS CHILAMKURI: Yes.

MR. ETHERIDGE: And are you familiar with those triggers and alerts?

WITNESS CHILAMKURI: Generally, yes.

MR. ETHERIDGE: Are the triggers based on a culmination of fish catch indexes and D-1641 water quality criteria?

WITNESS CHILAMKURI: Yes.

MR. ETHERIDGE: Thank you.

WITNESS CHILAMKURI: Actually, let me clarify. Sorry.

The triggers are based on environmental conditions, meaning they look at flows and upstream tributaries and water temperature, but actual closure decision, the decision to close itself is based on fish catch and water quality, as you stated.

MR. ETHERIDGE: Okay. Thank you.

On Page 5, Line 6 and 7 of your testimony --

(Exhibit displayed on screen.)

MR. ETHERIDGE: -- you state that (reading):

". . . The CalSim II model, the number of days DCC Gates would be closed is dependent only on the Wilkins Slough flow."

Do you see that?

There's a sentence --

WITNESS CHILAMKURI: Yes, I see that.
MR. ETHERIDGE: Thank you.
Do you believe this simplification causes the model to incorrectly simulate DCC closures?
WITNESS CHILAMKURI: It's -- The -- What is -- What I'm trying to say there is that, as I just described, there are many factors that -- that are used in making the closure decisions. It starts with a series of alerts which are based on flows in Mill Creek, Deer Creek, flow at Wilkins Slough, flow at -- water temperature at Knights Landing.
And then the actual closure decision itself is based on the fish catch at either Knight's Landing trawl or the Sacramento River trawl, and -- whereas the model just uses Wilkins Slough flow to represent all those series of alerts as well as the closure decisions to, in the model, decide whether to close the gate or not.
MR. ETHERIDGE: Okay. Thank you.
So, in a sense, that -- the model's reliance on the Wilkins Slough flow acts as a surrogate for all those other factors you just described.
WITNESS CHILAMKURI: Correct.
MR. ETHERIDGE: Thank you.
On Page 5 of your rebuttal testimony, Lines 7

to 9, you state that (reading):

". . . Even a slight reduction in the Wilkins Slough flow under CWF H3+ compared to the No-Action Alternative would result in longer modeled (sic) openings of the (sic) DCC Gates."

Is that correct?

WITNESS CHILAMKURI: Yes.

MR. ETHERIDGE: And did you analyze the model results to determine whether the flow reductions in Wilkins Slough were, in fact, slight?

WITNESS CHILAMKURI: I did review the modeling results to see whether there were reductions under CWF H3+ compared to No-Action for Wilkins Slough, and I did find them lower. That's the reason the model is showing longer openings. But whether I would say they were slight, I don't know.

What I'm trying to say is that the relationship that I used -- that we used in CalSim II model as a surrogate to all these multiple requirements or triggers, that relationship is a simple linear relationship between Wilkins Slough flow on a monthly average basis and -- versus the number of days where the flow at Wilkins Slough would be greater than 7500 cfs. It's a linear relationship.

Any change in Wil -- monthly Wilkins Slough flow would result in the value on the number of days when the flow would exceed 7500 cfs.

That's what I'm trying to say, is that that relationship by the -- because of its lenient nature, any small change in flow would result in a change in DCC Gate operations.

MR. ETHERIDGE: And do you mean that all slight reductions in Wilkins Slough flows would result in longer modeled openings regardless of the flow rate in the slough at the time?

WITNESS CHILAMKURI: I think the relationship believe -- It becomes ineffective around -- I want to say roughly around 5500 cfs monthly average flow at Wilkins Slough.

MR. ETHERIDGE: So, while you've identified in your testimony this application of the model, can you say to what precise extent the model may have overestimated the gate closures that would occur in the real world?

WITNESS CHILAMKURI: I cannot.

And my whole point is that the model is a very simplified rep -- I mean, it's a simplification of what the actual process would be.

And, for me, given -- given where we are

today, there's no reason to think that the decision would differ if the fish -- if the same processes and same procedures are followed in the future.

MR. ETHERIDGE: Okay. Thank you.

I wanted to move on to the second reason you provide for the simplification in the model.

And you testified that the second reason was how CalSim II models Sacramento River flows under high-flow conditions; is that correct?

WITNESS CHILAMKURI: Correct.

MR. ETHERIDGE: Now, according to the CWF NMFS Biological Opinion, the Delta Cross Channel Gates need to be shut when flows exceed 25,000 cubic feet per second at Freeport upstream from the WaterFix Project's north diversion point; is that correct?

WITNESS CHILMAKURI: Yes. That -- that is stated in the NFMS Biological Opinion.

However, I just want to clarify that the 25,000 cfs closure, it's not a NMFS requirement. It is actually a -- an operational consideration the Bureau uses right now to -- for the safety of the gates from the flooding and scouring risk.

And I'm just merely noting that, in the model, the flow we used to decide when to close the gates was just upstream of DCC, whereas NMFS stated that, even

with WaterFix, there will be new intakes being built upstream of DCC.

They would rather have us use the flow up -- measured upstream of the intakes. That way, there would not be a significant difference between the closures that we would see today without the index and with the index.

MR. ETHERIDGE: Okay. And then is it true that the CalSim II model applies this gate closure trigger based on modeled flows at a different location, that being downstream of the Project's North Delta Diversion?

WITNESS CHILMAKURI: That's what I was explaining, yes.

MR. ETHERIDGE: All right. Thank you.

So you've identified at least two simplifications in the CalSim II model related to DCC Gate operations.

In light of these discrepancies, are the model results unreliable to show how the Project might affect DCC Gate operations?

WITNESS CHILMAKURI: No, I wouldn't say that.

A modeling is a representation, and it is a reasonable representation, in my opinion.

I can explain why, if you would like.

MR. ETHERIDGE: Certainly.

WITNESS CHILMAKURI: Yeah. So, if you look at the individual instances when this actually happens in the years when this longer opening happens, most of this years are -- especially if you look at Septembers, all of those years are wet year.

They're -- In the model, the action that's controlling the operations is the Fall X2. There is a significant amount of flow being released from upstream storage reservoirs.

With WaterFix, given that the exports in the South Delta are going to be lower, the amount of release is coming from the Sacramento River as worst. It's actually not as high as under No-Action because -- because we could have achieved the same level of outflow under WaterFix with less inflow on the Sacramento.

So, most -- So, there are a couple of things going on: One, we are trying to meet a fall X2 requirement, which requires significantly high Delta outflows, which means that all the con -- generally, what conditions would be fresh in the Delta.

So I don't -- I don't think the modeling is -- I still think the modeling is representative of what the conditions would be even if the gates were closed.

MR. ETHERIDGE: Okay. Thank you.

Some questions for Dr. Greenwood regarding his opinion on Adult Salmonids.

If you could please display his rebuttal testimony, that's DWR-1221, at Page 37.

(Exhibit displayed on screen.)

MR. ETHERIDGE: And the slide beginning on Line 23.

(Exhibit displayed on screen.)

MR. ETHERIDGE: Thank you.

WITNESS GREENWOOD: I thought he said 37. Page 37.

MR. ETHERIDGE: Page 37, Line 23.

(Exhibit displayed on screen.)

MR. ETHERIDGE: It's speaking of Adult Salmonids. There you go.

On Page 37, Lines 23 to 26 of your rebuttal testimony, you expressed an understanding that (reading):

". . . Modeled increases in Delta Cross Channel Gate closures are not likely to occur during actual operations."

Do you see that?

WITNESS GREENWOOD: Yes.

MR. ETHERIDGE: And did you mean to say model

increases in gate openings?

WITNESS GREENWOOD: Yeah, I think so. Yes.

MR. ETHERIDGE: It appeared to be an error because I was just talking with Dr. Chilmakuri about the consequences of increased openings.

And you meant to say "openings" rather than "closures"; correct?

WITNESS GREENWOOD: That's right, yes.

MR. ETHERIDGE: Okay. Thank you.

And did you rely on Dr. Chilmakuri's testimony as the basis for your opinion that modeled changes to DCC Gate operations are unlike to actually occur?

WITNESS GREENWOOD: Yes, in discussions with Dr. Chilmakuri.

MR. ETHERIDGE: Thank you.

If you could turn to the next page of your testimony, Page 38, starting at Line 2.

(Exhibit displayed on screen.)

MR. ETHERIDGE: You state that the DCC gate criteria would not change under H3+.

Do you see that?

WITNESS GREENWOOD: I see it.

MR. ETHERIDGE: But in determining how often the Delta Cross Channel will be closed, it isn't enough to look only at the DCC criteria but also to look at

how often, for how long, those criteria are actually applied with the Project; correct?

WITNESS GREENWOOD: Can you repeat that question, please?

MR. ETHERIDGE: Let me ask it a different way.

Even if the criteria governing DCC operations don't change under H3+, couldn't the WaterFix Project operations alter flows, temperature or any of the other metrics that govern gate operations in a way that results in gate openings or closures that would not otherwise have occurred?

WITNESS GREENWOOD: Based on my understanding, it's not expected that -- even though there may be some differences, it's not expected that the DCC closures would differ or openings would differ. So, that's the basis of my -- my opinion.

MR. ETHERIDGE: Okay. But what I was asking is: Your statement here on the criteria.

So you have existing conditions and existing criteria at the Delta Cross Channel; correct?

WITNESS GREENWOOD: Yes.

MR. ETHERIDGE: And with the WaterFix Project, if you had those same criteria in place, that would not wholly answer the question of how often the DCC Gates were open or closed; correct?

WITNESS GREENWOOD: I think it -- it depends on a number of factors, of which -- For example, fish presence is one of the ones that Dr. Chilmakuri had mentioned, so . . .

I think that's -- that's some of the things I'm considering in my -- in my opinion there.

MR. ETHERIDGE: All right. Okay. Thank you.

Lower down on Page 38, in a paragraph starting on Line 7 --

(Exhibit displayed on screen.)

MR. ETHERIDGE: -- you responded to Mr. Setka's proposed DCC closure permit term by stating that CWF H3+ would not preclude additional closures of the DCC of the type planned in 2012; correct?

WITNESS GREENWOOD: That's what I say, yes.

MR. ETHERIDGE: But isn't there a difference between the Project not precluding additional closures of the DCC gates and having the gate's closures actually being required?

WITNESS GREENWOOD: There may be -- There may be a difference, but I guess my -- my overall opinion is that, given the -- given my understanding of the drivers of the closures and Mr. Setka's proposed condition, I didn't see a need for the condition in the first place.

But, also, in addition, I'm just noting that I recognize that there have been proposals in the past to -- to try additional closures, you know, to -- for -- for protection, for example, of Mokelumne River Adult Salmonids and that that's not precluded by CWF H3+. So that's still compatible in CWF H3+.

MR. ETHERIDGE: But there's a difference between -- Just because the gates can be closed more, in other words, not precluded from being closed more, that doesn't mean they will be closed more; correct?

MR. MIZELL: Objection: Asked and answered.

WITNESS GREENWOOD: It doesn't --

CO-HEARING OFFICER DODUC: Dr. Greenwood.

WITNESS GREENWOOD: It doesn't mean they will be. It's just saying that that's com still -- compatible with WaterFix.

MR. ETHERIDGE: Thank you.

Were the 2012 closures of the DCC that are referred on Page 48, Line 14, of your testimony, done as part of a study?

WITNESS GREENWOOD: I believe they were planned to be done -- My recollection is, they were planned to be done as part of a study.

MR. ETHERIDGE: Okay. Did you mean that CWF H3+ would not prevent additional DCC Gate studies

from being conducted?

WITNESS GREENWOOD: Those were examples of the types of, I guess, studies that ultimate -- Well, this is primarily referring to a study, so I think WaterFix is compatible with studies of that nature.

MR. ETHERIDGE: Okay. But Mr. Setka didn't ask for additional DCC Gate studies in his testimony; did he?

WITNESS GREENWOOD: He didn't.

MR. ETHERIDGE: And didn't he propose that the DCC Gate closures should be required for 15 days in October and November as a permanent condition on the Change Petition's approval?

WITNESS GREENWOOD: He did, and I didn't think that that was necessary, based my opinion.

MR. ETHERIDGE: Thank you.

On Page 38, Line 14, of your testimony, you cite to a specific page of the WaterFix Biological Assessment.

Do you see that?

WITNESS GREENWOOD: I do.

MR. ETHERIDGE: I'd like to ask you something about that page.

If we could look at Exhibit DWR-1142. This is in Appendix 5.E.

(Exhibit displayed on screen.)
MR. ETHERIDGE: And it's Page 5.E-87. I believe it's about Page 88 of the .pdf.
(Exhibit displayed on screen.)
MR. ETHERIDGE: There you go.
Did you review this part of the BA for your rebuttal testimony?
WITNESS GREENWOOD: Yes.
MR. ETHERIDGE: Here, the BA states that (reading):
". . . The DCC may be open somewhat more often under the Project Alternative during the fall-run Chinook (sic) upstream Salmon migration period . . . which (sic) could slightly increase the potential for straying of Adult Mokelumne fall-run Chinook Salmon."
Do you agree with that conclusion?
WITNESS GREENWOOD: That conclusion, I think, is based primarily on just consideration of the modeling results, not in addition to additional considerations such as Dr. Chilmakuri mentioned.
MR. ETHERIDGE: But do you agree with the conclusion in the Biological Assessment?
WITNESS GREENWOOD: That's the conclusion

based on the modeling.

What I'm saying is, there are additional considerations that Dr. Chilmakuri mentioned.

So, to the extent I agree that that's what the modeling indicated, then that's consistent, I think.

MR. ETHERIDGE: Okay. Thank you.

The BA also states in the same paragraph that temporary October closures of the DCC could be implemented to reduce straying of Mokelumne fall-run Chinook Salmon.

Do you see that?

WITNESS GREENWOOD: I see that.

MR. ETHERIDGE: But you have testified that the October closures by Mr. Setka are unnecessary.

Does that mean that you disagree with the BA regarding October closures?

WITNESS GREENWOOD: Sorry. Could you ask that question again, the first part? State the first part again, please, and then the question.

MR. ETHERIDGE: Well, you testified earlier that the October closures of the DCC proposed by Mr. Setka in his condition are unnecessary; is that correct?

WITNESS GREENWOOD: Unnecessary for addressing the effects of California WaterFix.

MR. ETHERIDGE: Does that mean that you disagree with the BA regarding October closures?

CO-HEARING OFFICER DODUC: Mr. Etheridge, I'm reading the sentence.

And what is it that you're asking Dr. Greenwood whether he agrees with?

MR. ETHERIDGE: I'm asking if he agrees with this -- the -- the last sentence of that -- of the BA that states (reading):

> "Should temporary October closures of the DCC to reduce straying of Mokelumne River fall-run Chinook Salmon be implemented in the future, as are currently being tested, these closures would occur under the NAA and PA with the aim of lessening the potential for straying."

MS. ANSLEY: And I would object that the question is vague and ambiguous and misstates that sentence.

The BA is not there recommending October closures. It's starting out, as it reads clearly, "Should temperatures -- Should temporary closures of the DCC." So it's merely stating should this future event occur.

So the question is vague and ambiguous and misstates what he's referring to here in the BA.

CO-HEARING OFFICER DODUC: And how does, Mr. Etheridge, relate back to his statement in his testimony that CWF H3+ would not preclude additional closure? I'm trying to make the linkage.

MR. ETHERIDGE: It's -- The difference -- Well, and we went over that a couple minutes ago in terms of -- Certainly, it wouldn't preclude the DCC from being closed additionally. But you have --

CO-HEARING OFFICER DODUC: Yes.

MR. ETHERIDGE: -- an independent Biological Assessment referring to closures and I just wondered if he agreed with that statement in the Biological Assessment.

I think he's answered it.

CO-HEARING OFFICER DODUC: Do you agree, Dr. Greenwood, that should temporary October closures be necessary, that it would be done under the NAA and PA with the aim of lessening the potential for straying?

WITNESS GREENWOOD: That's --

CO-HEARING OFFICER DODUC: That's what it says.

WITNESS GREENWOOD: To me, that sentence is

kind of a different way of just saying what I've said in my opinion, which is that it's -- it would happen under the No-Action Alternative or under CWF H3+.

CWF H3+ isn't precluding those sort of actions to occur.

MR. ETHERIDGE: Okay. Thank you.

I'd like to move on to Topic 2, which is increases in South Delta exports in April and May.

I have questions on this for both Dr. Chilmakuri and Dr. Greenwood.

I wanted to start with the testimony of Dr. Chilmakuri -- that's DWR-1217 -- on Page 8, Figures 3 and 4.

(Exhibit displayed on screen.)

MR. ETHERIDGE: Dr. Chilmakuri, these Figures 3 and 4 on Page 8 of your testimony are -- appear to be exceedance curves which plot the model results for total South Delta exports in April and May for the BA H3+, CWF H3+ and the No-Action Alternative; correct?

WITNESS CHILMAKURI: Yes.

MR. ETHERIDGE: Do these curves indicate to you that, under the H3+ scenarios, South Delta exports would be less than the No-Action Alternative in both April and May?

WITNESS CHILMAKURI: Yes.

MR. ETHERIDGE: And are you aware of the modeling done for the Boundary 1, Boundary 2, H3 and H4 scenarios?

WITNESS CHILMAKURI: Yes.

MR. ETHERIDGE: Are you aware that, under some of those Project scenarios, at least some of the time, the model showed that South Delta exports would increase compared to the No-Action Alternative?

WITNESS CHILMAKURI: Yes, the -- Some of those scenarios do indicate there could be periods of time the South Delta exports could be slightly higher than No-Action Alternative.

MR. ETHERIDGE: Okay. Thank you.

I'd like to turn to the testimony of Ms. Workman. This is East Bay MUD Exhibit 156, and it's Figure 12, which is at the back of that testimony.

(Exhibit displayed on screen.)

MR. ETHERIDGE: So it's after the written text begins. The figures are at the back of this testimony, and what we're looking for is Figure 12.

CO-HEARING OFFICER DODUC: Do you have a page number?

(Exhibit displayed on screen.)

MR. ETHERIDGE: We're almost there. Keep

going. Scroll down a little further.

(Scrolling through document.)

MR. ETHERIDGE: It's one more.

(Scrolling through document.)

MR. ETHERIDGE: There you go.

Dr. Chilmakuri, do you recall reviewing several exceedance curves that looked like Figure 12 in Ms. Workman's testimony as now explained?

WITNESS CHILMAKURI: Could you also show the figure that is.

MR. ETHERIDGE: Scroll down a little figure so we can see that.

(Exhibit displayed on screen.)

MR. ETHERIDGE: There we go.

WITNESS CHILMAKURI: Yes.

MR. ETHERIDGE: Now, does Figure 12 from Ms. Workman's testimony plot model results from total South Delta exports during April of wet years?

WITNESS CHILMAKURI: That's what the figure indicates. I cannot verify the data, though.

MR. ETHERIDGE: Okay. If we can turn to the next page, Figure 13.

(Exhibit displayed on screen.)

MR. ETHERIDGE: And does Figure 13 plot model results for total South Delta exports during April in

dry years?

WITNESS CHILMAKURI: Yes.

MR. ETHERIDGE: And both these figures plot results for five scenarios, B1, B2, H3, H4 and the No-Action Alternative; correct?

WITNESS CHILMAKURI: Yes, but it does not plot the CWF H3+.

MR. ETHERIDGE: Right. And that's because they were submitted -- Do you know if that's because they were submitted prior to the time H3+ --

WITNESS CHILMAKURI: But neither -- It shows BA H3+, which was already available prior to the start of Part 2.

MR. ETHERIDGE: Do you understand these two figures to show that South Delta exports would increase in April relative to the NAA most of the time in Boundary 1 and sometimes also in the H3 and H4 scenarios?

MR. BERLINER: Objection: Relevance.

These are not alternatives that are before us as part of the Project.

MR. ETHERIDGE: It's very relevant to his rebuttal testimony because his rebuttal testimony is rebutting this very testimony of Ms. Workman.

CO-HEARING OFFICER DODUC: Let's --

MR. ETHERIDGE: I'm trying --

CO-HEARING OFFICER DODUC: Hold on. Hold on.

Mr. Etheridge, please point out to me, because I'm on his testimony, and his Opinion 2, which I think is where you are, is focused on the CWF H3+. That's all he discusses.

(Pause in proceedings.)

CO-HEARING OFFICER DODUC: And his point was that EBMUD witnesses relied on the different -- the other alternatives, but his rebuttal is based on the CWF H3+.

MR. ETHERIDGE: Okay. We can -- We can move back to Dr. Chilmakuri's rebuttal testimony.

CO-HEARING OFFICER DODUC: I'm sorry. I thought that's where I was.

WITNESS CHILMAKURI: I guess on the screen.

CO-HEARING OFFICER DODUC: Oh, oh, I'm sorry.

MS. MESERVE: Sorry for the interruption, but I'm a little confused.

It's my understanding the Petition is for a range of operations that were discussed in CWF H3+ as a starting point in operations.

I don't understand why we wouldn't be able to ask questions beyond CWF H3+ if the Permit being sought includes other operations besides that initial

operation if --

CO-HEARING OFFICER DODUC: Because this is rebuttal. And cross-examination in rebuttal must be limited to the scope of the rebuttal testimony.

MS. MESERVE: They will not be limited to operating under CWF H3+ if the Permit they're requesting is issued.

CO-HEARING OFFICER DODUC: Miss Meserve, you lawyers make up these rules.

So the scope of cross-examination for rebuttal is limited to the rebuttal testimony.

MR. ETHERIDGE: If I could point out in Dr. Chilmakuri's rebuttal testimony on Page 6, beginning on Line 15, he's referring to the testimony of EBMUD witness Ms. Workman and Delta exports in April and May.

CO-HEARING OFFICER DODUC: Yes. He is referring to their testimony as what he is rebutting, but his rebuttal testimony is focused on . . . not the scenarios that you outlined.

MR. ETHERIDGE: Well, but he states at Line 17 they relied on B1, H3, H4 and B2.

What I'm trying to do is draw a distinction between that testimony -- the very testimony that he's rebutting -- and then his own figures to rebut that.

In other words, his rebuttal testimony is a new piece of evidence intended to rebut the testimony of Ms. Workman. I'm simply drawing a comparison to that testimony of Ms. Workman and what he's saying now, to look at them side-by-side.

CO-HEARING OFFICER DODUC: I'm not sure I understand why you're doing this, but okay.

MR. ETHERIDGE: Well, we can return now to Dr. Chilmakuri's testimony, and that's DWR-1217, on Page 8.

CO-HEARING OFFICER DODUC: I'm assuming there's a point you want us to understand and I'm telling you I don't understand it.

MR. ETHERIDGE: Well, we're getting there.

Dr. Chilmakuri, your Figures 3 and 4 on Page 8 of your testimony show results for South Delta exports in April and May; is that correct?

WITNESS CHILMAKURI: Correct.

MR. ETHERIDGE: And it shows reduced South Delta exports in April and May under the H3+ relative to the NAA; is that correct?

WITNESS CHILAMKURI: Yes.

MR. ETHERIDGE: Is there now a WaterFix Project criteria that requires spring Delta outflow to be maintained at the level that would have occurred

without the WaterFix Project?

WITNESS CHILAMKURI: Yes.

MR. ETHERIDGE: And does the H3 modeling -- H3+ modeling constrain Delta exports in April and May to meet the Delta outflow requirement?

WITNESS CHILMAKURI: Yes.

MR. ETHERIDGE: Thank you.

And that export restraint in April and May was a change new to the H3+ modeling; is that correct?

WITNESS CHILMAKURI: In which months again?

MR. ETHERIDGE: April and May.

WITNESS CHILMAKURI: No, it's not changed.

MR. ETHERIDGE: Well, is it changed from the modeling assumptions that were made earlier for B1, B2, H3 and H4?

WITNESS CHILMAKURI: Not all those -- Not all those scenarios had any -- had a spring outflow requirement, so I don't know how you can draw a comparison between what's in CWF H3+ for Spring outflow to all those other scenarios.

MR. ETHERIDGE: What I'm trying to get to is to figure out why in the earlier Part 1 modeling it showed increased South Delta exports in April and May, and Miss Workman based her testimony on that.

And now with the H3+ modeling it shows reduced

exports. And I'm trying to figure out what changed to derive that modeling result.

WITNESS CHILMAKURI: Sure.

And the primarily -- In Ms. Workman's testimony, the scenario which showed increased exports are -- is the Boundary 1, which is our -- our Petitioners' estimation of what could be a future scenario under the Adaptive Management Program, if the -- if the science indicates that we could go to that level of criteria.

So, yes, that scenario did not include the same level effects flow restrictions that were in the CWF H3+, so, therefore, we did show our -- even in the No-Action for that matter. So that's why it indicated higher exports in April and May than No-Action Alternative.

MR. ETHERIDGE: Okay. Thank you.

I'd like to shift to Dr. Greenwood and his salvage estimates in his written testimony.

Dr. Greenwood, I'd like to ask you about your statement on Page 35, beginning on Line 21 of your written rebuttal testimony.

(Exhibit displayed on screen.)

MR. ETHERIDGE: And here, you undertake some calculations. And you give the opinion that the

salvage rate of Juvenile Mokelumne Chinook Salmon under existing conditions does not seem significant to you.

Do you see that?

WITNESS GREENWOOD: Yes.

MR. ETHERIDGE: And it appears from this paragraph of your testimony that you support your opinion by calculating an estimated salvage rate of Mokelumne fish based on information provided by EBMUD witness Michelle Workman; is that correct?

WITNESS GREENWOOD: Yes, the combination of her written testimony with her oral testimony.

MR. ETHERIDGE: Okay. Thank you.

I'm going to try to summarize my understanding of how you calculated your salvage estimate, but I'm not an engineer or mathematician, but please let me know if I state it correctly.

Essentially, you began with the total number of Mokelumne Chinook Salmon salvaged from the export pumps during a certain period of years from 1992 to 2006; is that correct?

WITNESS GREENWOOD: 1992 to 2006. I believe so, as -- as written in Miss Workman's testimony.

MR. ETHERIDGE: Okay. And then did you multiply that salvage total by a loss expansion factor?

WITNESS GREENWOOD: Yes.

MR. ETHERIDGE: And then you divided the expanded salvage total by the total number of coded wired-tagged fish that were released during the same period; is that correct?

WITNESS GREENWOOD: Yes.

MR. ETHERIDGE: And then your answer to that math problem was 0.06 percent; is that correct?

WITNESS GREENWOOD: Correct.

MR. ETHERIDGE: And do you recall the salvage total you used before applying the loss expansion factor? Was it 332 fish?

WITNESS GREENWOOD: I believe so.

MR. ETHERIDGE: I'm looking at Line 18 on Page 35 of your testimony. It appears that you used 332 fish; is that correct?

WITNESS GREENWOOD: Based on my recollection, I think so, yes.

MR. ETHERIDGE: And do you know if that salvage total included fish released west of the Mokelumne River in the Delta?

WITNESS GREENWOOD: I'd have to verify whether it was or whether it wasn't.

MR. ETHERIDGE: You don't know where the fish were released that generated that 332 fish?

WITNESS GREENWOOD: I don't recall. I'd have

to look at Miss Workman's testimony, or, actually, possibly the transcript as well.

MR. ETHERIDGE: Well, you could -- you can go to Ms. Workman's testimony, which is EBMUD Exhibit 156.

(Exhibit displayed on screen.)

MR. ETHERIDGE: Figure 3.

(Exhibit displayed on screen.)

MR. ETHERIDGE: Scrolling up from there.

(Scrolling through document.)

MR. ETHERIDGE: Keep going.

(Scrolling through document.)

MR. ETHERIDGE: There you go. It's the blue -- It's the bar graph drop-down.

(Exhibit displayed on screen.)

MR. ETHERIDGE: There you go.

Do you see Figure 3 from Ms. Workman's testimony displayed on the screen now?

WITNESS GREENWOOD: Yes.

MR. ETHERIDGE: You see the black and blue bars from the 1992-to-2006 period, when added together, indicate the 332 Mokelumne Chinook salvaged from export facilities during those years.

WITNESS GREENWOOD: I see that, yes.

MR. ETHERIDGE: Can you see from this that the total of 332 fish includes fish from interior Delta

releases and from releases west of the Delta?

WITNESS GREENWOOD: I see that, yeah.

MR. ETHERIDGE: Okay. Thank you.

Did you understand these numbers to include all fish released and tagged on the Mokelumne River between 1992 and 2006 regardless of where the fish were released?

WITNESS GREENWOOD: Sorry. Which number? Did I understand which number?

MR. ETHERIDGE: Well . . . go back to your written testimony, Page 35.

(Exhibit displayed on screen.)

MR. ETHERIDGE: And Line 20 on Page 35 of your written -- This is DWR Exhibit 1221. It would be Dr. Greenwood's testimony. Page 35 and Line 20.

(Exhibit displayed on screen.)

MR. ETHERIDGE: Do you see there the total release was approximately 26 million fish?

(Pause in proceedings.)

WITNESS GREENWOOD: I see it, yes.

MR. ETHERIDGE: So, did you understand this number of fish to include all fish released and tagged on the Mokelumne River between 1992 and 2006 regardless of where the fish were released?

WITNESS GREENWOOD: I can't recall right now.

It may have been more. I'd have to look at the transcript to verify that, yeah.

MR. ETHERIDGE: But to clarify: The calculated salvage rate in your rebuttal testimony represents existing pre-WaterFix conditions; is that correct?

WITNESS GREENWOOD: This was . . . I think this was specifically applying to the 1992-to-2006 period.

MR. ETHERIDGE: Thank you.

Can we turn to the next page of your testimony, Page 36, starting at Line 2.

(Exhibit displayed on screen.)

MR. ETHERIDGE: You noted that Ms. Workman was concerned that South Delta exports could be higher under the B1 Project scenario than under the No-Action Alternative.

Just below that, you give an opinion about the adaptive management process.

Do you see that?

WITNESS GREENWOOD: Yes, I see it.

MR. ETHERIDGE: You say here in your testimony that you (reading):

". . . Expect the adaptive management process would only consider changes to

South Delta Operational Criteria that are (sic) protective of Juvenile Salmonids in the Delta . . ."

Why do you have that expectation?

WITNESS GREENWOOD: General recognition or knowledge of, I guess, recent years of changes in operations as far as being more protective for fish in terms of South Delta operations.

MR. ETHERIDGE: Thank you.

Are you certain of that expectation?

WITNESS GREENWOOD: I'm just providing as an opinion that that's what -- that's what I would expect.

MR. ETHERIDGE: Okay. Thank you.

Are Mokelumne River fall-run Chinook Salmon a listed species?

WITNESS GREENWOOD: They aren't.

MR. ETHERIDGE: Do you expect the adaptive management process to specifically consider impacts to Mokelumne River fall-run Chinook Salmon?

WITNESS GREENWOOD: Not necessarily, but I think here in my opinion, I'm stating that if there's adaptive management considering Salmonids -- listed Salmonids, for example, coming from San Joaquin River Basin that are listed, that that's -- that's the basis for the general conditions relating to the Delta

migration pathways remaining protective of Juvenile Salmonids in the Delta, which would include Mokelumne River fish.

MR. ETHERIDGE: Okay. Thank you.

The last line of questions concerns the Delta Passage Model on Page 36 of your testimony, Dr. Greenwood, beginning at Line 8.

(Exhibit displayed on screen.)

MR. ETHERIDGE: You refer to the Delta Passage Model responding to Ms. Workman's criticism of that model.

Do you see that?

WITNESS GREENWOOD: I see.

MR. ETHERIDGE: And you responded to her small sample size critique by stating on Line 12 of Page 36, that (reading):

"In fact, the main relationship of importance to Mokelumne River fall-run Chinook Salmon in the DPM is based on fish released in the interior Delta over a considerably greater sample size."

Do you see that now?

WITNESS GREENWOOD: I see it.

MR. ETHERIDGE: Do you know where in the interior Delta fish in the DPM study were released?

WITNESS GREENWOOD: I believe those were released . . .

I believe they were released actually in Lower Georgiana Slough.

MR. ETHERIDGE: Okay. Thank you.

You noted on Line 14 that the interior release in the DPM study had a considerably greater sample size.

What do you mean by that?

WITNESS PHILLIPS: If I recall, Miss Workman was saying she had concerns regarding the Delta Passage Model, that the sample size was only a few -- a few releases, I guess, like four or five releases, whereas, based on my recollection, the paper from which this relationship was taken that's in the DPM is, I believe, along the lines of 15 -- sample size of 15 releases.

So I was just generally expressing that I considered that to be a considerably greater sample size, a three-times greater sample size.

MR. ETHERIDGE: Okay. Thank you.

When the studies with the grid or sample size were performed, do you know if the DCC Gates were open or closed?

WITNESS GREENWOOD: I -- I don't recall.

MR. ETHERIDGE: To the extent the DCC Gates

were closed, could a fish released at Ryde or Georgiana Slough possibly migrate downstream to the Mokelumne forks?

WITNESS GREENWOOD: If they were -- Sorry.

Can you repeat it? I just want to make sure I answer correctly.

MR. ETHERIDGE: Certainly.

To the extent the DCC Gates were closed, could a fish released at Ryde or Georgiana Slough migrate downstream to the Mokelumne forks?

WITNESS GREENWOOD: It would be unlikely. They'd have to migrate upstream first.

MR. ETHERIDGE: Okay. Thank you.

You wrote in your testimony that Ms. Workman was critical of the DPM but did not suggest any alternative to the biological models; is that correct?

WITNESS GREENWOOD: That's what I wrote, sir.

MR. ETHERIDGE: Now, are you aware of any alternative biological models that do a better job representing Delta survival of Mokelumne-origin Salmonids?

WITNESS GREENWOOD: I'm not aware.

MR. ETHERIDGE: Okay. That concludes my questions.

Thank you very much.

CO-HEARING OFFICER DODUC: Thank you.

Before you leave, Mr. Etheridge, because we do have a little bit of time, I think I want to use you as an educational exercise here.

If we could go back to -- which document am I in -- DWR-1217, Dr. Chilmakuri's testimony, on Page 6, his Opinion 2.

(Exhibit displayed on screen.)

CO-HEARING OFFICER DODUC: Now, Mr. Etheridge spent a bit of time on this and got into a lot of back and forth about objections, and Miss Meserve jumped in.

So let's see if we can use this to provide a little bit more clarity going forward.

And if I misinterpreted your purpose, Mr. Etheridge, in conducting cross-examination of this section, please -- please correct me, because I want to make sure we understand.

The way that I read this fairly short portion of testimony was that your expert EBMUD witnesses did an analysis that was based on B1, H3, H4, and B2 modeling results.

And Dr. Chilmakuri rebutted that by saying: But, if you look at the H3+ modeling -- which is the Proposed Project now -- it shows exports in April and May to not be greater.

That's the entirety of the testimony that I see.

Now, what I did not want to have to do was to go back and look at the modeling for B1, H3, H4, B2, and have a detailed discussion of how that was modeled. And I didn't know if that's what you were going for. I didn't know what your purpose was in cross-examining him in this particular segment.

MR. ETHERIDGE: No. It's very simple. It was be -- He was rebutting the testimony of Ms. Workman --

CO-HEARING OFFICER DODUC: Um-hmm.

MR. ETHERIDGE: -- and Dr. Bray, on which -- And their testimony looked at the B1, H3, H4, B2, as you said.

CO-HEARING OFFICER DODUC: Um-hmm.

MR. ETHERIDGE: So I wanted to pull those up. And those show increased Delta outflow in those months.

CO-HEARING OFFICER DODUC: He did not refute that.

MR. ETHERIDGE: Right?

And compare that to the H3+ which shows decrease.

CO-HEARING OFFICER DODUC: Yup.

MR. ETHERIDGE: And then I get to why? Why the dif -- why the difference?

CO-HEARING OFFICER DODUC: And I --

MR. ETHERIDGE: And we went through those questions.

CO-HEARING OFFICER DODUC: Okay. So, thank you, Mr. Etheridge.

My question to you is: Why not just ask why?

MR. ETHERIDGE: I wanted to set the foun -- lay the foundation.

Maybe that's another attorney thing but I need to --

CO-HEARING OFFICER DODUC: No, no.

MR. ETHERIDGE: As you're comparing -- He's rebutting the testimony of a specific witness and she said this, so I --

CO-HEARING OFFICER DODUC: I understand that.

MR. ETHERIDGE: What she said was --

CO-HEARING OFFICER DODUC: But, Mr. Etheridge and everyone else who's listening, that led to a whole bunch of objections and responses.

And in the meantime, Mr. Etheridge, I know that we eventually got to that point and you got the answer as to why, but I would really appreciate it that we could just get there.

MR. ETHERIDGE: Well, I do note that I finished 16 minutes early.

(Laughter.)

CO-HEARING OFFICER DODUC: Again, thank you.

But for -- And as far as, you know, an educational moment. Again, I'm an Engineer not a lawyer, so I don't always fully appreciate all the lawyerly stuff that you guys do.

But I do have concern when it leads to a whole bunch of objections and back and forth that really does not add value to our discussion but, in fact, perhaps might distract us from the point that you're trying to make, Mr. Etheridge.

And, so, my suggestion to all those who are coming up is, again: Get to the point of what it is that you're trying to emphasize and trying to make with your cross-examination. If there are objections, if we need to backtrack, we will do so.

But if you start by pulling up previous modeling results and start down that path, I can almost guarantee you we will be sidetracked with objections and we may end up missing the important point you're trying to make to us.

MR. ETHERIDGE: Noted.

CO-HEARING OFFICER DODUC: All right. All right. With that, we're done a little bit early today.

And tomorrow, I think we'll pay for that,

because we have cross-examination by a bunch of parties.

We'll begin with Mr. O'Laughlin, then Mr. Herrick or Ruiz, Mr. Keeling, Mr. Wolk, Mr. Emrick, Mr. Jackson and Miss Womack.

Thank you all. We will see you 9:30 here.

(Proceedings adjourned at 4:27 p.m.)

State of California)
)
County of Sacramento)

I, Candace L. Yount, Certified Shorthand Reporter for the State of California, County of Sacramento, do hereby certify:

That I was present at the time of the above proceedings;

That I took down in machine shorthand notes all proceedings had and testimony given;

That I thereafter transcribed said shorthand notes with the aid of a computer;

That the above and foregoing is a full, true, and correct transcription of said shorthand notes, and a full, true and correct transcript of all proceedings had and testimony taken;

That I am not a party to the action or related to a party or counsel;

That I have no financial or other interest in the outcome of the action.

Dated: August 22, 2018

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Candace L. Yount, CSR No. 2737