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TECHNICAL STATE WATER BOARD STAFF/
COMMUNITY WATER INTERESTS MEETING

November 18, 2016
9:00 AM - 3:30 PM

Meeting held at:
City of Modesto/Stanislaus County Administration Building
Board Chambers, Basement Floor
1010 Tenth Street
Modesto, CA

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1 SUPERVISOR WITHROW: Good morning, guys,
2 everyone. Thank you for being here today. I'm going
3 to -- we're going to get started. We appreciate all of
4 you being here. We appreciate the State Water Resource
5 Control Board being here, and we appreciate our technical
6 panels that we're going to have here today.

7 This is -- this is going to be a day -- hopefully
8 very informational day for all of us. We hope to -- to
9 really go through this document and with our experts and
10 with the State Water Resource Control Board and to -- and
11 to really get into the -- into the weeds a little bit here
12 today. This won't be a back-and-forth/question-and-answer
13 session here at all. It will be -- it will be with the
14 technical panels that we have here and the State Water
15 Resource Control Board. So we're looking to get a lot
16 of -- get into a lot of the details, like I said, here
17 this morning.

18 I want to thank the county for putting this
19 together. I want to thank Walt Ward, Keith Boggs, all our
20 staff here at the county that helped put this meeting
21 together. It took a lot of work to get everybody here
22 this morning. So I appreciate all of you being here
23 today. So we're going to start off this morning with --
24 we've got an agenda here. Hopefully we're going to stick
25 to this. Everybody hopefully has this.

26 And we're going to start off with the State Water
27 Resource Control Board staff, and they will start off with
28 a ten-minute presentation here and then we'll move into

1 groundwater, drinking water. So off we go here, guys.

2 Thank you. You're up.

3 MR. GROBER: Good morning. My name is Les
4 Grober. I'm the deputy director for water rights and here
5 today to talk with some of the team that has worked on the
6 development of the water quality control plan update for
7 San Joaquin River flow and Southern Delta salinity
8 objectives.

9 To my right is Tim Nelson. To his right is Xuan
10 Gao. Over at the other table, Will Anderson, Anne Huber,
11 and Mark Roberson.

12 So just a very brief introduction about what
13 we're covering today. Where it seems the focus is, one
14 part of this update of the water quality control plan, in
15 particular having to do with San Joaquin River flow
16 objectives for the protection of fish and wildlife in the
17 San Joaquin River, looking specifically at the Merced, the
18 Tuolumne, and Stanislaus rivers, the salmon-bearing
19 tributaries of the San Joaquin River.

20 In the interest of time, that's the brief
21 introduction. I'm going to move to just a few key points
22 that -- those of you who have seen the presentations that
23 we've been making up and down the Valley, just to make --
24 to put context on this proposal is that we're doing it
25 because the current plan is significantly out-of-date.
26 The last big update was 21 years ago, 1995, and we've
27 identified the need for doing an update for several years,
28 including in the minor update of the plan in 2006.

1 There's been Endangered Species Act, water
2 restrictions. There's been this update of the plan as
3 part of the administration's water action plan, and it's
4 really part of the state's overarching goals of attaining
5 the co-equal goals of fish and wildlife protection,
6 ecosystem protection, and water supply.

7 Oops. Sorry.

8 Why are we focusing on flow? Flow -- because
9 flow is really the -- a major element of the protection
10 for fish and wildlife. Lots of scientific studies have
11 shown that it's a major factor in the protection of fish
12 and wildlife and survival of fish like salmon, steelhead.
13 There's many benefits to flow, including, as you'll see as
14 we describe it, habitat. It provides temperature,
15 outmigration, many other things.

16 That being said, the document we prepared -- and
17 the board is mindful that there's other things that can be
18 done, nonflow measures that can be brought to bear, which
19 gets at how the proposal was crafted. It has adaptive
20 implementation that allows adjustment with an adaptive
21 range of 30 to 50 percent of unimpaired flow.

22 The board is also very mindful that this is very,
23 very hard. This is going to come at a significant water
24 supply cost, which is why we're here today is to look at
25 really -- and some of the focus for today's discussion is
26 for the technical elements of the analysis that was done
27 to inform this update of the water quality control plan
28 because these are large blocks of water that we're talking

1 about providing for augmenting instream flow, and that
2 would come from water supply in this affected area.

3 So the board is quite mindful of how hard that
4 balancing is, and the proposal isn't even going all the
5 way towards what the science supports is needed, the 60
6 percent of unimpaired flow. When we do this water quality
7 control plan, we do the analysis that informs, well, how
8 do you reasonably protect the fish and wildlife? It's not
9 an absolute protection.

10 So that's a lot of what this document is about.
11 It's about informing that selection of the adaptive range.
12 And because it's hard, settlements are encouraged because
13 settlements might prefer -- may provide more durable
14 solutions to the proposal and allow for the smartest
15 possible implementation of the proposal and potentially at
16 the lower end of flows.

17 So with that, and to provide context for today's
18 discussion, we start with the very big problem in a very
19 large area here looking at Google map, looking at the
20 affected area. To try to impose some order on the
21 analysis, you take this large area. This just shows --
22 and I'll show in a moment the highlights -- the schematic
23 of where the Merced, the Tuolumne, and the Stanislaus
24 rivers are from south to north and the major reservoirs.
25 And on the left side, the up arrow, the San Joaquin River.

26 So to provide order to the analysis, this is
27 con -- provides the conceptual model, if you will, of how
28 to understand this very difficult problem. And on top of

1 this, we know we have -- it is on the key there. Yeah, we
2 have existing requirements shown in green for different
3 flows, part of FERC flows. We also have in the San
4 Joaquin River Vernalis that shows the current flow
5 objectives that are currently in place in various forms as
6 part of RPAs for FERC licenses or conditions on the
7 permits for the reservoirs and the current water quality
8 control plan objectives.

9 But this proposal is proposing unimpaired flows
10 at the confluences of the Merced, the Tuolumne, and
11 Stanislaus. So what to do if you have -- now you want to
12 understand the nature of this problem and quantitatively
13 assess it? Well, this spaghetti network, this is the
14 CalSim model which has -- for those of you familiar with
15 it, has a lot of detail. We've chosen to amplify this
16 model to more directly understand and assess how ag water
17 management plans, operations of the local districts could
18 potentially affect water supplies both with regard to
19 surface water and groundwater.

20 So we've used this thing called the Water Supply
21 Effects Model, which takes the logic of CalSim and
22 improves on it by adjusting it to what's in the more
23 recent ag management plans and other information. And
24 from that, we get to understand some of the physical
25 changes that can occur to the environment. We understand
26 surface water supply deficits, applied water needs. We
27 can come up with -- and groundwater use estimates to make
28 up for lost water supply.

1 We can then use the SWAP model and ag production
2 model to see what kind of cropping would be affected as a
3 result of the net water supply deficit and then finally
4 IMPLAN to understand the economics that fall out from that
5 change in cropping pattern. So there's a -- that's the
6 method to the Water Supply Effects and in a nutshell all
7 of the analysis that inform the -- the SED and the
8 environmental document.

9 It also informs the other part of it. What are
10 the benefits? You can take that output from the Water
11 Supply Effects Model, see how you have the flow
12 augmentation, run it through a temperature model, also see
13 how it affects floodplain. So you get outputs for fish
14 benefits. That provides that balancing of what's the
15 water supply effect for current uses as opposed to the
16 benefit for fish and wildlife.

17 So to punch and provide context for the rest of
18 the discussion for today, we've done a programmatic
19 analysis. We've (unintelligible) the quantitative
20 information using models and formed physical changes that
21 could result from the plan amendments and have the
22 potential for quantifiable impacts on environmental
23 resources including river flows, reservoir operations,
24 surface water diversions, groundwater pumping. And the
25 potential environmental impacts then of these physical
26 changes are evaluated in Chapters 5 through 17 of the SED.

27 Before I hand it off to Tim Nelson to drill down
28 to more detail on the groundwater, and Xuan for the

1 drinking water, I just want to remind folks that this is
2 an opportunity today for a technical discussion, and we
3 hope to have a lot of good, productive questions so that
4 folks, the panel and the public, can understand the nature
5 of the proposal. But the time to hear comments is at
6 these five days of hearing: two days in Sacramento on
7 January -- on November 29th, the first day, and finishing
8 up on January 3rd, as well as three days down in Stockton,
9 Merced, and Modesto.

10 So with that, I'm going to hand --

11 MR. WARD: Can you hear me now?

12 MR. GROBER: Can hear you now.

13 MR. WARD: Okay. All right. That was perfect,
14 Les. Right at the ten-minute mark.

15 So we're not going to interject any questions at
16 this point. We just want to move right into the next
17 part.

18 Tim, you're going to pick that up?

19 MR. GROBER: We like perfect. Thank you.

20 MR. NELSON: Oh, hello.

21 UNIDENTIFIED SPEAKER: Hello.

22 MR. NELSON: My name is Tim Nelson, and I'm an
23 engineer at the State Board and I will be introducing our
24 groundwater and drinking water analysis as part of -- that
25 was used as part of the SED.

26 So the topics I'm going to cover include the
27 purpose of the analysis, an overview of the geographic
28 area we covered in the modeling, the agricultural

1 groundwater assessment including the methods, assumptions,
2 and results, and then the analysis of potential impacts to
3 drinking water.

4 So the purpose of this analysis was, one, to
5 estimate the relative effects of the (unintelligible)
6 alternatives on the groundwater subbasins and, two, to
7 support other quantitative and qualitative analyses
8 throughout the Substitute Environmental Document. So most
9 of the groundwater modeling related to the assumptions,
10 methods, and results are presented in Appendix G. While
11 in other chapters, such as Chapter 9 and 11, we applied
12 those results as part of impact determinations or
13 qualitative analyses, support for qualitative analyses.

14 So what is the logic behind this modeling? So we
15 know from the Water Supply Effects Model that surface
16 water diversions could be reduced in implementing the
17 proposed unimpaired flow objectives. With the -- with the
18 reduction in surface water diversions, there's less water
19 available for irrigating crops and, if possible, the
20 affected water users would likely increase groundwater
21 pumping to compensate for lost surface water.

22 Now, there are negative effects associated with
23 increasing groundwater pump -- potentially negative
24 effects associated with increasing groundwater pumping,
25 including falling groundwater tables, which could affect
26 wells used for drinking water. Groundwater pumping would
27 currently be limited by the infrastructure capacity of the
28 irrigation districts, but in the future, it may be limited

1 by the Sustainable Groundwater Management Act, SGMA.

2 So here's a map of our modeling area. It
3 includes four groundwater subbasins: the Merced, Turlock,
4 Modesto, and Eastern San Joaquin. The boundaries here are
5 defined based on DWR's Bulletin 118 from 2003. All four
6 basins are considered high-priority basins in need of
7 management to maintain sustainability, and the Merced and
8 Eastern San Joaquin are considered critically overdrafted.

9 Overlying these four basin -- subbasins are seven
10 irrigation districts that are responsible for the -- most
11 of the surface water diversions from the east side
12 tributaries, the Merced, Tuolumne, and Stanislaus rivers.
13 These districts are Merced Irrigation District, Turlock
14 Irrigation District, Modesto Irrigation District, Oakdale
15 Irrigation District, and South San Joaquin Irrigation
16 District, and two CVP contractors, the Central San Joaquin
17 Water Conservation District and Stockton East Water
18 District.

19 So as part of this analysis, we performed a
20 simple groundwater balance for in-district water use. So
21 here we have a tributary and groundwater subbasin at the
22 bottom and then a generic irrigation district and its
23 irrigated area. So it begins with the district making
24 surface water diversions into its distribution system.
25 From the distribution system, there will be some losses
26 for evaporation and surface water returns to the tributary
27 and then some distribution seepage into the subbasin as
28 our first recharge (unintelligible).

1 Some districts may make deliveries from municipal
2 use, but most of their water will be delivered as applied
3 surface water to irrigation for crops. Now, if there's a
4 shortage in applied surface water, we assume that they
5 will pump groundwater to avoid unmet demands and then the
6 total applied surface and groundwater will be used
7 consumptively by the crops through evapotranspiration and
8 with some portions seeping past (unintelligible) zone and
9 back into the groundwater subbasin.

10 And to provide context for the in-district
11 groundwater use, we also looked at a subbasin-wide
12 groundwater balance. So for this we include the recharge
13 terms and groundwater pumping from the district as well as
14 potential municipal groundwater pumping and agricultural
15 groundwater pumping from private wells in areas outside
16 the districts and associated deep percolation.

17 So what are the assumptions of this analysis? So
18 for -- within a district, we assumed that groundwater
19 pumping occurring at the farm-gate is only used to satisfy
20 the crop applied water demand. It's a consumptive use and
21 deep percolation. We assume that the districts can pump
22 as much as they need up to their maximum pumping capacity.
23 And for SEWD and CSJWCD, only the -- we only modeled the
24 portion that they contract for on the Stanislaus River
25 assuming that -- and assume that the districts can fully
26 replace any shortage of this amount.

27 For areas outside of the districts but within the
28 groundwater basins, we include estimates of municipal

1 pumping based on the 2003 version of Bulletin 118 and we
2 assume agricultural areas are supplied complete with
3 groundwater with a few exceptions such as areas in the
4 Merced Irrigation District's sphere of influence.

5 So for this analysis, we wanted to use the best
6 available information, the most accurate information to
7 represent these irrigation districts. So the first -- so
8 one of the most important sources of information were the
9 district agricultural water management plans. In
10 addition, we also -- in September 2015 we sent out
11 informational request letters to each of the modeled
12 irrigation districts asking them for more detailed
13 information about their operations and groundwater use.

14 So some of the parameters that are based on these
15 sources include district M & I deliveries, seepage from
16 regulating reservoirs such as Turlock, Modesto, and
17 Woodward, the minimum annual groundwater pumping estimate
18 for each of the districts which represents groundwater
19 pumping regardless of year type to supply areas that don't
20 have access to surface water distribution system because
21 the area's on a hill, the maximum groundwater pumping
22 capacity of each district as of 2009, distribution loss
23 factors that relate the distribution seepage and
24 evaporation to the total diversions made by the district,
25 and deep percolation factors that determine what portion
26 of the total applied water will be lost -- will seep past
27 (unintelligible) and into the groundwater subbasin.

28 So here we have a time series from 1922 to 2003

1 of Merced Irrigation District average annual applied water
2 demand under baseline conditions and with the source used
3 to satisfy that demand. So at the bottom there's a purple
4 section that represents the minimum annual groundwater
5 pumping formed by the district. It's regardless of year
6 type. And the blue -- or the light blue section are the
7 district's surface water diversions. And, of course,
8 those get cut in these severe drought years such as 1977,
9 1991.

10 During these shortage times, surface water
11 shortage times, the district will increase its groundwater
12 pumping up to its groundwater pumping capacity, which is
13 represented by the red section, and if the district
14 reaches its pumping capacity but there's still unmet
15 demand, well, then there's a shortage, which is
16 represented by the white portion beneath the black line.
17 So that was under baseline conditions.

18 Under a 40 percent unimpaired flow objective,
19 there is a lot more surface water shortage and,
20 correspondingly, a lot more groundwater pumping. Now,
21 with this increase in groundwater pumping, the district
22 reduces its potential agricultural impact, but it's
23 transferring impacts to the groundwater subbasin.

24 So here we have the modeled groundwater pumping
25 across all the irrigation districts. So for baseline
26 conditions and the 40 percent unimpaired flow objective,
27 the X axis is year types and the Y axis is the total
28 annual -- or the average annual groundwater pumping in

1 each of these corresponding year types. So overall in all
2 year types under baseline, there's about 260,000 acre-feet
3 of groundwater pumping with most of that occurring in
4 critically dry years as that's when there's the surface
5 water shortage.

6 With a 40 percent unimpaired flow objective, the
7 average annual groundwater pumping increases by about
8 100,000 acre-feet, with most of the increase in dry
9 critical -- or below normal, dry, and critical years. On
10 the other side -- in addition, there is also groundwater
11 recharge. So here we have the model groundwater recharge
12 across all the irrigation districts, or baseline and 40
13 percent objective.

14 Under baseline conditions there is about 730,000
15 acre-feet of recharge, and under our unimpaired flow
16 objective, this decreases by about 80,000 acre-feet
17 because of the reduced surface water deliveries for
18 applied water. So there's less deep percolation and less
19 distribution losses with the reduced diversions. Most of
20 this reduction in recharge comes in dry and critical
21 years.

22 So if you subtract the district's groundwater
23 pumping from its -- from recharge associated with the
24 operations, you get an estimate of the net input to the
25 groundwater basin associated with district operations. So
26 here we have the average annual net input to the basin for
27 each irrigation district under each of the potential
28 unimpaired flow objectives. What's important to notice

1 here is that even under a 40 percent unimpaired flow
2 objective, all the districts remain positive contributors
3 to the groundwater subbasin. And even under a 50 percent
4 unimpaired flow objective, only Merced Irrigation District
5 becomes a net user of groundwater.

6 So with that, I'm going to hand it over to Xuan
7 Gao who will go over our potential impacts to drinking
8 water.

9 MS. GAO: Good morning, everyone. My name is
10 Xuan Gao, and I am also an engineer. I am going to give
11 you an overview of the drinking water in the four
12 groundwater subbasin and how it might be impacted by our
13 proposal.

14 According to the 2010 U.S. Census, there were
15 approximately 1.25 million people living in the area
16 overlying the four subbasin. Of that population, 1.12
17 million peoples are connected to public water system. The
18 rest of the -- the rest of the populations relies on
19 domestic, that is, private wells for their drinking water
20 supply. And the population -- the percentage of
21 population connected to public water system is about 89
22 percent, and population that relies on domestic well
23 solely is about 11 percent.

24 So we identified 93 public water suppliers within
25 the four groundwater subbasin. In year 2014, these public
26 water supplier delivered 323,000 acre-feet of water. Of
27 that, about 48 percent is surface water and 52 percent is
28 groundwater. If we assume that the people that are --

1 that are not connected to a public water supply system and
2 rely solely on domestic well for their drinking water
3 supply have similar per capita usage of drinking water,
4 like those connected to a public water supplier, then they
5 would have produced -- or consumed 8 -- 38 TAF in 2014,
6 and together the total water production in 2014 would be
7 361 TAF.

8 The reduction in surface water supply would,
9 therefore, affect entity that rely upon groundwater by
10 increasing the need to deepen their wells or build more
11 wells in order to continue to assess -- access
12 groundwater, increasing groundwater pumping cost,
13 degrading groundwater quality, making groundwater
14 unavailable in some area when the groundwater dropped to a
15 level that makes pumping no longer economically feasible.

16 Our 40 percent unimpaired flow requirement would
17 reduce net groundwater input by about 186,000 acre-feet
18 per years as compared to baseline. And what does this
19 potentially means to groundwater supply? As you know, the
20 Eastern San Joaquin and Merced subbasins are listed as
21 critically overdrafted. Actually, all of the four
22 subbasins have experienced groundwater level declines and
23 overdraft in the past. The rates of overdraft for the
24 four subbasins are estimated to be 155,000 acre-feet per
25 year, so if we pick this number -- if you pick this
26 number, this is 100 and -- okay. So if we pick the 186
27 and add it to the 155, then we would get 341 TAF per year
28 as the resulted overdraft.

1 And so in (unintelligible) such level of
2 overdrafts can be sustained, and a study on a total
3 groundwater storage carried out by USGS in 1960 estimated
4 that the total groundwater storage in the four subbasin
5 was about 125 million acre-feet. So the existing draft
6 of -- rate of overdraft, 155, is about 0.12 percent of the
7 total groundwater storage, and the combined 341 TAF per
8 years of overdraft is about 0.7 percent of the total --
9 total groundwater storage.

10 These low percentage, however, do not means that
11 we still have a long way to go to complete -- to deplete
12 the groundwater resource -- resources because there would
13 be substantial subsidence that occur long before our water
14 in aquifer could be removed; therefore, actions are needed
15 to address groundwater overdraft which for without our
16 proposal and SGMA will help.

17 So in our SED, we provided a range of existing
18 overdrafts in the four subbasin. The 155 that I mentioned
19 just now, it's presented in Chapter 9 in another estimate
20 which is 144 -- 144 TAF per year is presented in the
21 executive summary.

22 Lowering the groundwater table would affect
23 groundwater quality in the following way. It could
24 accelerate migration of surface contaminant to the well.
25 It could increase saline -- saline water intrusion to the
26 aquifers, and it could mobilize naturally occurring trace
27 elements and elevate their concentration in the aquifer.

28 However, the impact of groundwater pumping on

1 groundwater quality depends upon many factors. Such
2 example of those factors are location (unintelligible) of
3 the well, the amount of groundwater pumped, and the
4 frequency at which pumping occurred, hydrogeological
5 characteristics of the aquifers, and contaminant
6 characteristics.

7 In addition, it is impossible to predict how the
8 affected party could respond to the reduction of surface
9 water. They might deepen the existing well or build a new
10 well. If they build new wells, we wouldn't know the
11 number of new wells and their location; therefore, while
12 it is true groundwater pumping might affect groundwater
13 quality -- groundwater quality and flow, it is speculative
14 to determine the exact impact on groundwater quality due
15 to our proposal.

16 So during the recent drought, the amount of
17 groundwater pumped greatly increased, as we know, and yet
18 there was no greater number of violations of the maximum
19 contaminant level as compared to wet year based on the
20 consumers' confidence reports prepared by the service
21 provider. This suggests that for public water systems, a
22 substantial increase in groundwater pumping would not
23 necessarily result in more violation of drinking water
24 quality standard. This is because service provider are
25 required to take action that -- to ensure that water is in
26 compliance with relevant drinking water standards before
27 it serves to the public. If any exceedance -- exceedances
28 are detected, service providers are required to bring the

1 contaminated well off-line and treat the water.

2 There might be potential impact on domestic well
3 users because unlike public water system, there's no
4 systematic monitoring of water quality in domestic well.
5 As such, it is a very important for the domestic well
6 owners to test their water and follow the recommended best
7 practices as set forth in the SED. It is also important
8 for the local groundwater agency to implement SGMA to
9 address overpumping and avoid water quality degradation.

10 In the past, the State Water Board provided
11 financial assistance to help schools, communities, and
12 public water suppliers to address drinking water issues.
13 Examples of those financial programs are shown here. For
14 example, a well in an elementary school in Merced County
15 went dry, and the board provided \$180,000 for them to
16 build a new well nearby. And another program that we had
17 been providing water funding to the public is the Drinking
18 Water State Revolving Fund. In 2015 we provided about
19 \$6,060,000 to the City of Hughson for them to replace a
20 well that had arsenic problem.

21 For further informations about impact on
22 groundwater resources, service providers, and service
23 providers, you can refer to Chapter 9, 13, 22, and
24 Appendix G of our SED. These chapters and associated
25 analysis can be downloaded at this link. Think you can
26 see. Okay. Thank you.

27 MR. WARD: Is this on still?

28 UNIDENTIFIED SPEAKER: Yes.

1 MR. WARD: Don't push anything. All right. Can
2 you hear me? All right. Thanks.

3 You know, one of the aspects of this entire
4 approach is that you folks have been working on this for
5 quite a few years. At least four; right? Go back to 2012
6 in the first version, and I don't know how many years
7 before the first version; right? Our community has
8 essentially had, you know, maybe the last 60 days.
9 Certainly you've been working with some of the other
10 irrigation districts for longer than that.

11 But what we're tasked with is, you know, looking
12 at in-depth a heck of a lot of information, and imbedded
13 in it, a lot of assumptions and approaches and
14 methodologies that were used in your analysis. And so I
15 was asked -- and a whole bunch of people volunteered to
16 step forward to assemble some technical teams to begin to
17 explore that -- those questions.

18 We realized that today is not enough time to
19 resolve any of this, and we're just really at the
20 beginning point. We appreciate and recognize that there's
21 other opportunities coming up with the workshops in
22 Sacramento on the 5th and the 12th, the number of public
23 hearings, and ultimately the written comments. So I don't
24 want to talk too much because I'm going to use up our
25 time, so I won't.

26 With me today is some professional folks that
27 stepped forward to begin talking to you about the
28 analysis. We don't have anybody here today to talk about

1 fisheries and flows. That's not the discussion. It's not
2 taken as a given that there's the foundational science for
3 that, but that will be explored in a different forum.
4 What we're here today to is to talk about the groundwater
5 and the drinking water impacts and basically in four
6 areas: One of those is the analysis itself and CEQA
7 compliance; the other is agricultural impacts; and then
8 breaking the drinking water into two parts, the large
9 urban -- the cities and then the small urban and the
10 rural.

11 So I -- today over on the audience's left is Ali
12 Taghavi with RMC. Next to Ali, Ron Rowe with Merced
13 County. Ms. Valerie Kincaid with O'Laughlin & Paris, and
14 Mike Tietze with Jacobson James & Associates. Mike is --
15 is the sub team leader for this, and so I'll just turn it
16 over to Mike to begin the discussion.

17 MR. GROBER: Mr. Ward, if I may?

18 MR. WARD: Yes.

19 MR. GROBER: Just a comment. Because this is a
20 very rich, deep topic, you know, we raced through a lot of
21 information here. And I just want to let the panel
22 know -- I think they know, but also the public -- we're
23 going to have two days of technical workshop. I don't
24 think I pointed that out. On December 5th and 12th.

25 MR. WARD: Right.

26 MR. GROBER: So there will be additional
27 opportunity. This is an initial opportunity to ask some
28 questions.

1 MR. WARD: Right.

2 MR. GROBER: Really the focus should be --
3 because there's going to be a lot of differences of
4 opinion, thoughts on policy, and I think you mentioned
5 CEQA compliance, things like that. But really the purpose
6 here today is to make sure that the nature of our
7 technical work is understood so we can exchange that
8 information.

9 MR. WARD: Right.

10 MR. GROBER: So we just want to kind of circle
11 back to that kind of core -- you know, core intent here
12 because we have our technical people here today. We
13 don't -- though our attorneys are in the audience, I
14 just -- you know, and I see we have an attorney on your
15 panel, but I want to make sure that we circle back to and
16 focus on the technical elements of what we've prepared
17 today.

18 MR. WARD: That's the idea, yes.

19 MR. TIETZE: Yeah, Les, I think you -- you stole
20 my opening remarks and I couldn't have said it better
21 myself. The intent is to focus on technical issues
22 regarding the analysis and supporting science. This first
23 panel is focused on the resource analysis and supporting
24 science piece. And specifically, you know, we all agree
25 that unimpaired flow will have significant impacts that
26 reach far beyond the rivers, and the purpose of this SED
27 is to characterize and understand those impacts. And we
28 want to understand better the analysis that went into

1 that.

2 So with that said, I'll turn it over to Ron to
3 start with our first questions.

4 MR. ROWE: Am I -- can you guys hear me? Good
5 morning. Les, thank you very much, and your team.
6 Appreciate you coming down to Modesto.

7 The general topic area that I have to discuss is
8 CEQA impact analysis and evaluation for potential and
9 desirable results under Sustainable Groundwater Management
10 Act. And I have an interest in how or where the SED
11 evaluated the potential for significant adverse impacts
12 related to subsidence in water quality in particular. And
13 we have concerns about drawdown, as you've mentioned,
14 storage depletion, surface water depletion, and impacts to
15 groundwater-dependent ecosystems of course, like in
16 Appendix G.

17 But how did the SED account for the fact that
18 these adverse impacts in these areas are typically
19 dependent on and understood in our terms which are local
20 conditions? Was there specificity in that?

21 MR. GROBER: That's -- that's a good question and
22 that's kind of -- it will be important to identify. And I
23 think that was in one of my lead slides the programmatic
24 nature of our analysis because the proposal, what we
25 are -- at the core of the proposal is a proposed change in
26 flow objectives in the Merced, the Tuolumne, and
27 Stanislaus River. So that's the physical change that
28 would be occurring.

1 But then the analysis identifies that in response
2 to the physical change, we observe what's happened in the
3 area in the past during times of water shortage. So as --
4 as Tim had pointed out, it kind of has that next step. If
5 you reduce that surface water supply, the response that we
6 would be seeing -- and actually, Walt, you made the
7 comments about the number of intervening years. Some of
8 those intervening years have been very instructive because
9 those were the very hard drought years which hopefully
10 were -- those are -- the worst of those years are behind
11 us.

12 But we got the additional information to observe
13 what happens during drought, and it's that graphic that
14 Mr. Nelson presented showing, well, in response to surface
15 water shortage, there would be additional groundwater
16 pumping. Because that's what happens now already during
17 times of scarcity. So what we'd take into account from
18 those ag water management plans, maximum pumping, you
19 know, capacities, things like that, that's then that next
20 step, you know, once removed from the initial proposal for
21 augmenting instream flows resulting in reduced surface
22 water supplies. But in response to reduced surface water
23 supplies, we expect what's the most likely outcome. That
24 would be additional groundwater pumping.

25 And I think it's worth noting for those that have
26 been tracking this for a number of years, when we went out
27 with the original SED, we took a different approach to
28 that. We said, well, if there is a reduced surface water

1 supply, you could have one of two things happening in the
2 extreme: You could have no additional groundwater pumping
3 on the one hand or you replace it all with groundwater
4 pumping. Neither one of those -- I think we got comments
5 from the area, and we've got comments from our board
6 members. Neither one of those is realistic.

7 So in this round, we (unintelligible), well,
8 what's the most likely response to reduced surface water
9 supplies? And that most likely response is some increased
10 level of groundwater pumping. And I understand the SGMA
11 concerns that we talked about, you know, what can happen
12 over the long term and the requirements under SGMA, but
13 it's a -- it's a problem that we've wrestled with, which
14 is why in our documents we looked at even different
15 possible maximum rates of groundwater pumping.

16 We looked at what was available in 2009, what was
17 possible in response to the drought 2014 levels of
18 groundwater pumping. You get different answers if you
19 look at it in those two different ways, and the different
20 answer is reflective of what we did the first time. If
21 you have more groundwater pumping, you'll have a greater
22 effect on the groundwater resources but a lesser effect on
23 the agricultural production and ag economic resources and
24 vice versa. If you do less pumping, then you'd have more
25 of a reduction in the overall water supply and a greater
26 effect on cropping, you know, reduced cropping and
27 fallowing and economic effects.

28 So what we've done is we've tried to strike a

1 balance in what we thought based on the observed is the
2 most likely outcome. And -- and this is the opportunity
3 to hear if we got it wrong, if it should be some other
4 number. That's going to be important to hear. But an
5 important take-home from all of that, this is a
6 programmatic analysis, so we don't look at a high level of
7 detail because we can't know what the response is going to
8 be, the local response is going to be. It's going to
9 depend on crop prices, the value of water, how much
10 additional development there is.

11 We identify things like additional groundwater
12 recharge, active recharge, more than just the conjunctive
13 use that's currently going on. So many of those things
14 start becoming speculative. So we tried to strike a
15 balance. I'm curious to hear your thoughts on if we got
16 that balance right or what else we should be looking at or
17 what else it should be.

18 MR. ROWE: Thanks, Les. More specifically, I
19 think for Merced County, one of our larger concerns is
20 subsidence. It's not so much of an issue that we
21 currently observe north of the Merced River, but as we
22 potentially impact water supply and its relationship to
23 depth to groundwater, upper unconfined zones become less
24 reliable over time. Wells potentially going deeper below
25 the -- let's say the Corcoran clay layer and further
26 potentially impacting subsidence is a major concern of
27 ours.

28 And we don't need to look too far further south

1 than the Tulare basin to look at accumulated salt
2 problems. It's something -- we have some work that we're
3 doing now, and it is difficult to quantify, but it would
4 appear to us that salinity in general will increase over
5 time. And our concern is was it analyzed and is the
6 programmatic level assessment really appropriate in the
7 first place, because without the detail, you really don't
8 see the localized impact.

9 We had over 125 wells go dry that went on a
10 tanked water program for emergency water in that short
11 time frame for this drought period, so we see what
12 shortage does. And our concern is the long-term horizon
13 and how it may exacerbate that over time.

14 MR. GROBER: So (unintelligible) what's the
15 question in that? I mean because that's -- I mean those
16 are -- we share those overarching concerns, and SGMA is
17 going to be part of the solution obviously. And SGMA is
18 going to be something that will have to be locally
19 implemented because I think, as the information we
20 presented initially, there's already a groundwater
21 problem.

22 But this -- if this added stressor occurs in
23 terms of greater reliance on groundwater, there's going to
24 be, even at least an initial response, greater reliance on
25 groundwater pumping. But all of those problems you
26 identify appear possible, and I think we've identified
27 those: the potential for subsidence, the potential for,
28 you know, water quality issues, things like that. But

1 it's at a programmatic level and some of the further
2 information that's in the chapters that are still on the
3 screen.

4 MR. ROWE: All right. So I think more
5 specifically is we'd like to see more analysis of water
6 quality, and we'd like to see more analysis related to
7 subsidence specifically. And the most sensitive entities
8 for us are disadvantaged communities that may be
9 disproportionately affected.

10 MR. GROBER: And this is -- and I'm -- sorry if I
11 refer back to other slides. And then it's important, I
12 mean, for comments like that, that's then -- those are
13 certainly comments that should be made at the -- you know,
14 at the hearing certainly, because the board needs to
15 hear -- needs to hear those things.

16 MR. ROWE: So for -- you know, to summarize it
17 from a technical perspective, our most interest is in
18 water quality and how that may be impacted, not just on
19 the short term but long term.

20 MR. GROBER: And short term and long term, it's
21 the --

22 MR. ROWE: Go ahead. I mean that was another
23 question is, you know, what was the planning horizon
24 considered for the impact analysis?

25 MR. GROBER: We update our water quality control
26 plan on my intro slide. It's been 21 years since the last
27 round for the major update. We did a minor update in
28 2006. We are required under federal law to do, you know,

1 a triannual review. We do periodic reviews and periodic
2 updates. So if there's new information in -- within --
3 after this plan is adopted to suggest that there are
4 additional problems, say, with groundwater and having to
5 do with water quality and things like that, then the plan
6 can be opened up to make changes.

7 But the -- the planning horizon here is over the
8 next several years and based on what -- based on the
9 current condition. But this is a plan that is
10 periodically updated, so if there is a change -- and now
11 looking at the SGMA time frame in terms of as that's
12 developed and implemented, there's certainly opportunity
13 to make changes in the plan.

14 MR. ROWE: All right. Thank you.

15 MR. TIETZE: You know, I think, Les, you may have
16 misunderstood the question. The planning horizon question
17 was regarding how long a forecast period did the SED
18 contemplate when evaluating impacts. You know, in other
19 words, usually in environmental impact assessment, you
20 have -- you evaluate a project or a program over a certain
21 number of years and assess what the impacts will be over
22 that time. Can you clarify for us what that time period
23 was over which the impacts were forecasted?

24 MR. GROBER: I don't know that we have -- I'm
25 looking over to -- to Anne and Tim. I don't think that we
26 had an explicit time horizon, but -- Anne and Will,
27 uh-huh.

28 MS. HUBER: Our assumption is that the

1 groundwater impacts will continue until the -- oops -- how
2 about now?

3 UNIDENTIFIED SPEAKER: Talk into it.

4 MS. HUBER: Now?

5 UNIDENTIFIED SPEAKER: Yep.

6 MS. HUBER: Okay. Our assumption is that the
7 groundwater impacts would continue through time up until
8 the point at which SGMA is fully implemented. So it's a
9 little difficult to say exactly when that point in time
10 will be, but the groundwater sustainability plans are
11 supposed to be completed by 2020 or 2022, depending on the
12 status of the subbasin. And then sustainability is
13 supposed to be achieved by the year 2040 or 2042. So the
14 exact transition point at which groundwater pumping may
15 become more restricted is -- it's hard to say.

16 MR. GROBER: So another way to get at this --

17 MR. WARD: There's a, in my mind, a fundamental
18 point of discussion right here. The cart and the horse;
19 right? Is SGMA leading this and the SED follows it, or in
20 your mind and your approach is the SED the leader and SGMA
21 has to conform? I mean there's a disconnect. I mean --

22 MR. GROBER: I don't see that as a --

23 MR. WARD: Hold on, hold on, hold on. There's a
24 significant disconnect between SGMA compliance and all the
25 things that we've been working on through the drought with
26 the impacts of dry wells. And now loss of additional
27 surface supply is going to exacerbate the situation, cause
28 more groundwater pumping.

1 The question of scale and the impact analysis,
2 apparently you guys didn't do that; right? Because it's
3 programmatic, so a lot of averaging, a lot of smoothing
4 things out because it's impossible, quote, your word, too
5 speculative; right? One has to lead before the other, and
6 in our mind, SGMA is the driver. And we've got a whole
7 lot of work to do to better understand our groundwater
8 system, No. 1, and the long-term impacts of utilizing that
9 resource in conjunction with surface water.

10 You know, if you look at the map of the basins in
11 the Valley and you look at those that are not high
12 priority but those that are critical condition of
13 overdraft, why do you think it is that the Modesto and
14 Turlock basins are not listed as critical condition of
15 overdraft and every other basin north and south of it are?
16 That's a question.

17 MR. GROBER: Well, you have -- you have excellent
18 surface water supplies, and you will continue to have
19 excellent surface water supplies. But actually the
20 question gets at some of the difficulty of providing
21 that answer and knowing what the future is many years out.
22 Because SGMA's before you. It's before us. It's before
23 the people of the State of California. It's intended to
24 provide, you know, a good thing, to develop sustainable
25 groundwater basins.

26 And I hear your point. Is it here from -- the
27 perspective is like here we have sustainable basins. This
28 is what this report acknowledges. This is adding another

1 stressor because this is saying that a certain quantity of
2 surface water is now proposed to augment instream flows
3 for the reasonable protection of fish and wildlife. That
4 makes it at least in part unavailable for uses, which is
5 what this document is all about.

6 That being said, as identified in the document,
7 there is even greater opportunities for doing enhanced
8 groundwater recharge during wet times, to do more
9 efficiency in both ag and urban. So there is so many
10 things that are happening, will happen, that as
11 unsatisfying as it is, it is speculative to try to figure
12 out all of those elements.

13 SGMA -- and complying with SGMA and developing
14 sustainable groundwater is a local issue, as it should be.
15 This proposal adds that other stressor of less water
16 available during that February through June period. And
17 we've described that general effect in trying to get at
18 the time value because I hear the -- -- I hear the concern
19 with the time horizon, but things are going to be changing
20 very quickly.

21 We've based the analysis on -- and, actually,
22 that's looking back, but it's on an 82-year record using
23 the current levels of demand, current infrastructure,
24 things like that. So it's what's happening in the moment
25 and would be continuing to happen over the next 10 or 20
26 years, and that's within the planning horizon of
27 revisiting this water quality control plan when we have
28 more information about how the local area has responded to

1 SGMA, how this water quality control plan is implemented,
2 where we are within the adaptive range of 30 to 50
3 percent. So it's just a lot of -- there's a lot of
4 details and a lot of potential outcomes, so that's --

5 MR. WARD: Yeah, there are.

6 MR. GROBER: -- that's why.

7 MR. WARD: Absolutely. So in your mind and from
8 your approach, the SED is driving the locals' response to
9 now SGMA? You don't see SGMA as the lead and the SED fits
10 in and conforms behind it?

11 MR. GROBER: I'm not -- I don't see one so much
12 as a lead. They're both -- they are two things that are
13 happening, and the change related to the SED informs other
14 things. It's another stressor, another thing to consider
15 for SGMA.

16 MR. WARD: Okay. All right. Thank you. Let's
17 move on. I'm sorry. I just wanted to explore that a
18 little bit.

19 MR. TIETZE: So we had some questions about
20 drawdown significance threshold of 1 inch -- or the
21 significance threshold of 1 inch of storage reduction or
22 water level reduction. But to -- it's related to the
23 questions regarding CEQA analysis really, and one of the
24 things that we're interested in is this is programmatic.
25 There's a lot of uncertainty, a lot of generalization
26 about the analysis outside of the rivers.

27 Typically when you have uncertainty, if you want
28 to evaluate what that means, you do some kind of a

1 sensitivity analysis so that you can say that, well, if
2 we're wrong about this or if we're wrong in terms of where
3 we place the impact, this is what could happen to a
4 particular receptor, particular disadvantaged community, a
5 particular adverse outcome.

6 Was there any sensitivity analysis that was done
7 as part of the investigation in terms of the range of
8 possible impacts that could actually occur?

9 MR. GROBER: Your question was first asking about
10 the threshold, but then was there a sensitivity in terms
11 of picking different thresholds?

12 MR. TIETZE: Well, let me -- let me be clear.
13 The threshold we think generalizes the impact analysis and
14 makes it very nonspecific. With a 1-inch threshold
15 established for a very large area, it's impossible to
16 evaluate what areas will be adversely affected by
17 subsidence, for example, or what disadvantaged communities
18 may be impacted adversely.

19 And I think I'm hearing you are saying that, yep,
20 that's the case. We know those impacts may occur, but we
21 don't know where. And so I'm saying the threshold raises
22 the question of uncertainty. How did you deal with that
23 uncertainty?

24 MR. GROBER: Well, I think -- and, Anne, correct
25 me if I'm wrong, but -- you speak to the 1-inch, please.

26 MS. HUBER: Well, you may already know this, but
27 the 1-inch threshold was developed to -- in order to
28 prepare the different alternatives, and we focused on the

1 main part of the water budget that was likely to change in
2 response to the alternatives. And we wanted to assess
3 that change in the budget in terms of real units, namely,
4 volume of water compared to subbasin area. And the main
5 goal was to get an idea of the magnitude of the change.

6 Now, it's true that some areas will be more
7 affected than others, and I think in a lot of places we
8 tried to address the potential unevenness in impacts with
9 qualitative discussion of those impacts. For a
10 subsidence, for example, we primarily considered the
11 Merced subbasin, the southern edge of the sub -- Merced
12 subbasin and northern edge of the Chowchilla subbasin,
13 which we had combined together -- well, let me go back.

14 We combined the northern edge -- northern portion
15 of the Chowchilla subbasin in with this Merced subbasin
16 because we felt that it needed to be included in our
17 assessment, and that region is the region that's most
18 likely susceptible to subsidence. So there's some
19 discussion of that in the document.

20 MR. TIETZE: But in terms of understanding the
21 impact, say, understanding what the actual potential is
22 for damage to public infrastructure and risk to public
23 safety from subsidence, for example, do you provide a
24 range of what the possible outcomes would be and how
25 serious those consequences might be to the public?

26 MR. GROBER: So you're saying a range within --
27 so how it might range in specific areas from a high to a
28 low based on different levels of pumping and response to

1 lack of available --

2 MR. TIETZE: Yeah, from my limited read, I
3 understand that you're saying that additional subsidence
4 is possible and may be more likely in certain areas, but I
5 don't understand how much subsidence, what the potential
6 impacts are on public safety and public infrastructure.
7 So that's -- that's -- where is that analysis or how was
8 it handled in the SED, or was it not handled in the SED?

9 MR. GROBER: Just in terms of -- without
10 knowledge of what the specific responses would be and
11 making, you know, assumptions about many other things, it
12 would start becoming speculative to come up with that
13 level of detail.

14 MR. TIETZE: Okay. And then one final question
15 on -- it's kind of along the same lines. When you have
16 fairly specific science that's being applied to assess
17 what's happening in the streams and the science is very
18 broadly applied to what's happening outside of the
19 streams, how have you dealt with the possibility of having
20 the science be -- or maintaining policy neutrality in your
21 analysis? In other words, if what's happening outside of
22 the stream is generalized and what's happening inside of
23 the stream is not, how do you protect against favoring a
24 particular policy in your analysis overall?

25 MR. GROBER: Well, I don't understand. When you
26 say "inside the stream" or "outside the stream," what are
27 you -- what are you referring to?

28 MR. TIETZE: You know, I think that the state has

1 very specific studies and in-depth studies regarding the
2 potential benefits to fish of implementing unimpaired
3 flow, which is why this is being proposed, and yet the
4 effects outside of the streams are being very generally
5 evaluated. So the potential exists for the science to be
6 applied in a policy-biased fashion, and I'm wondering how
7 the SED has accounted for that.

8 MR. GROBER: Well, actually, and that gets --
9 the direct physical change that would occur would be
10 changes in flow with an increase in flow in February
11 through June. So that's -- that's the thing that is
12 closest to the proposal, the requirement, the proposed
13 project, if you will, so we have the most certainty and
14 information about that.

15 So it's not a bias. It's rather just that's what
16 we know. You know, that's the proposal. It's the nature
17 of the proposal. Everything else starts -- as it moves
18 further away, that becomes once, twice, several times
19 removed from the proposal and starts becoming more
20 speculative.

21 MR. TIETZE: Okay. So with that, I think, Ali,
22 you were going to ask some questions.

23 MR. TAGHAVI: Thank you again for being here
24 to -- to be addressing our questions. I would like to
25 approach my questions in two folds: one is the scale of
26 the problem and then the tools, technology that has been
27 used to evaluate the conditions. And the question with
28 regards to the scale kind of piggybacks on what Mike was

1 alluding earlier, and that is even though the problem is
2 addressed in a programmatic -- at a programmatic level, it
3 appears that, A, looking at either hydrologic variability
4 within the reverse systems and, B, evaluation of benefits
5 to the fish, requires a lot more detailed analysis at even
6 on a daily basis looking at daily fish flows and daily
7 fish conditions.

8 And so to that end, I -- my question, I guess, is
9 would programmatic evaluation of this condition, would
10 that address the benefits to the fisheries at the very,
11 very highest scale? And looking at the charts that Tim
12 presented earlier, looking at the hydrology level and the
13 water balance and the water budget at the long-term
14 average annual case, it just seems to me that it doesn't
15 do the right level of justice in terms of evaluation of
16 the benefit, whether that's a 30 percent, 40, or 50
17 percent unimpaired flow to the -- to the -- you know, from
18 the -- from the river system. So that's my first
19 question, the scale of the issue and whether or not the
20 programmatic level actually does justice to looking at the
21 benefits.

22 And my second question then is, again, related to
23 that is the CalSim, the HEC 5 models, these are operations
24 models. The state uses them for looking at the operations
25 of the system. They do not necessarily reflect the
26 hydrology. Even though it does have 1922 to 2000 -- I
27 believe CalSim is now to 2013 just about, it simulates the
28 operations of the system, but the hydrology in the

1 baseline is pretty much fixed. That's the accretions, the
2 depletions within the river system. And so any changes to
3 the river system and any changes to the groundwater system
4 and the interaction between the river and the groundwater
5 system are not necessarily reflected dynamically within
6 the CalSim system. And so that's why the state typically
7 relies on the C2VSim which is their hydrology model that
8 supports the CalSim-III, which is not published yet or
9 released yet, as well as the state -- the feds rely on
10 CVHM, the Central Valley Hydrological Model, to look at
11 the hydrology of this system.

12 And so to that end, my question is has there been
13 any attempt on using either of those two models or models
14 of similar nature that would look at the groundwater and
15 the surface water system on hydrologic level rather than
16 operational flow and also the impacts on the river system
17 and the groundwater system.

18 MR. GROBER: Let me start with your first
19 question, which actually is curious because it's not -- we
20 don't have our fish experts here. It seems to be that's
21 tied to a fish question, but I think I can provide the
22 general answer of scale and maybe combine it with the
23 second question.

24 The reason -- and I'll ask Will for some -- he'll
25 give us all the details about it, but one of the reasons
26 we moved from CalSim to -- well, there were several
27 reasons, but one of the reasons we moved to the Water
28 Supply Effects Model is to better capture the changes that

1 we would be proposing, something that CalSim couldn't
2 handle, but also to take into account the more local and
3 updated operations information. And I'll let Will expand
4 on that, and then I'd like to return to the fish question.

5 UNIDENTIFIED SPEAKER: Microphone.

6 MR. ANDERSON: In terms of the question of
7 scale -- can you hear me? Is that working? Okay. I'll
8 just go to his first point and then try to elaborate on
9 Les's point. But when we present to you here, we've
10 rolled up the summary statistics of the long-term impacts,
11 and those include annual impacts over 82 years in terms of
12 the temperature model. It runs on a sub daily time step,
13 and so you'll see temperature effects. We have 28 years
14 of that, but then we have to roll it back up and summarize
15 it to present it in the report in these other fashions.

16 So there's -- again, we're not here to talk fish,
17 but the summary statistics of benefits really do have to
18 be examined at that level. That's an accurate point. But
19 then we'll come back and summarize them for you. We've
20 used estimates of the water balance from the ag water
21 management plans which are a snapshot in time from the
22 reports in 2012 that look back. Some look at just a few
23 years; some look at more than a dozen years and have had
24 to generalize that into, more or less, an average
25 condition of where it goes, is it percolated or what the
26 particular field efficiencies are. I think it's a valid
27 point that these could change in time, so we can't really
28 speculate on how the numbers exactly would play out, but

1 we could certainly continue to work on that.

2 MR. GROBER: I just was talking to Dan Worth, and
3 he could provide an expanded answer. But getting to
4 the -- what I think is the thrust of your question about
5 the first one, you certainly have to evaluate some of
6 these things at a shorter duration time step, and we did.
7 We have that in our -- several chapters of the report,
8 appendices, and the executive summary. We talk about the
9 increased frequency of complying with temperature
10 standards in terms of, you know, number of days and
11 spatially, also floodplain inundation.

12 That being said, to try to understand, you know,
13 you have to roll this back up, as Will had said, into
14 monthly averages to the bigger numbers. But it is
15 frequently a question of scale and what level of detail do
16 you go into to assess certain problems, and we tried to
17 strike that balance to -- enough to inform the decisions,
18 enough to inform the effects.

19 But if there's -- if there's a thought behind --
20 you know, if there's a comment or an observation behind
21 the question, even though that's going to be important to
22 provide as a written comment or oral comment before the
23 board, this is intended to be a workshop; I'll be
24 interested to hear, you know, what -- what should we be
25 doing different or better in terms of this analysis.

26 But also as Will had said for the hydrology, we
27 looked at, you know, the 82 years of hydrology and we
28 actually augmented it with some more recent years even.

1 We looked at, you know, all of the dry years and we tried
2 to roll this up. We have summary statistics, but we
3 also -- in the executive summary, we look at what happens
4 during critically dry years, dry years. So we try to look
5 at that and present that in a number of different ways,
6 including in terms of how far the ag -- you know, the
7 cropping effects and all of that.

8 So we've -- we presented this in any number of
9 ways, but if you have comments on what else would be
10 useful, please ask because maybe it is in the document.
11 And, if not, it might be an important question to pass
12 along to the board.

13 MR. TAGHAVI: And, again, not having had
14 sufficient time or -- you know, since the document has
15 been released to go through all the details, I guess my
16 thoughts are analysis at a programmatic level, yet
17 dropping down to a, you know, localized level, those are
18 the scale issues. And so the unimpaired flow imposition
19 during the critical years, those are exact same years that
20 typically we've observed, and it is natural that the
21 groundwater pumping is increased. And so then the
22 circulation of the -- effects of the groundwater pumping
23 on the stream system, that needs to be evaluated on a much
24 more level of detail. And so is there actually the
25 benefits that you expect is realized? That's No. A. And
26 then how is that system evaluated? What tools -- the
27 technology has been used and that's my question. That
28 goes back to the Central Valley Hydrologic model, or as

1 opposed to the CalSim which has a very, very static and
2 unflexible, I would say, hydrology within it.

3 MR. GROBER: And that's a very simple answer. We
4 did not -- this is not -- the modeling that we did doesn't
5 have that dynamic component to see the response or changes
6 in recharge, the interaction of surface water,
7 groundwater. It does not have that.

8 MR. WARD: Yeah, we understand it's just the -- a
9 volume smoothed-over an area, which is not groundwater
10 analysis. Right?

11 MR. GROBER: I'm sorry. Which is not what?

12 MR. WARD: It is not a groundwater impact
13 analysis. It's just water budget approach, water balance.

14 MR. GROBER: Well, it's using the water budget to
15 determine what the --

16 MR. WARD: I mean is it -- it doesn't take into
17 account heterogeneity. It didn't take into account scale.
18 It doesn't take into account local impacts. Doesn't take
19 into account water quality degradation, subsidence.
20 Everything is, in your words, just too speculative to use
21 those kind of available tools.

22 MR. GROBER: It's to come up with the detail,
23 but what the report acknowledges for many of those things,
24 there would be a significant and unavoidable --

25 MR. WARD: Right.

26 MR. GROBER: -- impact. But, yes, the details --

27 MR. WARD: Well, actually, probably beyond that.

28 MR. GROBER: And for much of that, it's the

1 nature of the CEQA documents and the analysis, it -- you
2 know, there are -- there are things that are identified
3 such as additional groundwater recharge and, as I said,
4 increased efficiencies, conservation, things like that
5 that can be brought to bear that can reduce those impacts.
6 But those too, though they are available, the effect of
7 those has become speculative in terms of how much could be
8 achieved.

9 MR. WARD: Yeah, just time check. I'm going to
10 ask Debbie if you'd go ahead and bring up your ag group,
11 and we'll have this panel still sit, but we want to make a
12 smooth transition. Valerie happens to be on both, so we
13 can continue on. There's much more to explore. It's just
14 barely scratching the surface. I mean there's a lot more.
15 You'll be seeing more of us and others, you know, at the
16 other -- at the upcoming workshops and the -- certainly
17 with the written comments, but...

18 Thank you, Mike.

19 And, Valerie, why don't we just go ahead --

20 MS. KINCAID: Sure.

21 MR. WARD: -- and continue with your question
22 with regards to the ag --

23 MS. KINCAID: Sure. That sounds good.

24 Can everyone hear me? One of the -- as I go
25 through the document, one of the fundamental issues for me
26 is the assumption of how much groundwater pumping will
27 happen. And as Les mentioned, and I think provided some
28 explanation, those assumptions have changed since the 2012

1 document. And I guess I just want to run -- run through
2 and unpack those technical assumptions, meaning how -- I
3 guess my two questions are how you calculated what I think
4 is referred to as the 2009 minimum and the 2009 maximum
5 groundwater extractions. And I don't mean generally. I
6 mean specifically how -- what is your calculation to get
7 to those numbers.

8 MR. NELSON: Well, the 2009 minimums, they're
9 all -- so some of them are from the agricultural water
10 management plans based on the reported minimum of whatever
11 time period they're reporting, and some were from the 2015
12 response letter -- information request responses from the
13 districts themselves on their annual minimum groundwater
14 pumping.

15 MS. KINCAID: So that's a static number in the
16 SED and, as you noted, that purple band at the bottom of
17 one of your charts. So if that's a static number -- you
18 said some of them are from ag water management plans. Are
19 you saying that's a number that represents in the SED just
20 the minimum amount of groundwater that would be pumped in
21 a year?

22 MR. NELSON: Yes.

23 MS. KINCAID: And that's calculated by the
24 reports from ag water management plans in -- and that
25 doesn't vary by year?

26 MR. NELSON: No.

27 MS. KINCAID: And how do you calculate your
28 maximum 2009 groundwater pumping?

1 MR. NELSON: So the maximum -- so the annual
2 maximum is also a static value. It -- some of them are
3 from -- so all the 2009 values are from the agricultural
4 water management plans. They are -- so --

5 MR. WARD: What ag plan? What date?

6 MR. NELSON: Do I have --

7 MS. KINCAID: The 2012.

8 MR. NELSON: 2012 version. I don't think I have
9 the page number with me.

10 MR. WARD: Okay.

11 MS. KINCAID: Go ahead.

12 MR. NELSON: So I guess whatever time period they
13 represented, we looked at whatever their maximum pumping
14 historically was, and that's what we used as the maximum
15 possible. And it includes both district capacity and
16 private capacity for pumping within a district.

17 MS. KINCAID: But in the SED, the number changes
18 depending on average year, dry year. On page G15 you guys
19 have a chart that talks about the average annual
20 groundwater use, and it's an interesting chart. And it
21 provides baseline estimates, and then it provides how much
22 increased groundwater pumping will be under the project.
23 And you note for the 40 percent, the preferred project,
24 it's 105 increased groundwater pumping in average years,
25 and then those numbers change. So it looks like it's a
26 calculation rather than just an importation from ag water
27 management plan numbers. Do you have a calculation for
28 that?

1 MR. NELSON: Yeah. The -- so it's a static
2 capacity to pump, but they pump either up to that -- they
3 pump what they need up to that capacity. So like on this
4 chart here -- I don't know if you can see it. So when
5 there's a surface water shortage, so it checks what's the
6 shortage of surface water up to their demand? And they
7 will pump that, unless that number is greater than the
8 capacity we took from the agricultural water management
9 plans.

10 MS. KINCAID: But I guess that's my question. So
11 the capacity in this chart is 626,000 acre-feet. Okay?
12 Not this chart, which is interestingly inconsistent with
13 your --

14 MR. NELSON: Well, no. This is just for Merced
15 Irrigation District.

16 MS. KINCAID: Okay.

17 MR. NELSON: This is for all the districts
18 combined.

19 MS. KINCAID: Great. So the 626 number, as you
20 can see in the top of the chart, is the actual maximum
21 capacity.

22 MR. NELSON: Yes.

23 MS. KINCAID: So my question is what is the
24 calculation you came up with to get the 105 for average
25 years and the 302,000 acre-feet increase in critically dry
26 years? How did you come up with those numbers? What's
27 the -- there must be a calculation in there, and I
28 don't -- I don't find it.

1 MR. NELSON: It's exactly what I said. So we --

2 MR. GROBER: Let me -- let me take a -- say it a
3 different way, and this gets back to, you know, the
4 general schematic. There's -- the proposal will cause a
5 surface water supply deficit.

6 MS. KINCAID: Right.

7 MR. GROBER: So when there's -- now currently
8 there's surface water supply deficit that happens in
9 critically dry years, and that's in this chart that's
10 shown here, that's when there's the biggest augmentation
11 of groundwater pumping.

12 MS. KINCAID: That's right.

13 MR. GROBER: With the proposal, there would be --

14 MS. KINCAID: Increased.

15 MR. GROBER: -- more times when there would be a
16 surface water supply deficit, so --

17 MS. KINCAID: Right.

18 MR. GROBER: -- there would be more groundwater
19 pumping.

20 MS. KINCAID: Right.

21 MR. GROBER: Those numbers, 105, that's the
22 average over all those years.

23 MS. KINCAID: Right.

24 MR. GROBER: So you get the 82-year record --

25 MS. KINCAID: Yeah.

26 MR. GROBER: -- and then the other number you
27 (unintelligible), then you can come up with the average,
28 what it is for critically dry years.

1 MS. KINCAID: Right. And I understand the
2 numbers, but I'm wondering how you came up with those
3 numbers, how you came up with 105. Remember, in 2012 the
4 assumption was it was a one-to-one. If you shorted us
5 one, we'd pump groundwater one.

6 MR. GROBER: It's an average. So if you take --
7 so this is -- this next one is just for the Merced. So if
8 you just took that -- the numbers that are in the red, so
9 you'd see if you came up with this now, just the time
10 series over the 82 years, you'd come up with some very big
11 years of groundwater pumping --

12 MS. KINCAID: Right.

13 MR. GROBER: -- some years of no groundwater
14 pumping. If you take that long-term average, that's the
15 105.

16 MS. KINCAID: No, I understand how you got the
17 average. I'm wondering how you figured -- how you
18 estimated what people would pump. It's not -- I mean the
19 ag water management plan could be kind of a basis for the
20 numbers, but why did you estimate that an average -- I
21 understand in average years that you got the numbers, but
22 in each specific year, how did you estimate -- what is the
23 calculation by which you estimated what people would pump
24 and wouldn't pump? It's not a maximum capacity number.

25 MR. ANDERSON: Les, can I help?

26 MR. GROBER: Yes. So -- sure.

27 MR. ANDERSON: Specifically it's a calculation of
28 the applied water needed to meet a demand in a certain

1 year, and that's at the field scale. So first we
2 translate surface water availability at the diversion from
3 the stream, and then we have a certain -- we've got water
4 that's lost through percolation, through regulating
5 reservoirs and conveyance systems --

6 MS. KINCAID: Sure.

7 MR. ANDERSON: -- and taken for other uses. But
8 what's actually a crop demand is compared to the surface
9 water that can be conveyed to the farm-gate, and then if
10 there's a shortage in that, that would be the field scale
11 demand that would then translate into if there's enough
12 capacity at that point.

13 MS. KINCAID: Right. So I guess my question is
14 when there's capacity to pump more groundwater but the SED
15 assumes that it's not pumped, who -- what -- where did
16 that assumption come from or where did those numbers come
17 from? So when you have 105 -- if you look at this chart,
18 you have 105 in average years; right?

19 MR. ANDERSON: Right.

20 MS. KINCAID: You have only six in wet years, but
21 you're --

22 MR. ANDERSON: Right. That's because there's
23 adequate surface water in those wet years that's used.

24 MS. KINCAID: Right. But then as you get into
25 dryer years, there's a point where there is more demand
26 than you're making up with surface water; right? So
27 maybe -- maybe large scale numbers are better. So the SED
28 generally says there is about a 294,000 acre-foot in

1 average year shortfall of surface water. Okay? So about
2 300,000. And the estimate is that there will be an
3 increase in those average years of 100,000 acre-feet of
4 groundwater pumping; right?

5 So why didn't -- I guess my question is how did
6 you come up with the 100? Why isn't it 150? Why isn't it
7 200? And there's a mathematical algorithm that goes in
8 here that I don't think is disclosed in your SED. I'm
9 asking to explain it or disclose it later.

10 MR. ANDERSON: Right. Les is --

11 MR. GROBER: It's a simple long-term average.
12 It's just averaging some years just like you would just --
13 you would take the numbers -- sorry I don't have the table
14 here -- and you'd -- that's the average.

15 MS. KINCAID: I understand how you get the
16 average. How do you get the inputs?

17 MR. GROBER: So the first step is if there's a
18 surface water supply deficit, you make up that surface
19 water supply deficit to meet crop water use needs up to
20 the capacity that can be provided through groundwater
21 pumping.

22 MS. KINCAID: But that's my question. Where --
23 how did you put the capacity of the groundwater pumping?
24 Because it's not the capacity of the facilities, which in
25 this chart, it is 626. It's static. So there's a group
26 of numbers in here that are assumptions --

27 MR. GROBER: So if it's --

28 MS. KINCAID: -- and I'm wondering --

1 MR. GROBER: -- a deficit -- so if the deficit is
2 500, it can be fully met. If the deficit is 700, it
3 cannot.

4 MS. KINCAID: Right, but that's a good example.
5 If the deficit is 700, it can't be fully met.

6 MR. GROBER: Yes.

7 MS. KINCAID: But you're stopping short at, like,
8 4 and not going to the -- to maximum capacity. I don't
9 know if you guys have this chart in front of you, but I
10 guess one of the questions -- and obviously you don't have
11 it on hand here, but going forward --

12 MR. GROBER: And which chart are you referring
13 to? Because perhaps -- because maybe we should pull up
14 the chart.

15 MS. KINCAID: You should.

16 MR. GROBER: You have it or we can pull it up
17 from the document.

18 MS. KINCAID: It's Table G2-5.

19 MS. HUBER: I just want to add a minor point,
20 which is the calculation is done irrigation district by
21 irrigation district and --

22 MR. GROBER: (Unintelligible).

23 MS. HUBER: -- some have a minimum -- well, have
24 little ability to replace a water supply shortage with
25 groundwater pumping. So the result for each year depends
26 on sort of which district has the shortage and whether or
27 not they can replace their water.

28 MS. KINCAID: And is that calculation provided in

1 the SED or is that --

2 MS. HUBER: Appendix G has a detailed description
3 of that calculation. It's summarized in Chapter 9, but
4 Appendix G has --

5 MS. KINCAID: All right. And --

6 MS. HUBER: -- a lot of details.

7 MR. WARD: Let me make sure I understand. So
8 you've got a 300,000 acre-foot on average, and I've got
9 some questions about that. But 300,000 acre-foot
10 shortfall of surface water made up by 100,000 acre feet of
11 groundwater pumping because you've reached some sort of
12 maximum withdrawal capacity; right? And --

13 MS. HUBER: Yeah.

14 MR. WARD: Am I getting that right?

15 MS. HUBER: I don't have the numbers memorized,
16 but yes.

17 MR. WARD: So there's still the shortfall --
18 right? -- of 200,000. It gets back to speculative
19 responses are unpredictable and unknown. Don't you think
20 a reasonable response would have been for local -- the
21 local community to drill more wells and pump additional
22 groundwater, and that was not analyzed?

23 MS. HUBER: Well, we used 2009 as the --

24 MR. WARD: Yeah, but I'm talking about response
25 to --

26 MS. HUBER: Well, so the -- for that reason, we
27 also did evaluate the 2014 maximum groundwater pumping
28 numbers.

1 MR. WARD: I'm talking about beyond that. Did
2 you analyze making up the entire shortfall?

3 MR. GROBER: So if I may, since we -- this is --
4 is this the table that --

5 MS. KINCAID: Yeah, that's the table. And sorry.
6 I'll try to be quick on this, but to be honest, I don't
7 want to act like I'm belaboring a point. This is a
8 fundamental -- this is the fundamental assumption of our
9 groundwater.

10 MR. GROBER: So I think this might -- I think I
11 understand what the concern is, what the question might be
12 now. These are still averages of those year types. So
13 the response is not the same at all, dry years not the
14 same, nor critically dry years. So you're not up to the
15 maximum in any one of those because you're meeting --
16 there's still -- there's going to be a mix of different
17 augmentation of groundwater -- additional groundwater
18 pumping. So those are taking the average of just a subset
19 of years in the record, so --

20 MS. KINCAID: Right.

21 MR. GROBER: -- 20 years roughly for each --

22 MS. KINCAID: Okay. Let me make --

23 MR. GROBER: So you would -- so --

24 MS. KINCAID: -- sure I have this right.

25 MR. GROBER: So there's not a number -- so this
26 isn't like a target number.

27 MS. KINCAID: No, I know.

28 MR. GROBER: These are also averages of the --

1 MS. KINCAID: It's an estimated 2009 groundwater
2 pumping capacity, which is what it's called. So --

3 MR. GROBER: Based on estimated 2009 groundwater
4 pumping capacity. So it's still using that maximum. It's
5 saying over that 82-year record.

6 MS. KINCAID: Can you explain that -- that's my
7 question. Can you explain the maximum? So when you have
8 this 105, 302, so I'm looking at the Alt 3, 40 percent
9 unimpaired flow. In average year -- and I understand how
10 you get the average year of 105 increase. That obviously
11 is not the maximum capacity. So clearly there's an
12 assumption made that there is groundwater pumping but not
13 to the capacity.

14 My question is what is the assumption or what is
15 the calculation that was used to assume when groundwater
16 pumping would stop, if it stops short of the full
17 capacity?

18 MR. GROBER: It's -- so the example that I gave
19 initially, so let's just assume -- just use easy, round
20 numbers. If the surface water supply deficit is 700,000
21 acre-feet, the maximum groundwater pumping capacity is
22 600,000 acre-feet, then the -- then you would --

23 MS. KINCAID: How did you get the 600? If the
24 600 --

25 MR. GROBER: That's based on the information that
26 we have. That's a fixed number. That's the maximum rate
27 that we have. Based on the plans and the information we
28 solicited in 2015, what's the maximum pumping capacity

1 within each district? It's the sum of all of that. So
2 that's the maximum. We assume it can't be any higher than
3 that.

4 MS. KINCAID: Right. But if it's a fixed number,
5 then why does it differ by critical, dry, and below normal
6 year? I mean are you saying that you just took the ag
7 water management plan numbers and imported them here? It
8 looks like there's a calculation that's --

9 MR. GROBER: Yeah, the calculation is -- and Tim
10 just pointed it out. It's -- this is why math is good.
11 So that -- this reminds me when I did my master's and part
12 of my dissertation coming up with a full page of partial
13 differential equations. This is not a partial
14 differential equation, but it is an equation, nonetheless,
15 that actually answers your question. So it's taking --

16 MS. KINCAID: Can you walk me through it?

17 MR. GROBER: Yes. So it's saying the additional
18 groundwater is the minimum of the additional demand minus
19 the applied surface water demand and the minimum
20 groundwater -- is that the groundwater -- minimum
21 groundwater pumping?

22 UNIDENTIFIED SPEAKER: Yeah.

23 MS. KINCAID: And that's my question. So what's
24 the minimum groundwater pumping? It's just a number
25 straight out of ag water management plans?

26 UNIDENTIFIED SPEAKER: Yeah.

27 MS. KINCAID: And there's no calculation behind
28 that?

1 MR. GROBER: Because it's simpler than looking at
2 the equation. It's saying it's -- basically it's that --
3 it's the example that I've given. It's like the demand in
4 any given year. You have to look at that demand that you
5 have because you don't have the surface water supply, and
6 then you say, can I meet it with the -- within the max
7 pumping? If I can, great. If not, you go up to the max
8 pumping, but your demand might be less than the max
9 pumping and then you'll come up with something less.

10 So for all years and for all year types, you'll
11 get a range that goes up to the max pumping, the
12 additional groundwater pumping, but it could be something
13 also very close to zero. And you take an average of all
14 those year types, and you'll come up with the numbers that
15 are in that table.

16 MS. KINCAID: Okay. So that -- so that what
17 you're saying is that minimum groundwater pumping or the
18 maximum groundwater pumping, those are not calculations.
19 Those are literally just imported from the ag water
20 management plans?

21 MR. GROBER: That's correct. Those are -- those
22 are caps, basically, on those two numbers.

23 MS. KINCAID: And did you guys provide that
24 calculation in the SED? And, if not, can you provide
25 that?

26 MR. GROBER: That's -- here it is.

27 MS. KINCAID: No, no. I mean the actual numbers.

28 MR. GROBER: Oh, the numbers? They're in the

1 SED, yes. And, actually, we've -- and --

2 MS. KINCAID: They're not.

3 MR. GROBER: -- this is -- yes, and --

4 MS. KINCAID: The calculation is in there, but if
5 you could provide the numbers of how you got to that
6 number because, obviously, all the ag water management
7 plans didn't come up with the same number.

8 MR. GROBER: Is that in here? Is that in here?

9 MS. KINCAID: We don't have to take it now, but
10 if you could provide that, those numbers, off-line.
11 They're not in the SED.

12 MR. GROBER: Sure, sure.

13 MS. KINCAID: That would be great.

14 MR. GROBER: We've actually -- and we've gone,
15 you know, one step even beyond this. Because as arduous
16 as this is, especially looking -- looking at math in a
17 public meeting is always kind of hard.

18 MS. KINCAID: You wanted technical; right?

19 MR. GROBER: Yes, this is technical. It's great,
20 but we didn't look at it just for 2009 as this next table
21 shows. These are here. This is the annual maximum
22 groundwater pumping based on 2009 and 2014 estimates. So
23 that shows it district by district. And depending on then
24 what you use, you come up with different results, and
25 these results are important.

26 And a lot of thought went behind using the 2009
27 because, as I think I said early in the presentation, if
28 you use the 2014, it has the effect of reducing the unmet

1 demand. So it reduces the ag -- it reduces the crop
2 following. It reduces that ag economic impact, but it
3 puts more of a burden on groundwater. And it's also
4 looking at numbers that are less sustainable.

5 Even 2009, as the numbers we present, is that
6 sustainable over the long term? That's going to be a big
7 issue for SGMA, but we've presented it two different ways.
8 I think one of the questions is have we done sensitivity
9 analysis for things like this? This is an example of like
10 we can't know exactly what the answer is.

11 And arguments could be made, well, that's not the
12 right 2009 -- you know, that's not sustainable pumping.
13 Well, we've looked at it a couple of different ways, and
14 it will counterbalance in the end. And if there's better
15 information in terms of what's currently going on and
16 what's expected to go on in the future, that's good
17 information to receive. But we're showing our work as to
18 how this all comes together in terms of groundwater
19 effects versus cropping and economic impacts.

20 MR. ANDERSON: I believe we've also provided a
21 spreadsheet that covers all the calculations, and it's not
22 a -- it's a fairly simple calculation, but there's a lot
23 of years and a lot of different areas that it goes
24 through.

25 Just to clarify on your original question on the
26 year types, it's important to remember that those year
27 types are composites, so we don't -- we don't average the
28 dry year demand and then take the capacity off of that.

1 It's a composite of multiple years, some of which will
2 reach capacity, some of which won't need it. If that
3 makes sense.

4 MS. KINCAID: It does. And I guess that's the
5 calculation I was asking about and how you got to those
6 composite numbers. Because they look awfully round, but
7 they're obviously calculation, so...

8 MR. WARD: I have a question about the -- and
9 then I'll let Debbie kick off the ag, although we're kind
10 of skewing into that. We're talking about averages;
11 right? And it kind of smooths things out from the real
12 year-to-year, what we might realize. So we talked about
13 this 293,000 acre-feet shortfall and available surface
14 water. So let's just call that 300,000. Where in your
15 document is that distribution and what does that look
16 like?

17 First of all, what is your average? Can you show
18 me the formula? Can I derive from your data? Can I get
19 to the answer of 293,000 as an average? Is that a mean?
20 Is it a middle of the range? Is it a -- what is it?
21 That's a question.

22 The other one would be what does the distribution
23 of that look like? Is it uniform? I bet it isn't. So is
24 it skewed which way? Is it skewed to the left? Is it
25 skewed to the right? It would be helpful for us to
26 understand that because I think it might be more revealing
27 than using averages.

28 And with that, what would be that standard

1 deviation? Over what range -- you know, statistics can be
2 very misleading. And so looking at the actual numbers,
3 notwithstanding the premise in the first place, but just
4 recognizing and taken as a given for our part that 300,000
5 acre-feet of less surface water is going to be available
6 to this region, our response is going to be pumping more
7 groundwater.

8 I mean that's what we're faced with, and that is
9 going to affect all the ag communities, all the cities,
10 all the rurals, all the domestic wells. And we're trying
11 to understand what that impact is going to be because
12 ultimately that merges into economy. This ultimately
13 becomes an economic impact to this region, to the entire
14 vitality of this region.

15 So helping us understand that would be very
16 beneficial, to help us frame some questions so we can
17 explore with you better means, perhaps, of trying to
18 analyze and respond to -- to what you're proposing.

19 MR. GROBER: So here I've just pulled up a couple
20 of tables just from the executive summary which is
21 still --

22 MR. WARD: I don't want to see a table. I want
23 to see a histogram, No. 1.

24 MR. GROBER: We have exceedance plots and full
25 data sets. We have the full model and --

26 MR. WARD: Okay. Where is that? Where --
27 what -- can you tell me where in your document?

28 MR. ANDERSON: Well, do you want to go to --

1 MR. WARD: (Unintelligible) we can spend some
2 time with it.

3 MR. ANDERSON: Right. Appendix F1 will be --

4 MR. WARD: F1?

5 MR. ANDERSON: Yes.

6 MR. WARD: What is it, size font 2?

7 MR. ANDERSON: It is fairly sizable.

8 MR. WARD: I had to say that.

9 MR. ANDERSON: Right. And I understand the
10 agenda today is to focus on -- on these items, and we've
11 kind of set aside the larger, you know, hydrologic
12 modeling aspects of that, but the -- this 293,000
13 acre-foot number is an annual average and --

14 MR. WARD: Is it a mean or a median, or what's an
15 average?

16 MR. ANDERSON: That is an average of supply
17 volume, so we've got -- it's --

18 MR. WARD: You just took total years, added up
19 what that cumulative was, and divided by the number of
20 years? What did you do?

21 MR. ANDERSON: Right. So in order to evaluate
22 the system, we have -- we've got the CalSim hydrology.
23 We've got a set baseline, and then there's -- we're
24 comparing 82 years under baseline conditions versus the 40
25 percent flow alternative. And to do that, we have to
26 reoperate the entire system. We've got to evaluate each
27 year for the surface water demand that's required based on
28 the climate, how much rain there is that year, and CalSim

1 gives us a basis for that.

2 MR. WARD: And you have an output number for each
3 year.

4 MR. ANDERSON: So for each year we see what's --
5 what's needed for diversion, and then if there's available
6 supply that's met. And then that requires operational
7 constraints such as carryover storage guidelines just for
8 the sake of the analysis so that no particular years
9 are -- well, to minimize the years of low supply, we have
10 to kind of -- we have to reoperate the system. And so I
11 think that --

12 MR. WARD: Does that include reservoir flood
13 space?

14 MR. ANDERSON: It does. It does include what's
15 available, flood space and so on. Just how CalSim would
16 do it, we've used those parameters and basically had to
17 come up with an allocation scheme saying, well, if we've
18 got to put this, you know, amount in the river instead of
19 20 percent of unimpaired flow, how it might be under an
20 existing condition, a biological opinion or so on, up to
21 40 percent, then that water would not be available for
22 use.

23 And it would -- and so each month, not just
24 annual but monthly operations of the reservoir would be
25 considered in that. And so that's the topic of the
26 December 5th workshop that we will be presenting, and
27 so --

28 MR. WARD: Or we can spend some time with

1 Appendix F (unintelligible).

2 MR. GROBER: So, Will, if you wanted to come here
3 and do some driving on the -- on F1 to find any other
4 specific table. And I'm not sure if this is -- if this
5 is -- the short answer to your question is at least
6 twofold. We have provided the models which were available
7 when we released the SED, which has not just all of the
8 information, but it allows anyone to duplicate that
9 information and also check the model logic to see how
10 these calculations are made.

11 These appendices have all of the -- I'm showing
12 example of a form, of tabular information just for one
13 tributary at 1 percent of unimpaired flow so we have that
14 type of information. What I think is far more useful,
15 though you didn't want to see a summary table, is
16 something from the executive summary which really gets at
17 your point which I think is that averages can be
18 misleading.

19 So this is a table from the executive summary
20 showing the mean annual water supply effects. It's
21 showing it for the Stanislaus, the Tuolumne, and the
22 Merced. And that's where you have then -- for the total
23 for the plan area, you get where I'm showing here where
24 that occurs, or that average, that overarching average of
25 293,000 acre-feet per year. That's the reduction in water
26 supply that would be available.

27 So that's a 14 percent reduction, and we show it
28 then for each 5 percent of unimpaired flow, shows how it

1 varies. So it's important to see how it varies within
2 that 30 to 50 percent range of the proposal. That's why
3 we highlighted for the 40 percent, but also for the plan
4 area, it ranges from a 7 percent to a 23 percent
5 reduction. Those are big numbers, and that's not all of
6 the story.

7 But getting directly at your point, on the next
8 page of the executive summary, we have another summary
9 chart that shows it again for the Stanislaus, the
10 Tuolumne, and the Merced for the total plan area but shows
11 under the 40 percent flow proposal what the variation is
12 by year. So not all the years are the same. In wet years
13 for the overall plan area, it's only a 2 percent reduction
14 because there's plenty of water available for everything.

15 But when you get to those dry and critically dry
16 years, those are much bigger than the annual average.
17 That's a 673 and 624 thousand acre-foot, respectively,
18 reduction in water supply in those years. And that gets
19 directly at what the proposal is doing, because though we
20 don't have the fish panel here today, we're not talking
21 about the fish rate, but it's those years when the percent
22 of unimpaired flow in the tributaries can be in the single
23 digits during that February through June period, rather
24 than what would be flowing down under an unimpaired
25 condition without consumptive use and storage.

26 Where you'd have 100 percent, you're getting 5,
27 6, 7 percent of the flow that would actually normally
28 occur. So that gets at the crux of the impetus for the

1 proposal, why you need some level of flow to protect fish
2 and wildlife, and that's also because that's when there's
3 consumptive use needs, that's why you see the biggest
4 water supply effects.

5 MR. WARD: Okay. There's something we need to
6 further explore.

7 MR. GROBER: Sure. But I assure you --

8 MR. WARD: A statistical approach --

9 MR. GROBER: I assure you that all the numbers,
10 all the numbers -- there's a lot of numbers in the
11 executive summary.

12 MR. WARD: Yeah, I'd like to see if the 20
13 percent through whatever it was for each of the 82 years
14 of hydrology, that needs to be teased out somewhere
15 because I believe --

16 MR. GROBER: Is that something --

17 MR. WARD: It's not a uniform distribution;
18 right?

19 MR. GROBER: Right.

20 MR. WARD: You're going to have more years where
21 there's going to be greater impact to the region than when
22 you just look at it as an average.

23 MR. GROBER: What would you like me to pull up,
24 Will?

25 MR. ANDERSON: Page F179 for Mr. Ward.

26 MR. WARD: And, Debbie, I'm sorry. I -- I told
27 you ahead this would be sort of organic and we'd be free
28 flow. So let's move on to this next panel. I apologize.

1 And we'll get back with you, Will.

2 We have Eric Thorburn over on audience's left
3 with Oakdale Irrigation District, Julianne Phillips with
4 the San Joaquin County Farm Bureau, Mr. David Robinson who
5 is the ag commissioner for Merced County, Valerie Kincaid
6 with O'Laughlin & Paris, and Debbie Liebersbach, water
7 manager with Turlock Irrigation District. So Debbie is
8 the sub lead on this one, and she can maybe kick it off
9 with one of her group's questions as it pertains to
10 agricultural impacts directly attributed to the proposed
11 unimpaired flow proposal.

12 MS. LIEBERSBACH: Thank you, Walt.

13 MR. GROBER: And if I -- if I may, just because
14 I've been intervening time. You know how engineers are.
15 So since I pulled it up, I have to draw attention to the
16 exceedance plots because --

17 UNIDENTIFIED SPEAKER: Can you zoom in?

18 MR. GROBER: Sure. So for the -- for engineers,
19 this is the -- you know, this is the way to view the data.

20 MR. WARD: Okay. We'll look at it.

21 MR. GROBER: So that's an example of showing for
22 the different proposals, and this actually shows for what
23 percent of the time. That's why the -- it's the
24 exceedance plot, what percent of the time you have
25 reductions in diversions on each of the three tributaries,
26 so -- sorry.

27 MS. LIEBERSBACH: It's all right. Thank you.

28 Okay. So we have a variety of questions, and

1 thank you again for coming to talk with us. I guess I
2 thought I'd start by asking, you know, you've recognized
3 in your presentation that we have varying levels of
4 overdraft existing within the basins already, and that
5 combined with the requirement that SGMA bring this into
6 the requirements for groundwater sustainability.

7 One thing that occurred to me is that the
8 groundwater -- or the agricultural impacts were evaluated
9 based on a variety of groundwater pumping scenarios. You
10 know, you proposed 2009 as a possible amount of water that
11 could be pumped and 2014 volumes with an amount that could
12 potentially be pumped, but you didn't really look at
13 what it might be if groundwater isn't able to be used to
14 make up the difference. And that would in my mind kind of
15 bracket what the impacts may or may not be. Unless,
16 perhaps, it's in the SED someplace and I didn't find that.

17 Could you -- could you talk about that?

18 MR. GROBER: Sure. So I think, as I said,
19 that's -- in the last round, that's what we looked at. We
20 looked at no pumping or full pumping. This time, based on
21 many of the comments that we received in this area from
22 others, we'd rather answer the question as, well, what's
23 likely? Because neither seems likely that there would be
24 no additional pumping or full pumping. So, no, we don't
25 have that in the SED. We don't look at a scenario where
26 there is no additional pumping.

27 MS. LIEBERSBACH: But from an agricultural impact
28 perspective, that would be the worst-case scenario; would

1 it not be?

2 MR. GROBER: That would have a bigger -- that
3 continuum that I referred to, if you didn't replace the
4 supplies with groundwater, there would be a bigger effect
5 on -- in terms of reduced cropping and economic.

6 MS. LIEBERSBACH: Okay.

7 MS. PHILLIPS: To that point, while you were
8 discussing the last item of interest, you did say that,
9 you know, the relationship between the agricultural
10 economic impact and the groundwater impact, and I think
11 that to the extent that those are two divorced ideas in
12 the SED is to the detriment of the local communities
13 because -- especially in agriculture.

14 If you're looking at a groundwater impact, that
15 is an agricultural economic impact, and those have not
16 been fully vetted in the SED. And if they have, we would
17 like to know what is the worst-case scenario. If under
18 SGMA there's not allowed to be any more additional pumping
19 in these high-priority basins, what is that economic
20 impact going to be?

21 MR. GROBER: Well, and this is -- you know, this
22 is one of the questions that we had in the last round. It
23 becomes -- to make determinations about what the specific
24 responses will be and over what time frame, combining that
25 with what other additional groundwater recharge that could
26 be, increases in water use efficiency, water conservation,
27 change in cropping patterns. That starts becoming all
28 quite speculative.

1 We're confident in the analysis that we've done,
2 and that's why the intervening drought, if there's
3 anything good about it, it provided useful information on
4 what -- how would this area specifically respond to
5 reduced water supply, surface water supply. And we used
6 the information on what the response was, recognizing that
7 there's that question, that big question about
8 sustainability and for how long.

9 But that's why we've provided all of this -- the
10 information that we have. That's the big, open question.
11 That's something this local area is going to have to
12 wrestle with, long-term groundwater sustainability. But
13 in the moment, the analysis shows this is a likely
14 response to the -- to reduced surface water supplies.

15 MR. THORBURN: Sorry. Can we talk about inputs a
16 little bit here? What assumptions did you make for land
17 conversion? Because I know that in our district, we've
18 seen 3,000 acres of ground being converted to permanent
19 crops every year. So what assumptions did you make on
20 those trends?

21 MR. GROBER: I'm sorry. Assumptions about land
22 conversion --

23 MR. THORBURN: Conversion to permanent crops.

24 MR. GROBER: That there was certain thresholds --
25 can I pass this one off in terms of when -- when
26 determination in terms of conversion as opposed to
27 fallowing?

28 MR. ANDERSON: Well, we're starting with a 2010

1 baseline of crop use, and perhaps Tim can say it. We
2 don't address --

3 UNIDENTIFIED SPEAKER: I feel like this is more
4 of a Josué question.

5 MR. GROBER: Yeah.

6 MR. ANDERSON: We may have to defer that.

7 UNIDENTIFIED SPEAKER: He couldn't make it here
8 today, but he'll be at the technical meetings, so...

9 MR. THORBURN: So it seems like you're using a
10 lot of old data. So in your presentation, you used an
11 estimate of what the available groundwater supply was in
12 the basin. That was from 1960; is that correct?

13 MR. GROBER: That's -- that was provided to
14 just -- there's always a concern in providing a number,
15 big numbers like what's the current level, estimated
16 levels of overdraft. And we presented those numbers, you
17 know, what we came up with, two different ways, and then
18 what is -- what could potentially happen with the
19 increased levels of groundwater pumping based on the 2009.

20 There's a lot of assumptions in there, but to try
21 to add perspective to those numbers, those levels of
22 groundwater overdraft, that's the reason we just provided
23 the only number that we're aware of in terms of what's the
24 total, you know, yield of the -- the combined of the
25 aquifer in the area. It's a very big number, but
26 that's -- again, that's -- we disclaimed what -- how that
27 can be used and how not. It shouldn't be taken as just a
28 bank account that you can drain down.

1 MR. THORBURN: Right. But you did -- but you did
2 do -- later in your presentation, you stated the amount
3 that is currently being drafted from the aquifer, assuming
4 that all the other assumptions that you made and inputs
5 were correct, you stated a percentage per year that we're
6 pulling now and a percentage that we're pulling in the
7 future and gave us a perspective that basically this is
8 how many years you have. But did you account for the
9 years that have been pumped since 1960 and the draft --

10 MR. GROBER: This was just -- that's why I was
11 just looking at those. That's the number that was out in
12 the literature. Just --

13 MR. THORBURN: But if you don't -- if you don't
14 correctly account for those, then you aren't correctly
15 accounting for the economic impacts; correct?

16 MR. GROBER: Well, no. This is to provide --
17 this is a very big question. This gets to be the SGMA
18 question, which is why this and other areas have a lot of
19 work to do to determine what are the current numbers in
20 terms of sustainability yield and how the groundwater will
21 be managed. That's -- that's a much bigger question than
22 what we have here with regard to the SED. This is adding
23 one stressor to the overall SGMA question in terms of
24 ground water sustainability.

25 MR. THORBURN: So getting back to the quantity
26 question, the 2003 Bulletin 118 boundary analysis was used
27 as the basis for estimating the agriculture that is
28 outside the improvement -- or the irrigation districts; is

1 that correct? So was there any look considering the fact
2 that a lot of that east side ag and that -- in our area
3 specifically -- and some other districts around us outside
4 of this district, there's been a lot of development. You
5 used 2003 numbers to estimate that ag and that demand; is
6 that correct?

7 MR. ANDERSON: It was the 2003 boundaries that
8 were established by Department of Water Resource but 2010
9 land use data.

10 MR. THORBURN: So there were no trends since
11 2010, and no one else has -- since 2010 of what has
12 occurred out in those areas?

13 MR. GROBER: This is -- this project -- this
14 project -- this is -- the proposal in this project is not
15 SGMA, and it's not about --

16 MR. THORBURN: But it goes into the impacts and
17 how those impacts are quantified; right?

18 MR. GROBER: But --

19 MR. THORBURN: So the information's important in
20 utilizing those --

21 MR. GROBER: Well, what we have to find is the
22 relative impact, the relative change. We don't know those
23 absolute numbers, and to the extent those absolute
24 numbers, that would certainly inform SGMA and other things
25 that need to happen. But we're showing how the relative
26 number -- and we've provided some relative numbers. I
27 think your point is, well, the -- I think what you're
28 saying is that the level of overdraft is actually much

1 greater than some number that we've presented. And
2 that --

3 MR. THORBURN: But my point is the number that
4 you used doesn't appear to be accurate. If you're using a
5 snapshot in time and it's 2003 and 1960 --

6 MR. GROBER: I would ask what --

7 MR. THORBURN: You have 2012 plans versus the
8 2015 plans.

9 MR. GROBER: What is the -- what is the intent or
10 what's -- how does that question inform what we're doing?
11 Because I'm -- and, again, I'm not -- I don't want to put
12 words in your mouth, but I think what you're suggesting,
13 and I think I've heard others discuss that, that there's
14 been much more groundwater pumping going on the east side
15 in areas that don't have surface water supply and,
16 therefore, some of the information we have isn't the
17 latest in terms of the current level of overdraft that's
18 happening in the basin.

19 That -- perhaps that's the case, but if there's
20 information like that, I'd say two things. That's going
21 to be very important for SGMA, and in terms of informing
22 the policy decisions, that would be a comment to make as
23 part of this process, but I don't think that it changes
24 the nature of the assessment or the impact analysis for
25 what we've done for the -- for the SED.

26 MR. THORBURN: Yeah, I disagree. I think that if
27 you have old data for supply that's available and for
28 really the demand on the aquifer, I think that's a big

1 problem with -- affecting your economic analysis.

2 MS. GAO: Just to clarify it, we didn't use the
3 1960's total storage number in any of our models. That
4 number was provided in this presentation to give everybody
5 a general context of how the -- our estimated overdraft
6 compared to the total available water. So we never used
7 that number in our assessment. And, also, we -- we never
8 used the estimated overdraft in our assessment. It's just
9 to provide us a context of what is happening.

10 MS. LIEBERSBACH: Could you explain why in the
11 agricultural impacts analysis it wasn't considered what
12 impacts there might be outside of the five irrigation
13 district boundaries? Because the other analyses
14 recognized that there's a larger basin and those areas
15 rely upon the groundwater that's being recharged within
16 those districts. And so it seems to be missing as a part
17 of the impact analysis.

18 MR. GROBER: You probably will -- if you
19 haven't -- if you're not hating it already, you'll
20 probably hate it even more. This is -- it's a
21 programmatic analysis. We've done much more detail than
22 generally is done for such things, but the -- when we look
23 at the effect, it's a total water supply deficit. And
24 we've looked at the ag -- the cropping effects and
25 their -- the ag economic effects focusing on the
26 districts. To the extent that that would be -- there
27 would be a shortage, something outside of that area, it
28 would be similar but not significantly different or bigger

1 effect is what's built into the analysis. So it's --

2 MS. LIEBERSBACH: But isn't it a cumulative? I
3 mean, if you're going to have the impacts in the district,
4 you're also going to have impacts outside of the district
5 and so it's -- you're missing --

6 MR. GROBER: I wouldn't (unintelligible) it's
7 cumulative for that. It's the total -- we've identified
8 the total water supply effect, and from that, the total
9 cropping and economic effect. Where exactly that will be
10 happening, it could shift. Some might be more out of
11 district and not within district. Because it's an
12 important point both for this but also for SGMA, it's
13 curious.

14 This is why it's another thing to wrestle with is
15 I'm not sure if the point was driven home in the slide
16 that Tim had shown. The districts themselves for the most
17 part currently now provide significant recharge to the
18 aquifers, and even under this proposal would continue to
19 do so until you get to the higher end. And particularly
20 Merced Irrigation District would start drifting into not
21 necessarily recharge at the 50 percent, but where exactly
22 these water supply effects and where the ag effects would
23 occur, it's going to be somewhere within the plan area but
24 where exactly is getting into a detail that would be
25 speculative to determine.

26 MR. WARD: Just a time check. We're five
27 minutes -- we've slipped five minutes on our schedule. So
28 we're doing pretty well.

1 Dave, do you have any follow --

2 MR. ROBINSON: Yeah, I do. I'm interested in
3 crop production. You know, the groundwater within the
4 area is of varying quality. What process did you
5 undertake to assess the impacts on ag production from the
6 increased use of poor quality groundwater?

7 MR. GROBER: You know, I think we might need to
8 check that. I don't think that we -- we looked at that,
9 we determined anything about the quality, though I'd have
10 to check that. That's a -- that's -- I don't believe --
11 someone correct me if I'm wrong, but I don't think that we
12 made determinations about changing water quality with
13 regard to the surface -- the flow element of the proposal.

14 MR. ROBERSON: Yeah, hi. Mark Roberson with ICF,
15 and I worked on the ag resources chapter. And regarding a
16 change in groundwater quality for suitability for
17 irrigation, we did look at what -- I believe it's in
18 Bulletin 118 -- we had for background information and did
19 not see that it was a significant issue with irrigation.
20 But if there's other information, you are welcome -- we
21 welcome it.

22 MS. PHILLIPS: That's very curious to me because
23 my growers also have to pay Water Quality Coalition to
24 measure the quality of their groundwater, and they're
25 consistently being told that they need to do better and
26 that dilution is the solution to the problem. Now you're
27 not getting any surface water that we can recharge that
28 groundwater with, and then you're having to recycle it and

1 pump it -- and pump the lower quality groundwater onto the
2 land. And that's going to cause an impact in crop
3 production.

4 MR. WARD: I had a question, and then I think
5 we'll take about a ten-minute break and then we'll bring
6 up the large urban -- Michael, I saw you out there
7 somewhere. Yeah, here you are.

8 In your demand forecast, and you show the
9 deficit, lack of surface water, pumping more groundwater
10 up to the capacity, 2009, 2014, that discussion, that
11 demand forecast is fixed; right? And so that crop demand,
12 is it ET replacement with applied water efficiency? In
13 other words, in your SED, do you take into account -- do
14 you do anything on the demand side? Do you assume some
15 conversion of the irrigated method to drip and micro away
16 from what is irrigated today by flood? That's one
17 question. And if there's a yes to that, did you consider
18 then the loss of recharge to the basin as a result of the
19 shift in irrigation methodology?

20 MR. ROBERSON: I'll go ahead with the irrigation
21 question. We -- we assume using the DWR's applied water,
22 which encompasses different efficiency practices and kept
23 those --

24 MR. WARD: Okay.

25 MR. ROBERSON: -- as they were --

26 MR. WARD: But did you assume any demand
27 reduction in the region as a result of -- as one of the
28 speculative responses to the lack of surface water, that

1 there would be, I'll just call it, a reasonable response
2 to shift to more efficient application methods, therefore,
3 reducing groundwater recharge?

4 MS. HUBER: I'm pretty sure that there's a
5 discussion of how increased efficiency is a likely
6 response to reduce water supply.

7 MR. WARD: Did you assume (unintelligible)?

8 MS. HUBER: It's not built into the calculations.

9 MR. WARD: It isn't? Okay.

10 MR. GROBER: No, and --

11 MR. WARD: Will looks like he wants to say
12 something.

13 MR. ANDERSON: I'm not sure that it will be
14 satisfying, but the need for applied water incorporates
15 the actual ET demand and then excess either, you know,
16 leaching or otherwise a percolation that does occur as
17 part of the process. The surface water has efficiency
18 issues to get there, but we've assumed the rates that
19 we've seen published based on that snapshot in time in the
20 management plans. The groundwater application is at the
21 field and without -- it's assumed to be at the field, just
22 to simplify things; whereas, some of it might be into a
23 conveyance system and lost, but there is a greater
24 efficiency there. But, again, the rates are the same.

25 Back to Les's original point. If we take the
26 reduced surface water, it's either going to have an
27 effect, so if -- if the district takes the cut, then
28 they'll -- there would be a major -- you see the maximized

1 economic impact. If the district gets more efficient,
2 then that passes the impact along to the groundwater
3 basin.

4 MR. GROBER: And this is an interesting and very
5 important question. And I heard this came up with -- you
6 know, I was fortunate -- a meeting just earlier this week
7 in front of the San Joaquin County Board of Supervisors,
8 where, you know, an observation was made. You know, lot
9 of investment inefficiencies and drip and conversion,
10 things like that. Then all of a sudden you start
11 noticing, well, now groundwater reach (unintelligible) has
12 gone down, so this is -- but it's a zero sum gain with
13 that. And it's like, though, you can -- you could achieve
14 some goals by becoming more efficient, but in an area like
15 this where there's already successful conjunctive use of
16 water going on, that, you know, it only gets you so much.

17 There's the efficiencies, of course, and
18 that's -- you know, and there's methods there when -- I
19 think we're going to be hearing that, you know, we should
20 have identified some of those things to show how you would
21 reduce the costs and the economic costs and ag costs here
22 because, as we know, there are some methods of applying
23 water inefficiency where you can do both. You can just
24 cut down on the, you know, the evaporation of water so
25 you're -- you know, you're not cutting down on groundwater
26 recharge and you're using more just to satisfy directly
27 the drop ET requirements. But those are the smaller
28 margins, you know.

1 Elwin who's public works director with the City of Merced.
2 Sitting next to Ken is Larry Parlin with the City of
3 Modesto, and then Michael Cooke with the City of Turlock.
4 And they've been asking and graciously agreed to sit on
5 this panel to talk about impacts of the SED and the shift
6 in additional groundwater pumping and how that would
7 impact their city water supply.

8 So, Michael, I'll let you kick that --

9 MR. COOKE: I'll be happy to kick it off. I want
10 to start -- and (unintelligible) I want to thank you to
11 the State Board. We met with you a couple years ago and
12 found that the earlier version of the SED didn't even
13 consider impacts to urban suppliers of the -- of the
14 proposed flow proposal. So thank you for Chapters 13, 16,
15 and 22. They provide a lot of information on how we would
16 be impacted, but with that thank you comes a concern that
17 when you start analyzing those impacts, they're
18 significant and, as you say, they're unavoidable, and that
19 raises some significant concerns for us.

20 With my background, I'm a geographer by trade.
21 As a little kid I used to like watching *National*
22 *Geographic* shows. And I always remember watching the
23 shows of those poor African kids with a standpipe pumping
24 the water and care -- with coffee cans and milk jugs,
25 whatever else to carry water around. And when I read this
26 SED, I see something very, very similar that you say
27 people in rural areas may have to switch to bottled water.
28 There will be significant impacts to residents, declining

1 groundwater quality, a whole cavalcade of events, and
2 we're knowingly and deliberately creating that impact in
3 the San Joaquin Valley. And that to me is beyond the CEQA
4 impacts, and that stuff is very concerning as a resident,
5 someone who lives here.

6 So I want (unintelligible) to Larry Parlin to
7 start with and talk about how water under the California
8 Water Code, that the highest and best use is municipal
9 supply.

10 MR. PARLIN: Thanks, Michael.

11 Well, one of the things that we're concerned with
12 primarily in Modesto is we contract for surface water for
13 treatment for our water supply with the Modesto Irrigation
14 District. And under reading the water code, when you're
15 contracted to an irrigation district, then that water is
16 not considered the highest protected water for domestic
17 use for your urban suppliers. So, you know, how -- did
18 you address that in the SED or why did you not look at
19 what the highest and best use of water is?

20 Because the water code recognizes that drinking
21 water is the highest, best use, but it's not necessarily
22 the case when it's supplied by contract from a supplier.
23 Did anybody take a look at that, how the drinking water is
24 procured in the region and whether or not the irrigation
25 districts could, in fact, reduce the supply to the urban
26 water community?

27 MR. GROBER: I'm not sure -- when you say, "take
28 a look at that," meaning what would be the effects of

1 reduction in water supply or --

2 MR. PARLIN: Reductions in water supply to the
3 urban users. Because the primary focus that everybody is
4 talking about and is appropriate is the agricultural
5 community, and that's important. However, there are
6 not -- Modesto is not the only urban water user that gets
7 from an irrigation district in the local area. You have
8 the cities of Manteca and others that get it from South
9 San Joaquin Irrigation District.

10 So did you look at the protection of that
11 drinking water supply going forward as -- for the urban
12 water users, or are you just considering this all as
13 agricultural water use and not looking at the fact that
14 the urban water users do use some of that water supply?

15 MR. GROBER: As you pointed out, we identify the
16 use in the -- in the documents, and that's why we
17 identify -- and, again, it's the -- much of the same
18 unsatisfying answer in terms of, you know, the speculative
19 elements. We talk about, you know, water conservation,
20 you know, what's happened in recent drought periods in
21 terms of, you know, reduced reliance on water, what can be
22 achieved. We also talk about water transfers and sales of
23 water and the costs of water, marketing of water. So
24 those were all things that -- you know, what the exact mix
25 of that will be is, you know, cannot be determined with
26 specificity so it would be speculative.

27 But there for the cities, because it is the
28 highest use of water, and I think we even have language in

1 our water quality control plan in terms of, you know,
2 protecting health and safety, things like that, there's --
3 there are opportunities for purchasing water and for water
4 to get to cities.

5 MR. PARLIN: Well, I would -- yeah, I think to
6 frame it a little bit better, we might -- we might comment
7 that we've had to be very specific in the cities in
8 long-term planning (unintelligible) regional water
9 management invested hundreds of millions of dollars, still
10 are currently working with the State Water Resources
11 Control Board on these projects. Also looking forward
12 to -- which entails our growth. We have hundreds of
13 millions of dollars worth of infrastructure existing, and
14 so going forward, this was all planned and accommodated,
15 not only the available surface water supplies that we have
16 contracted for, but the conjunctive use, protection of the
17 groundwater, the delivery of recycled water to the
18 agriculture community. All these things were planned on,
19 conditions that were ascribed, and now a change in that
20 surface water will have a dramatic impact on that.

21 And then earlier you mentioned the groundwater.
22 Well, you really didn't consider water quality, but at the
23 same time we've tried to do the integration, groundwater
24 quality is a huge concern for the cities because on the
25 other side of your building, they're implementing new MCLs
26 for new constituents which are going to further limit the
27 groundwater supply or require hundreds of millions of
28 dollars more in treatment. And I don't even think the SED

1 addressed the future MCLs that are coming or the potential
2 for future water quality issues. And those have a huge
3 economic impact going forward for the city.

4 MR. GROBER: We did consider, you know, the
5 general plans in terms of cumulative impacts, you know,
6 growth that's going to occur in the area, but I mean I
7 just -- just because of the comments that I heard, you
8 know, this is -- because there's an audience here as well,
9 I just want to bring us back to the proposal and the --
10 the background upon which that proposal is being made.

11 The current withdrawals from the river are at
12 times taking out 90 plus percent of the February through
13 June flows. So this proposal, getting back at its core,
14 is about maintaining a certain percent of unimpaired flow,
15 30 to 50 percent, for February through June. That's just
16 a portion of the year. So it's just putting a portion of
17 the total water supply back towards the fish and wildlife
18 beneficial use to reasonably protect the fish and wildlife
19 beneficial use.

20 Stemming from that then, it has a water supply
21 effect on the entire area for ag and municipal that we
22 identify, but I just want to make sure to make that
23 comment because that still means that there are going to
24 be the opposite of that, that range of unimpaired flow,
25 that 30 to 50 percent. It means that the opposite of
26 that, that means 50 to 75 percent of the flow February
27 through June, plus the whole rest of the year, is still
28 available for consumptive uses: for agriculture,

1 municipal. So this is a very rich water area. Add to it
2 that you have storage capacity in wet years, things like
3 that.

4 So this -- the whole SED and the analysis does
5 not get away from what are very real impacts to ag and
6 water supply, but there is a lot of water in this basin to
7 work with, and we think that we've identified the
8 potential effects, the costs. We identify the costs of
9 purchasing water for cities, things like that. But if you
10 have more -- if you have comments and policy
11 considerations that the board should know about, that's
12 something that should be provided in written and oral form
13 at the upcoming hearings.

14 MR. PARLIN: And it will. I appreciate that.
15 You know, the fact is, we are blessed with a good water
16 supply in this basin; however, just since 2011, because of
17 the reduction in surface water supply due to the drought,
18 our groundwater levels have dropped about 10 feet. And
19 that's after tremendous recovery when the surface water
20 went into conjunctive use in 1995.

21 On the economic front -- and our people have done
22 a great job managing the water around here as well, but
23 they're also paying a premium price now for the cost of
24 water because of mandated reductions by the state on the
25 other hand.

26 So I think those are important things that will
27 be addressed at the board hearing and as a policy, but
28 they -- also they play into the availability of water and

1 all the planning going forward for the future vitality of
2 the city, the existing population, the existing businesses
3 which, by the way, is prime -- the biggest employers are
4 food and beverage processors here, ag-based industries, is
5 really important to consider, and it looks like -- it
6 doesn't look like it got due consideration in the SED,
7 so...

8 MR. GROBER: And, again, for the policy
9 considerations, it's going to be important to make that
10 then -- those comments before the board. But I can't
11 emphasize enough -- because we agree about a lot, but this
12 is -- really gets at how much we collectively as a society
13 value water. And we value it for doing, you know, lots of
14 things.

15 In the parlance of our board chair, which he says
16 all the time, how do we maximize the beneficial use of
17 water? It's really how do we get the best bang for the
18 buck. And here we have this very real need to protect
19 fish and wildlife, and this document, if it does nothing
20 else, it shows what the costs are of doing so. But it's a
21 cost that the policy decision before the board, is that --
22 are those costs reasonable?

23 And some of that cost will fall, as we described,
24 to the affected area, but when I hear about the costs of
25 water, we work -- you know, throughout statewide, this
26 area, because of foresight and developing the water
27 projects here is very fortunate to have very good water
28 supply, but we've also seen during the drought how both in

1 the cities and ag rises to the challenge, you know. I've
2 seen some of the high crop production numbers, you know,
3 values that, you know, through the drought we survived and
4 actually excelled. And we've seen water conservation
5 happening here in the cities, and I'm confident that that
6 will continue to happen. This is -- but this is clearly
7 adding another stressor to the area.

8 MR. COOKE: I'm going to add to Larry's point.
9 You know, the cities around here have cut back use over
10 the last 20 years probably 40 percent on a --
11 (unintelligible) per capita per day basis, but we're still
12 seeing the aquifer decline. Like you said, it's a new
13 stressor. The state, basically to mitigate that stress
14 is -- you know, the local agencies need to involve this
15 problem for us and there's two ways: one, through reduced
16 consumption through SGMA, so things like that. And if you
17 know the -- you know the SGMA deadlines as much as I do.
18 You have until 2040 to reach sustainability. You add this
19 in, I don't know how we get to that point. And that's a
20 long -- a lot of bad things could happen by 2040.

21 The other issue is it talks about in a number of
22 projects the cities need to undertake to keep supplying
23 water to their citizens, like transfer sale of service
24 water, substitution service water, groundwater, aquifer
25 storage and recovery, recycled water sources, in-Delta
26 diversions, desalination, and new surface water supplies.
27 I don't know how we build those in an area that's
28 economically depressed like this one. Okay? People can't

1 afford 100, \$200 for their water bill. It's simply not
2 feasible.

3 So the economic impact and analysis hasn't been
4 done. But if we're looking at -- I would love to be able
5 to purchase some surface water, but after this proposal
6 goes into effect, I don't know where we get that water
7 from. I think the SED has failed significantly in that
8 chapter to look at, okay, if the cities want to bring in
9 new supplies of surface water to (unintelligible)
10 transfers, where does that water come from? It certainly
11 doesn't come from any tributaries of the San Joaquin
12 River, and it can't -- it won't in the future come from
13 tributaries to the Sacramento River because you're working
14 on Phase 2 already of this.

15 So I don't know where there's this huge pile of
16 water sitting around that somehow cities can magically
17 transfer to their region and turn its drinking water to
18 offset the impacts of the SED. And Larry and I have been
19 involved in one of the single largest recycled water
20 conveyance projects in the country, not just the state.
21 If you ever tried to get one of these things approved,
22 permitted, and developed, it's incredibly expensive and
23 incredibly time-consuming. And just to say, hey, just go
24 solve it with these -- with these answers, I don't see how
25 we can necessarily do that. I know it's policy and CEQA
26 wrapped up together but, again, the state says, you know,
27 the -- we -- you know, we're creating this issue, but we
28 can't solve it because we're not in charge unless these

1 local agencies drill wells, local agencies develop
2 drinking water plants and, therefore, it's up to them --
3 up to them to solve that problem.

4 And that's a fundamental problem with the SED,
5 just keeps deferring that mitigation for someone else to
6 take care of. And, you know, you really need to follow up
7 with your legal counsel because CSU Monterey Bay went
8 through this exact same thing with the City of Marina.
9 They said: We're expanding our campus. There will be
10 horrendous traffic problems in the City of Marina.
11 They'll need new traffic signals. There will be new
12 impacts.

13 But CSU Monterey Bay said: You know what? We
14 have no -- we have no control outside of the campus.
15 That's up for the city to solve that problem. And they
16 lost in court, and the state -- state appeals court said,
17 you know, it's up to the state agencies that's creating
18 that problem to go to the state legislature and ask for
19 funding to mitigate their impacts. And I think you really
20 need to consider that. It's called the Marina dictum.

21 Now it's just upheld again in City of San Diego.
22 Same thing, university trying to expand, not offset its
23 impacts. And what you're trying to do is push the
24 mitigation for your impacts onto other people without
25 willing to kick in the money. And I know in Chapter -- a
26 chapter at the end, it talks about, hey, there's Prop 1
27 money. There's Prop 64. There's Prop 84. Just apply for
28 that money. If you've tried in this region to get that

1 money, you know how hard that is. It's competitive. It
2 helps to be politically connected, and unfortunately we're
3 not. We struggle with that.

4 So to say: Here's the impacts, it's significant
5 and unavoidable, here's what the cities need to do to
6 solve this problem, I think you're really missing
7 something there in the document. And that's what we'll be
8 following up with later with our written comments.

9 MR. WARD: Could you repeat the question? It was
10 a joke.

11 MR. COOKE: The question is what -- is
12 specifically how much money will the State of California
13 give these three cities to solve the problem associated
14 with the SED to improve their drinking water supply that
15 you admit will start to suffer once the SED goes into
16 effect -- or the flow proposals go into effect?

17 MR. GROBER: We can't provide a dollar amount.
18 We provided in one of the earlier slides, you know,
19 different prop money, water that -- money that would be
20 available. I'd rather like to answer the question,
21 because I didn't spend a lot of time on it in my
22 introduction, if the cities are not part of the
23 discussions that are happening with regard to
24 settlement -- because that's an important part of this.
25 The -- it's important part of settlement. I encourage you
26 to do so because it's important to the administration.
27 It's not something that the State Water Board is leading.
28 We're proposing flow objectives here.

1 There's also -- there's actions going on, as you
2 referred to, in Phase 2, the rest of the Bay-Delta. The
3 administration is very interested in achieving settlement
4 with regard to these because, as I said, that will provide
5 the durable solutions to these problems, both to
6 reasonably protect the fish and wildlife but also how --
7 how do you get at some of these big-picture solutions?

8 So if you in the cities have not been involved in
9 those discussions, I know there's -- in reaching out to
10 the districts and the counties, that I encourage you to do
11 so because I think the cities are an important part of
12 those discussions.

13 MR. ELWIN: I'd like to add to -- can you hear
14 me? Sorry. I've been sitting in the audience this
15 morning listening to all the comments from the -- from you
16 and the panelists. And living in the city of Merced and
17 the county, unlike Modesto, the city relies solely upon
18 groundwater. I mean we do have a urban water
19 (unintelligible) plan that talks about conjunctive use of
20 the Merced Irrigation District. I guess for the most part
21 what I've been hearing, it seems to go back to, well, your
22 plan is speculative, it's programmatic. Yet still we have
23 a nonspeculative take of 40 percent of surface water that
24 impacts us starting from the agricultural point of view.
25 If there isn't surface water for them, they're going to be
26 pumping more groundwater, which affects us, affects us as
27 a city from a groundwater quality perspective, also from
28 lowering of the groundwater table.

1 We do have our general plan that goes to 2030. I
2 know earlier I think Ron Rowe sort of asked what is the
3 timing that you guys evaluated, and I (unintelligible)
4 said that you guys went up until probably 2020 because it
5 got punted to the SGMA. Everything sort of falls back to
6 SGMA. You guys didn't really evaluate what the worst case
7 might be with SGMA kicking in. It seems that it was left
8 to the cities to come up with the details on how we're
9 going to mitigate against the 40 percent take of surface
10 water.

11 I really think that's really unacceptable because
12 if we were doing a project like that, we couldn't say we
13 have speculative and it's programmatic. We have to be
14 more conclusive on the long-term effects, and I don't
15 think the SED does any justice in trying to figure out
16 what those long-term effects are going to be for cities
17 like ours which (unintelligible) communities.

18 And you said you can't quantify what those
19 long-term water quality effects might be in the localized
20 areas, which is still unacceptable because what that does
21 for us is we have to know -- have more for the treatment
22 facilities to treat those waters, and that's going to
23 impact (unintelligible) which we are in economically
24 disadvantaged communities. That's going to affect those
25 people. How -- how do we mitigate against that? It
26 doesn't address it. It just says there's going to be
27 significant and unavoidable consequences. I don't think
28 that's acceptable, so...

1 MR. GROBER: The document does describe, you
2 know, a suite of actions. I already mentioned, you know,
3 transfers, you know, there -- you know, there's different
4 aquifer storage recovery. I just had a side conversation
5 here. Again, these are things that are positive, but they
6 are still in the details certainly speculative. But the
7 area is water rich, and so one of the solutions would be
8 enhanced groundwater recharge in wet years. There's been
9 kind of basically a passive conjunctive use that has
10 occurred in the area just because of the nature of the
11 distribution systems and the way water is used. But with
12 more active recharge, there can be gains there.

13 That all being said, what's continued to be the
14 unsatisfying answer is that this is all speculative. But
15 the point I would make again is that as SGMA identified
16 and as you're very well aware, they were -- already there
17 are some issues, depending where you are in terms of
18 groundwater and overdraft, things like that. As disclosed
19 in this document, this will increase some of that. It
20 adds to that stressor based on our observation of the
21 response to the reduced surface water supply. So that is
22 something that I think is best and must be handled by the
23 local area.

24 MR. PARLIN: Yeah, I guess I'd follow up with the
25 fact that we -- which is a good thing. We measure every
26 drop of water now. We know where every drop of water
27 goes. We report that to the state now. So we have to be
28 very detailed in our numbers. And what I heard earlier

1 was that, well, you have these averages and you have this
2 and that number, and it's going to spread out over that.
3 And the level of detail that we're dealing with to manage
4 our water supply in our local water area is incredible,
5 yet the SED is going forward with these numbers that
6 are -- just appear to be pulled out of air. Well, that
7 number works so we'll use that number, and we'll estimate
8 this number and that number. There's a real disconnect
9 there from the cities' perspective.

10 And I'd also just follow up with in your
11 groundwater recharge in Modesto, we already did a large
12 storm drain project with (unintelligible) and will be
13 accepting a \$5 million Prop 84 grant next week to do
14 another one, similar recharge of the park. There are
15 issues going forward with water rights battles over storm
16 water. So -- and I don't know that the state's even
17 considered that yet.

18 But there are large water districts in this state
19 that consider runoff that's been historically there as
20 part of their water right. It's been appropriated or
21 riparian. That's -- that's something else that has to be
22 looked at as well before we go and invest hundreds of more
23 millions of dollars in different projects and someone else
24 up in Sacramento: Well, that's not your water; you can't
25 take that water. So we have a number of concerns that
26 those things haven't been looked at.

27 MR. COOKE: You mentioned new water -- new
28 surface water supplies. Chapter 16, starting on page

1 16-75 talks about new surface water supplies cities can
2 maybe invest in to augment their water supplies. And the
3 City of Turlock's a partner with the City of Ceres and the
4 Turlock Irrigation District looking at a project that may
5 now potentially not be happening because of the unimpaired
6 flows.

7 But one of the things you don't consider is
8 raising the height of some of the local dams like Don
9 Pedro, Exchequer, New Melones to increase storage in
10 existing reservoirs, which could then be captured and used
11 for cities and irrigation districts for municipal and
12 irrigation supply. So you talk about developing new
13 reservoirs and how that's speculative and difficult
14 (unintelligible). We have existing reservoirs that
15 (unintelligible) irrigation districts talked with over the
16 years that potentially increasing the capacity in those by
17 raising the height of the dams. So, again, that's
18 something that I think really should be analyzed in the
19 document.

20 MR. GROBER: Though we didn't explicitly look at
21 those, again, specific projects, we did look at and
22 evaluate just increased storage in general. But, yeah, we
23 didn't look at the, you know, any specific proposals to
24 enhance the storage of any existing reservoirs. So I
25 think that might be covered in terms of that's one
26 mechanism is increased storage.

27 MR. PARLIN: Also would just like to point out on
28 the cost basis, once again, another arm of your agency is

1 now putting together a low-income statewide water rate
2 discount program. So while you're -- you're recommending
3 in the SED that we go out and do these projects and go
4 ahead and fund these things, you're also going to require
5 us now to not be able to charge the full cost of service
6 for a certain constituency.

7 So, once again, we have -- you know, on one hand
8 we have you telling us build these projects. We can't
9 fund it but, by the way, you can't collect as much money.
10 We've got you telling us don't use, you know, use more
11 groundwater but, by the way, we're going to increase the
12 water quality requirements so that water may not be
13 available, but it's going to cost you a lot more money.

14 So there's diametrically opposed objectives
15 coming out of the State Board right now, not to mention
16 the SGMA, that they're really -- as an urban water
17 supplier, you can't manage those objectives the way
18 they're being proposed.

19 MR. COOKE: And just -- one of the things the SED
20 really misses, it kind of brushes over groundwater
21 quality. It says, well, we looked at your Consumer
22 Confidence Reports for 2014. We didn't see an impact from
23 the drought. We assume there's no -- there's no
24 relationship between declining aquifer levels and water
25 quality. I disagree with that. The 2014 CCR's will be
26 2013 water data. We've had three years of drought since
27 then that have exacerbated water quality conditions, at
28 least I know for the City of Turlock and other cities in

1 our region.

2 So we have seen an impact from the drought. It's
3 not captured in the SED because the data you used was too
4 old, is when the drought was just kind of starting to take
5 hold. But if you look at -- we keep track of our wells to
6 see which ones are within 80 and 90, 95 percent of the
7 MCL. Those numbers of wells have increased. So we've
8 definitely seen a decline in groundwater quality as
9 aquifer levels have dropped. I don't think that's picked
10 up.

11 And as we mentioned earlier, since that time
12 we've had (unintelligible) six regulations proposed, 1, 2,
13 3-trichloropropane regulations. So those things are known
14 issues. They have not shown up in the SEDs. It's that --
15 again, that gets brushed over really quickly, the
16 groundwater quality stuff using that general assumption
17 that we looked at some cities. The 2014 Consumer
18 Confidence Reports didn't show anything. I think you need
19 to spend a little bit more time with that. And, again,
20 the Division of Drinking Water has a ton of water quality
21 data through the electronic data transfers we do. You
22 could delve into that and see some of the trends.

23 MR. GROBER: We -- we -- I thought we did look at
24 the Division of Drinking Water water quality data, the
25 recent reports, but I mean we'll take your comment and
26 we'll -- we'll review that. But I was under the
27 understanding that we checked the recent information, even
28 a response to the drought, but I think I'm hearing you

1 saying that even the most recent now, just in the last
2 year or two. Okay.

3 MR. ELWIN: I think that we --

4 MR. WARD: I have a question. Can you hear me
5 now? Okay. A little bit different than their concerns
6 and back on the ag side. And you looked at the planning
7 horizon, 2040, 2042, sort of tied to SGMA; right? A fixed
8 demand ag that was unmet surface water depletion made up
9 by groundwater. On the urban side, did you do any demand
10 forecasts growth like tied to the general plans or -- and
11 is that addressed in the SED or is the demand for urban
12 flat?

13 MR. GROBER: No. We considered that and in the
14 general plans and the cumulative impacts.

15 MR. WARD: Okay. So growth is included in there?

16 MR. GROBER: Yes. Yep.

17 MR. WARD: Okay. I -- and that's where? In what
18 section?

19 MR. GROBER: In the cumulative impacts.

20 MR. WARD: Cumulative impacts. The other one was
21 the -- in relation to this 125 million acre-feet, the
22 1960, you know, that's a pretty darn gross number. So did
23 you look into the -- as a means of mitigation, ASR you
24 mentioned. Did you evaluate the base to freshwater and
25 recalculate what that actual available yield might be?
26 Did you consider -- I mean the 125 million acre-feet is
27 just a very gross calculation over -- you know, it hardly
28 makes sense. But what did you -- did you really take a

1 look at the reasonableness of these alternatives that
2 you're expecting these people to explore?

3 MR. GROBER: That seemed to change the question.
4 We -- the -- we provided that number, and a citation to
5 that number provide some perspective in terms of -- and
6 limited. That's why we just --

7 MR. WARD: But did you look at the base to
8 freshwater? Did you consider that in any part of your
9 analysis?

10 MR. GROBER: Well, that -- that was in part of
11 some of those estimates, looked to the base of freshwater,
12 but we didn't try to independently calculate our own or --
13 and we're not aware of information that has come up with a
14 better recent estimate.

15 MR. WARD: Okay.

16 MR. GROBER: To the extent you have that or
17 that's available, certainly providing it, but also
18 providing it, the relevance of it, becomes important
19 because what we've already described that though that's a
20 big number, we would expect to start seeing problems like
21 subsidence and water quality --

22 MR. WARD: Well, before --

23 MR. GROBER: -- and lack of available well
24 before. That's not -- so it's -- but it's -- but the
25 reason for the perspective is that -- and there's some
26 sense, I think, and this is not a SGMA -- this is not a
27 SGMA project proposal. I think we've made that clear.
28 But there's opportunity, especially in this area, that

1 has, you know, generally good water conditions compared to
2 many other areas of the state, depending -- and depending
3 on the specific area, but both within the horizons of SGMA
4 and also within the planning horizons of when we update
5 the plan, there's -- there's both opportunity to make
6 major improvements, respond to and in the implementation
7 of the flow objectives to see what happens, and then we
8 would be updating the plan, as we periodically do, based
9 on new information and new conditions.

10 MR. WARD: Okay. Thank you.

11 Michael, you got --

12 MR. COOKE: No.

13 MR. PARLIN: Well, I just want to follow up on
14 the comment. It's not luck that this region has a good
15 solid supply of water. It's through good management and
16 proper management throughout the region that we're in the
17 situation that we're in right now. And, you know, it's
18 similar to the 20 by 2020 that we went through before
19 where we all reduced and we -- we all conserved water and
20 we met that goal ten years ahead of time almost. And what
21 do we get for that? A 36 percent mandated reduction in
22 drinking water. Where if we would have dragged our feet
23 like a lot of the other areas in the state, we wouldn't
24 have been penalized again in further reduction.

25 So I think it's important not to look at, well,
26 this area's got water so that should be a prime source of
27 unimpaired flows, when, in fact, the reason we have water
28 is because the people that have been here in the past and

1 are here today have done an excellent job protecting that
2 water resource, and they've also done an excellent job of
3 planning the future with the availability of water
4 resources. And what the -- what the unimpaired flows will
5 do will pull the rug out from under all those efforts
6 going forward and have a huge, devastating economic
7 impact. Sorry for editorializing.

8 MR. GROBER: But I -- I have to loop it back to
9 the proposal again, especially because we're not
10 discussing the fish benefits part. We're not really
11 discussing the nature of the proposal, but this speaks to
12 why this is so hard. This area has done a fantastic job
13 of developing the local water supplies. You know, you've
14 got three great reservoirs, great supply, conjunctive use
15 of surface water, groundwater. But in some ways what this
16 proposal is saying, you've done such a good job but you've
17 taken too much of the water out of the system so that the
18 fish and wildlife beneficial use is no longer being
19 reasonably protected. So that gets at the crux of this
20 proposal. How do you bring it more back into the
21 balancing? And that's the very hard thing this board
22 does.

23 And to put that in perspective, again, the
24 numbers that I'm citing for the San Joaquin River where a
25 small fraction of the flow that would have otherwise
26 occurred, that unimpaired flow, when I say again that
27 sometimes in this critical period it's less than 10
28 percent; in contrast, the Sacramento River provides 40, 50

1 percent of unimpaired flow now under current conditions.
2 So we're not even talking about bringing it up to that
3 level.

4 But the San Joaquin has been so highly developed,
5 that it's taken so much water out of these tributaries,
6 that's why we have such a problem. And that's why the
7 Merced, the Tuolumne, and Stanislaus, those are the
8 tributaries that have the lowest returns of salmon, the
9 lowest populations, the most critical condition anywhere
10 in the Central Valley. So that's at the crux of this
11 proposal.

12 And it's all about the balancing. How do you
13 provide not absolute protection, but reasonable
14 protection? And the entirety of this document
15 acknowledges and discloses what we think would be the
16 costs and how to inform this decision. So I -- so I hear
17 all of your comments, but it's going to be important to
18 bring that before the board, but that's what the board is
19 wrestling with.

20 MR. PARLIN: Okay.

21 MR. WARD: Okay.

22 MR. COOKE: Just to make a final point. Page
23 1365. Drinking water source from domestic wells will be
24 affected similarly, and it's assumed that those affected
25 will need to find alternative drinking water supply such
26 as bottled water or drill additional wells and the impacts
27 will be significant. And then one of the side issues of
28 this is it increases flows to the Delta, allows for

1 increased CVP and state water contract removal of water.
2 So basically what you're saying to people in the San
3 Joaquin Valley, (unintelligible) bottle of water or leave
4 that water in the river, and then that can go down to L.A.
5 and Bel Air and the wet Prince of Bel Air can put more
6 water in his lawn and you guys can suck up bottled water.
7 It's just not acceptable.

8 MR. WARD: Okay. Thank you.

9 MR. GROBER: And I wouldn't be doing my -- what I
10 think is my responsibility -- because I hear -- I hear a
11 lot of local areas and concerns for water, but one thing
12 that I hear, and I have to point out, we're all very good
13 at, in our individual areas, of vilifying or pointing the
14 finger at the other area. So that's one, and that doesn't
15 serve us well because this is -- particularly here. How
16 do we -- it's all about reasonably protecting the use in
17 the San Joaquin.

18 What you just mentioned, Mr. Cooke, it's
19 suggestive of opportunities for how can this be managed,
20 how could it provide the seeds of settlement. But I see
21 statewide all areas trying to do a better job at using
22 water. So I just need to point that out because this
23 isn't about -- because I've -- I hear the conspiracy
24 concerns all the time that this is about something else.
25 This is certainly not about something else. This is about
26 reasonably protecting fish and wildlife in the San Joaquin
27 River.

28 MR. ELWIN: I do have a question too. You say

1 it's all about balance. In Merced County we're already
2 designated as being critically overdrafted. And in some
3 of the slides you have earlier this morning, with the 40
4 percent unimpaired flows, the recharge is being less. So
5 how do you balance that? I mean without curtailing water
6 use.

7 MR. GROBER: I'm not sure I (unintelligible) the
8 question. How would you --

9 MR. ELWIN: Balance it. You say it's all about
10 the balancing act.

11 MR. GROBER: Well, no. When I -- oh, when I was
12 referring to balancing, now this is -- and that's maybe
13 using shorthand. The tough job that the board has before
14 it, it's balancing how do you protect -- reasonably
15 protect fish and wildlife, recognizing that there is costs
16 to other uses of water for agriculture, for cities. The
17 decision the board -- before the board is that is it
18 reasonable to provide 30 to 50 percent of unimpaired flow
19 to protect the fish and wildlife beneficial use given
20 these costs and effects on other beneficial uses of water.
21 So that's the balancing that the board has to wrestle
22 with.

23 MR. PARLIN: I would just add that I'm not sure
24 everybody, at least in the urban range, has done that
25 great of a job. You saw what happened when the State
26 Board lifted the mandatory conservation rates, and 300 of
27 the 400 urban water users went to zero conservation
28 standard. And I don't know that that's necessarily a

1 great job by all the urban water suppliers. And I think
2 the people in this area did a remarkable job holding the
3 line and making sure that people do treat it as a valuable
4 resource. And they also did that at an increased cost, a
5 significant increased cost here in the City of Modesto as
6 our ratepayers. Rates went up 25 percent just this year,
7 so...

8 MR. COOKE: And Turlock and Modesto, one of the
9 few cities in the state that still have required reduction
10 of water use based on the stress tests and the things the
11 State Board developed. So most cities right away went to
12 zero conservation. We have maintained our level, and I
13 know the City of Modesto did. And I appreciate, you know,
14 comments. This is a difficult balancing act.

15 MR. ELWIN: So did the City of Merced too.

16 MR. COOKE: Yeah, City of Merced, so...

17 MR. GROBER: Say good job.

18 MR. COOKE: Yeah, thank you. We're trying --
19 and, again, we're using less water than we did 25 years
20 ago even though our population's grown 25 percent. I know
21 TID hasn't expanded their service area. Don Pedro's the
22 same size it was in 1976. But for whatever reason,
23 something's changed, and you feel there's -- with the
24 salmon, fisheries, I understand that and there's a need to
25 look at that. But just recognize it does have impacts.
26 They are significant, they are right now unavoidable, and
27 I think we do need to work together to figure out how do
28 we balance the competing interests so fewer people are

1 harmed.

2 MR. WARD: Okay. I want to thank you guys.
3 Obviously you'll be hearing more from the urban suppliers
4 as we move into the future phases of our, you know,
5 investigation and discovery.

6 So let's bring up the last group. We've slipped
7 a little bit off the schedule, but I think we're okay.
8 You know, as I'm hearing this discussion, there's a lot of
9 overlapping themes and redundancies. I mean these issues
10 all sort of merge; right? You can't just distinctly take
11 them apart and put them in, you know, nice little boxes
12 because they all link.

13 And so this last group is -- for the morning
14 session represents the smaller urban and rural water
15 suppliers. And Stan Feathers right next to me is with the
16 Delhi County Water District. And Rachel Riess is with the
17 Stanislaus County Department of Environmental Resources,
18 and she handles a lot of the permits of these smaller
19 systems and water quality issues and all sorts of water
20 supply issues. David Odom is with Denair Community
21 Services District, and Michael Jones is with the Keyes
22 Community Services District.

23 So these are the faces of people that have the
24 daily job of taking care of a lot of unrepresented people
25 who have very limited resources, and these are the people
26 that do that. And so they've got some information to
27 share with you and some questions and, like I said,
28 probably some overlapping themes. And that's okay because

1 if you -- you probably need to hear it again from a
2 different angle.

3 So, Stan, I'll let you --

4 MR. FEATHERS: (Unintelligible). How about now?

5 MR. WARD: Yeah.

6 MR. FEATHERS: Great. Well, you know, first of
7 all, thanks for members of the state coming down to talk
8 with us and hear us and hear us. And I guess, first of
9 all, I'd just like to say that I'd like to echo some of
10 the comments by the larger urban users because we have the
11 same problems they do, but -- and, again, we have sort of
12 a special set of problems that are different than theirs.
13 And I say that because I've worked for some larger cities
14 and I'm a general manager for a small water district, but
15 I'm also a former retired city manager too. So I have a
16 little bit of a diverse experience.

17 And small water districts, small entities kind of
18 have a special set of issues they have to deal with, and
19 part of that involves a limited technical capacity because
20 we just don't have the staffs to deal with some of these
21 issues as they come along. We do hire consultants, but we
22 also are constrained by our financial abilities. My
23 district in particular had huge rate increases on the
24 water and the sewer side not more than a couple years ago.

25 And, you know, we've been doing capital planning
26 for, you know, ten plus years, infrastructure development,
27 and now we see these impacts as huge obstacles to
28 continuing. You know, if -- from a practical perspective,

1 if we have to go back to our ratepayers in another two
2 years with huge, huge impacts, I mean, I don't even know
3 if we can get that through the 218 process. And then
4 where do we go from there? It places us at a tremendous
5 risk.

6 We've also made tremendous efforts in -- to
7 attract development, and if we cannot serve new
8 development, then our area can be -- is devastated. And
9 we're an economically disadvantaged area. We need jobs.
10 We need influx of commercial. Under those kind of
11 conditions, that's probably not going to happen. So just
12 with that as an introduction, I'm going to go ahead and
13 open some questions for members of this group. But it
14 presents a huge problem for us, and we don't see any of
15 those issues addressed in the SED, especially where it
16 relates to small entities with those kind of constraints,
17 so...

18 MS. RIESS: As Walt mentioned previously, I do
19 facilitate the regulation of small water systems within
20 Stanislaus County, and it's with that that I would like to
21 frame some of my questions because in -- though I do admit
22 that the SED is a very large document and a place where
23 things can get hidden and maybe I didn't come across it,
24 but as I was reading the applicable sections for the SED,
25 I had great concern that the small water systems, and
26 specifically meaning under 200 service connections, those
27 that might be regulated by local agencies such as our
28 counties do not seem to be reflected in this document.

1 And I appreciate the comments -- or the updates
2 that you have made to reflect the large water systems, as
3 Mr. Cooke had mentioned, but I'd like you to maybe talk to
4 us a little bit about where in this document you're
5 addressing the potential ramifications to water systems
6 with under 200 service connections.

7 And I also wanted to ask about the 93 public
8 water systems that you identified in your presentation
9 earlier this morning. Where did you determine that
10 number? Because in Stanislaus County alone, we have --
11 well, we have over 170 small water systems that are
12 reported to the water boards. So just taking a snapshot
13 of the small water systems within Stanislaus County, we
14 have a very large portion that are not being represented
15 in this SED, let alone in the additional counties affected
16 by this SED.

17 MS. GAO: The 94 public water supplier that were
18 mentioned in the slide were identified by -- through a GIS
19 database published by the Department of Environmental
20 Health, and they now integrated that portion now
21 integrated with the Division of Drinking Water
22 (unintelligible). And they have developed a database that
23 shows all the public water suppliers in different --
24 throughout California, but that is a self-reporting
25 database, meaning the service provider would supply that
26 information to them and then they put them in that
27 database.

28 So some of the small service provider might not

1 have reported to them, and we might miss those service
2 provider. That's why we said that we identified 94. We
3 didn't say that (unintelligible) 94 in the four subbasins.
4 And we -- and, also, we try to -- actually, less than 94
5 were identified in that database, but we try our other
6 ways to identify more community water supplier there. And
7 the point is that the -- those -- about 28 of them account
8 for 90 percent of the entire water productions.

9 So there might be some that we miss, but the
10 point is that we try our best to identify them. And those
11 that we identify represent the majority of the water
12 production in the four subbasins, and that number didn't
13 really impact our determinations of the significance of
14 our proposal -- significant impact of our proposal.

15 MS. RIESS: Okay. Well, I can appreciate that,
16 but I will challenge that it should be looked at again
17 because the data is available to the water boards. A
18 hundred -- over a hundred -- I think it's 173 water
19 systems in Stanislaus County are regularly reported to the
20 water boards in the drinking water division. This is data
21 that is available for you to examine and easily examined.

22 MS. GAO: We could identify those are within the
23 counties, but we -- we don't really know if they fall into
24 our planned area. But if -- but thanks for the comment,
25 and we will go back and take a closer look at it.

26 MR. GROBER: Yeah, if you have that information,
27 please, you know, provide that. But as Xuan was saying,
28 this is -- it wasn't so much to get the count right but

1 the total population within the plan area and the nature
2 of small water supplies and getting that across. But if
3 you have information about more of them within the plan
4 area that should be name listed, please provide that.

5 MS. RIESS: Absolutely. I'll give you the
6 contact with the water boards. I can give you that
7 information. But the reason why I bring that matter up,
8 why it's so important is, as you know, small water systems
9 have a reduced number of BATs or best available treatment
10 technologies that they can utilize in order to compensate
11 for potential contamination to groundwater. That limits
12 their ability to actually rectify any impacts on
13 groundwater quality.

14 So I am bringing up the fact that these water
15 systems are not fairly represented in this document
16 because they are more severely impacted than the larger
17 water systems. A large water system has increased number
18 of BATs that they can utilize in order to bring their
19 water into compliance with drinking water standards that
20 aren't reflected with these small water systems. They
21 also have increased number of sources that they may
22 utilize in order to blend, to put off-line, or to bring
23 online.

24 I think in your presentation you had mentioned
25 that one applicable way of handling water quality issues
26 would be to take a source off-line. Of those 173 water
27 systems, there is a good majority of them that rely on a
28 single source as their drinking water supply. It is not

1 feasible for them to take a source off-line due to
2 contamination and move forward.

3 And so, again, I implore you guys to drill down
4 on the matter of small water systems and to reflect on the
5 effects that it might have and, you know, understand that
6 drinking water is something that people cannot go without.
7 It is not Starbucks coffee; it's not optional. You must
8 have that water to drink. You must have that water to
9 flush your toilets. So it is very, very important that
10 these 170 water systems be examined for Stanislaus County
11 and for Merced County and any other county that's affected
12 by this SED.

13 MR. GROBER: Okay. Thank you.

14 MR. WARD: I think that again kind of gets back
15 to this question of scale and the lack of specificity with
16 regards to the impact analysis and kind of overlooking
17 these small systems that are really rigid and inflexible
18 to absorb these kinds of hits. As Stan was pointing out,
19 you know, just the economic resources, the staff resources
20 are so limited, but yet they're -- you know, they count as
21 much as -- these people count as much as anybody else;
22 right? And we feel that in this analysis, they've --
23 they've either been just totally ignored or just sort of
24 pushed to the side. We think they need a little bit more
25 recognition.

26 David, I don't know if you want to --

27 MR. ODOM: Yeah.

28 MR. WARD: -- add into the Denair situation,

1 but...

2 MR. ODOM: We just -- to echo what Michael Cooke
3 said earlier about the water quality. We do -- we do have
4 the same issue with certain contaminants becoming more --
5 increasing to the MCL level or half the MCL level. For us
6 nitrates is the biggest issue, and we're wanting to know
7 if there's any proof or disproof to using groundwater as
8 the primary irrigation. Because less surface water, is
9 that going to be something that you guys can see or deny
10 is going to be an increase in our nitrates? To just
11 irrigate with nitrated water over and over, as far as our
12 data shows, is being a major cause in the nitrate increase
13 for us.

14 MR. GROBER: Yeah, and I think we've identified
15 that there can be water quality problems, subsidence
16 problems, the need to deepen wells, but we don't get
17 granular in terms of where, you know, those specific
18 effects are.

19 MR. ODOM: Is there going to be -- is the state
20 going to be giving some of these smaller urban communities
21 a little easier way to get some of the grant money to do
22 on-site treatment? Because they're very costly.

23 MR. GROBER: And that's -- I mean that would be
24 good, to provide that comment. We've identified what --
25 their current funding sources, but I think this will be an
26 important point to make to the board.

27 MR. JONES: So funding for -- we have an arsenic
28 treatment facility about to start, and we are absorbing

1 some of these small systems Rachel was talking about. And
2 it took us close to -- I think it's almost ten years for
3 this to happen. So is that type of thing going to -- I
4 mean is it going to be able to be faster? Some of the
5 small agencies don't have, you know, the expertise to
6 handle all these things, and I'm just wondering if we're
7 going to end up -- we're absorbing some small communities.
8 Are we going to end up being absorbed by another water
9 system? I don't know how that's going to work out.

10 We've raised rates on our community probably 200
11 percent in the last ten years. We're just going to have a
12 lot of people coming back, you know, very, very upset. I
13 don't -- how do we know that we're not going to get --
14 it's not going to cause us to be part of another water
15 community down -- taking away the local control?

16 MR. GROBER: Well, this is -- again, we've
17 described the overall -- you know, the overarching
18 area-wide effects, and part of the solutions and part of
19 the issues that you're raising are your current water
20 quality problems and problems with overdraft. And it's
21 related to SGMA, but this will be -- a lot will be falling
22 on the local areas. But I think the big comment that I'm
23 hearing is that there's concerns about how to pay for
24 these things and the need for, you know, some help.

25 So I think communicating that -- communicating
26 that to us is good. When I keep saying refer to the
27 board, I'm not trying to say or suggest that we're not
28 hearing it here in the moment, by the way, but it's just

1 important -- this isn't part of the hearing. So it will
2 be important to make those written and oral comments
3 before the board at the hearing.

4 MR. FEATHERS: Well, you know, there's really no
5 doubt that we'll -- we will do that because we see it as a
6 hugely important issue for us, but, you know -- you know,
7 what about the past infrastructure we've put in? What
8 about our own capital planning that's been going on? What
9 about the individuals in a disadvantaged community that
10 will reach a point where basically they can't afford the
11 rates impacts? I mean it's dev -- it would be devastating
12 to a community.

13 You know, where do they go from there, you know?
14 The uncertainty involved with it, you know, it's -- you
15 know, I think that's an area that should be examined
16 within the context of this report too. And, you know,
17 how -- what kind of rate increases are we going to be
18 looking at? I mean are we -- you know, is -- will it
19 reach a point where, as Michael said, that we'll have to
20 be out there looking at consolidation options? You know,
21 is that our only viable solution?

22 And then at what point would -- would any entity
23 want to combine with a smaller jurisdiction? You know,
24 you see a lot of consolidations in the fire district area,
25 but you don't see a lot in the water area. So it presents
26 us with a huge level of uncertainties to deal with in
27 terms of where we go and how we approach this issue to our
28 boards and to our -- to our customers.

1 MS. RIESS: If I may, I'd like to circle back a
2 little bit to the topic that Mike was talking about in
3 regards to contaminants and resolution of that. In your
4 presentation today, you stated that there's really not
5 been data that suggested that there's been an increase in
6 contamination due to the drought and, therefore, these --
7 increase in pumping to offset surface water supplies
8 really shouldn't have any effect on water quality and,
9 therefore, drinking water standards. And then I would
10 like to reiterate Mr. Cooke's concerns in regards to that
11 because I don't think that that is supported in the
12 public -- the small public water system data.

13 We have been seeing an increase in contaminants,
14 and a number of compliance orders have been issued within
15 the last year, specifically for contamination resulting
16 uranium, arsenic, nitrates. And, of course, the new
17 regulations for the chromium hexavalent. And I think that
18 those things need to be examined. Yes, there are funds
19 for small water systems, but these projects that you have
20 highlighted in your presentation today have been long,
21 long in the waiting and still have not come full fruition
22 for the water systems.

23 In Stanislaus County I worked on a number of
24 projects for consolidation through several prop fundings,
25 and of those, the six remain, you know, in -- on the
26 track, and they're not in the foreseeable future coming to
27 a close. That's a significant concern when we have
28 clearly documented in this SED that there are potential

1 problems and they're significant and, you know, not really
2 something that will be mitigated and it will be the local
3 agency's responsibility for resolving. But that means
4 money. And if the Water Board's is not capable of getting
5 that money out to the necessary parties, that is of great
6 concern and should be examined.

7 MR. GROBER: Okay. Again, making those comments
8 will be a good idea before the board. You know, just --
9 I -- another just overarching, you know, response to all
10 this. We've used, you know, the best available
11 information and, again, at a programmatic level. I'm
12 hearing what you're saying, but if you think that there's
13 information that we've missed that should be -- inform the
14 decision, please provide that to us.

15 MS. RIESS: Certainly will do that.

16 MR. ODOM: And, Walt, I got one more.

17 MR. WARD: Yeah.

18 MR. ODOM: The other question is how can the
19 State Board knowingly be the main cause of our basin, in
20 particular being out of SGMA regulations for our GSP? So
21 if we do go out of what the Department of Water Resources
22 allows our GSP regulations to be to avoid the six
23 undesirable results, how can the state be -- knowingly be
24 the major cause of our basin going into probationary
25 status and then ultimately paying the fees for extracted
26 water to the state?

27 MR. GROBER: That's an interesting way of posing
28 the question because to circle back again, the board

1 proposal, the action is for an increase in flows in the
2 San Joaquin River to protect fish and wildlife. In our
3 analysis we analyze what would be a likely response to
4 reduced surface water supplies, which would be additional
5 groundwater pumping. So the additional groundwater
6 pumping is not the action. That's not -- the board is not
7 doing the additional groundwater pumping. That's our
8 assessment of what would be the response to reduce surface
9 water supplies.

10 It's an important distinction because it's -- so
11 the short answer to the question, it's like the board is
12 not causing the groundwater, you know. It's not a -- it's
13 not a factor in the SGMA beyond what we've described here,
14 what we think is a likely result and response to reduce
15 surface water supplies. So the challenge for local
16 committee or -- local community even before the SED,
17 before the flow proposal is how to sustainably manage the
18 groundwater resource. And now we have an added stressor
19 of reduced surface water availability for February through
20 June in certain years.

21 MR. WARD: That's the wildest thing I've ever
22 heard you say because what you're saying there is that --
23 you're not recognizing the conjunctive use programs in
24 this area that have been successful for decades and
25 decades and decades isn't in part because of surface
26 water. So now you're saying you take away the surface
27 water, that's not causing increased groundwater because
28 that's the local's response to not having surface water?

1 Just --

2 MR. GROBER: It's the way the question was
3 phrased where --

4 MR. WARD: Well, I know.

5 MR. GROBER: -- it suggested that this is where
6 causing us stressor something to --

7 MR. WARD: Well, no. What he was getting at was
8 the disconnect between your proposal and the other side of
9 the state through the legislature directing us to be in
10 compliance with SGMA. It's back to the SGMA cart and
11 horse. Is this driving SGMA? Is the surface -- is the
12 SED behind SGMA? I need to figure that out.

13 MR. FEATHERS: Yeah, I don't know how you can
14 deny that there's a causal link between the two things,
15 you know. Because absent one, everything continues like
16 normal. So there is an absolute link between the two.

17 MR. WARD: Yeah. Well, let's take a break for
18 lunch.

19 MR. GROBER: It's the link that we've identified.
20 We have current overdraft we believe as we've described,
21 and we think it likely that this would increase the level
22 of overdraft because of increased reliance on groundwater
23 pumping.

24 MR. WARD: Probably so. I -- we're right on
25 schedule. So let's take a -- stay on schedule. Let's
26 take lunch. Everybody be back here at 1:00 o'clock.
27 Those of you who have all served on the panels, only you,
28 please join me in the back here. We'll give you some

1 Lunch.

2 We'll all get back here at 1:00 o'clock, and
3 we've got from 1:00 o'clock to 3:30 to do the economic
4 session this afternoon. I know I saw Dr. Smith and Jason
5 Bass, and they'll be leading that discussion.

6 (Luncheon recess.)

7 MR. WARD: All right. Thank you for your
8 promptness in being back right at 1:00 o'clock. It's
9 always a good thing to start meetings at the prescribed
10 time because then those that are late know they're late;
11 right? Never wait for them.

12 DR. SMITH: Exactly.

13 MR. WARD: That's my motto. So this is the
14 last -- well, the afternoon session. It's going to be
15 broken into two pieces, both on the economic impacts,
16 which is -- when you kind of roll all this together, it
17 sort of becomes that question.

18 And so immediately to my right is Dr. Rod Smith
19 with Stratecon. Dr. Smith is a -- an economist.

20 DR. SMITH: Yes.

21 MR. WARD: Right?

22 DR. SMITH: Economist.

23 MR. WARD: That's what you call yourself?

24 DR. SMITH: University of Chicago.

25 MR. WARD: University of Chicago.

26 DR. SMITH: Yeah.

27 MR. WARD: And then to his right is his
28 compatriot at Stratecon, Jason Bass. And then farther

1 over is Mark Hendrickson with the CEO's office, Merced
2 County.

3 Is that correct?

4 MR. HENDRICKSON: Close enough. I'm the director
5 of community and economic development for the County of
6 Merced.

7 MR. WARD: All right. For Merced County. And
8 are we expecting Don White from -- Dave White, excuse me,
9 (unintelligible) business (unintelligible)? All right.
10 We're going to get started. And with that, I'll just -- I
11 don't have any other comments to open other than welcome
12 back.

13 And, Dr. Smith --

14 DR. SMITH: Well, I believe -- what, they got 20
15 minutes or -- the agenda?

16 MR. WARD: That's exactly right.

17 DR. SMITH: Well, why don't --

18 MR. WARD: So you guys have an open 20 minutes --

19 DR. SMITH: You can save time.

20 MR. WARD: You have an open 20 minutes to make --

21 DR. SMITH: Right.

22 MR. WARD: -- a presentation.

23 DR. SMITH: And hopefully we don't have to put
24 you on a timer.

25 MR. WARD: Thank you.

26 DR. SMITH: You're on the clock.

27 MR. WEGGE: Good afternoon. My name is Tom
28 Wegge. I'm a resource economist for the consultant team

1 for the State Water Board and was responsible for
2 coordinating the various economic analyses that comprise
3 Chapter 1A, economic analysis.

4 As a lead-in for our panel discussion, I wanted
5 to first --

6 UNIDENTIFIED SPEAKER: Could you please use the
7 microphone?

8 MR. WEGGE: Sorry. Testing. Better? Sorry.
9 Did you hear the first part?

10 UNIDENTIFIED SPEAKER: Yeah.

11 MR. WEGGE: Okay. Well, like I say, as a lead-in
12 for our panel discussion, we wanted to first provide you
13 with an overview of the analytical process for the
14 economic analysis, and then we're going to dive into in
15 more detail the analysis of potential effects on
16 agricultural production and the associated economics.
17 This first slide provides a roadmap of the topics to be
18 covered in our presentation this afternoon.

19 As indicated, I will first briefly address the
20 regulatory requirements for the economic analysis. Then I
21 will identify the purposes and goals for the economic
22 analysis and describe the key resources that were
23 evaluated. After that I will briefly explain the study
24 areas that were used with a focus on the characteristics
25 that we considered in developing the different study
26 areas. And, lastly, I will identify the types of
27 evaluations that we conducted with an example of the
28 different components evaluated.

1 At that point I will turn things over to Tim
2 Nelson of the State Water Board to walk through the
3 specifics of the ag economic evaluation, a topic that we
4 anticipated would be of primary interest today.

5 This next slide summarizes the regulatory
6 requirements for the economic analysis. These
7 requirements include both CEQA and the Porter-Cologne Act.
8 Under CEQA, as many of you know, economic analysis of
9 effects is not required except in certain situations where
10 economic and physical effects are closely linked. An
11 example of this would be a highway realignment project in
12 which a downtown area -- downtown business area may not be
13 directly affected by the highway project but could lead to
14 reduced economic activity in the downtown area which then
15 could result in some subsequent physical deterioration of
16 the area. So this would be a situation where CEQA would
17 expect there to be an economic analysis.

18 Also under CEQA, the lead agency for the
19 environmental compliance document can decide to expand the
20 scope of the economic analysis. In California, the
21 Porter-Cologne Act has codified -- has been codified into
22 the California Water Code, and there are two provisions of
23 the water code that specifically address the need for
24 economic analysis.

25 The first is Section 13141 which states that
26 estimates of the total cost of a program and sources of
27 funding need to be considered when developing new water
28 quality objectives. The second relevant provision in the

1 water code is Section 13241 which states that economic
2 considerations need to be addressed when developing new
3 water quality objectives. In practice what this typically
4 means is identifying and estimating costs to affected
5 parties and looking at potential effects on local and
6 regional economies.

7 The next slide identifies key underpinnings of
8 the analysis. First, the purpose of the analysis is to
9 compare potential economic effects on a particular
10 resource across the project alternatives. As shown in
11 bullet 2 on this slide, the primary goal or reason for
12 doing the economic analysis is to inform the State Water
13 Board in its consideration of potential changes to the
14 2006 Bay-Delta plan.

15 The next slide identifies the different resources
16 that the economic analysis focuses on. As shown, the
17 first one hydrologic conditions which provides the driver
18 for analyzing a range of other resources that include
19 agriculture, hydropower, M & I, water supply, fisheries,
20 and recreation.

21 As far as identifying study areas for the
22 economic analysis, we determined that having unique -- one
23 unique study area for all evaluations was not appropriate,
24 this being because our main objective was to compare
25 resource effects of the different alternatives and not to
26 add up costs and benefits. So we ended up having
27 individual study areas for different topics.

28 To identify each of the appropriate study areas,

1 we considered important temporal and geographic
2 characteristics of each resource and then the geographic
3 extent that they affected the local economy. So while in
4 some cases the study area was generally the same as the
5 plan area, in other cases the study area extended beyond
6 the boundaries of the plan area. An example of this
7 certainly would be the commercial and recreational fishery
8 analysis, which trends well out of the plan area.

9 My last slide addresses the types of valuations
10 conducted, more specifically whether the analyses were
11 quantitative or qualitative based. As shown on the slide,
12 we considered both direct and indirect effects at the
13 local and regional level. For evaluating the quantitative
14 topics or the quantitative base methods, we employed
15 different analytical tools to address individual
16 components of the analysis. And the example that's up on
17 this slide runs through a series of four components for
18 the agricultural economic analysis that now I'll turn over
19 to Tim to brief you on that.

20 MR. NELSON: All right. So what's the logic
21 behind our economic analysis? So we begin with given the
22 proposed unimpaired flow objectives, there will likely be
23 more frequent agricultural water shortages. As a result,
24 crop production could be lower in certain years,
25 particularly during the dryer periods. This could lead to
26 increased fallowing of crops which would reduce the gross
27 economic revenue for the farmers. Some changes in pricing
28 and adjustment to cropping patterns could reduce the

1 losses that they receive.

2 Because of the reduced revenue, it could affect
3 employment as well in the agricultural industry. If
4 there's not as many crops grown, farmers may not need as
5 much help during the harvesting or planting seasons. And
6 then because all sectors of the economy are so
7 interconnected, that any revenue impacts to the
8 agricultural industry could ripple out to many other
9 industries causing revenue or employment impacts in those.

10 So for this analysis, there was a suite of models
11 used. So it begins with the Water Supply Effects Model.
12 From that we -- that models our potential unimpaired flow
13 requirements, and from that we determine our surface water
14 availability. The surface water availability is in
15 post-process to determine the applied surface water for
16 the irrigation districts that we modeled, which is used in
17 a groundwater analysis to determine how much extra
18 groundwater pumping that the districts can perform or need
19 to perform.

20 The total applied surface and groundwater is then
21 used as the primary input to the Statewide Agricultural
22 Production model, which outputs the agricultural revenues
23 and cropping patterns. The revenue output from SWAP is
24 then used with IMPLAN multipliers to estimate the relative
25 effect on other sectors of the economy in terms of
26 employment and total output.

27 So what is this SWAP model? So SWAP is an
28 agricultural economic optimization model that assumes

1 farmers operate to maximize their net economic returns.
2 It was developed in the 1990s at UC Davis and is still
3 being updated today. It covers about 93 percent of the
4 state's agricultural area and represents all of the crop
5 types grown in the state.

6 Its inputs are a base cropping pattern for
7 whatever you're modeling, water use intensities, a total
8 land area, and the water use. The outputs are
9 agricultural production acreage, the crop revenue, and the
10 optimized cropping patterns. So it has been used in many
11 other studies in the USA, in Central and Southern America,
12 and the Middle East to explore water scare -- the effects
13 of water scarcity and salinity on agricultural production.

14 So how do we set up our model? So this analysis
15 covers six areas representing the seven irrigation
16 districts that receive surface water or that account for
17 most of the surface water diversions on the east side
18 tributaries. So Merced Irrigation District, Turlock
19 Irrigation District, Modesto, Oakdale, South San Joaquin
20 Irrigation Districts, and then the two CEP contracting
21 districts, Stockton East Water District and Central San
22 Joaquin Water Conservation District, which are combined
23 for the analysis.

24 It has 19 crop categories following DWR
25 classification for land and water use, and base land and
26 applied water are calibrated at 2010 levels using DWR, DAU
27 crop survey data from 2010. So the primary input for SWAP
28 is the total applied water that is estimated based on

1 (unintelligible) results and results of the groundwater
2 use analysis. So applied water is whatever water is used
3 to irrigate the crops. Some portion will be consumptively
4 used in evapotranspiration and some portion will see
5 (unintelligible) zone and into the subbasin.

6 So here we have a table of average annual applied
7 water demand and then applied water deficits, so unmet
8 demand under baseline and some of the unimpaired flow or
9 potential unimpaired flow objectives. So under baseline
10 conditions, there's about 45,000 acre-feet of unmet
11 demand, although it is misleading as most of that unmet
12 demand occurs in the 20 percent of years that are
13 critically dry. Under the 40 percent unimpaired flow
14 objective, this unmet demand increases by about 140,000
15 acre-feet on average for all years, with most of the
16 increase coming in critically dry years.

17 So this -- after inputting this information into
18 SWAP, it outputs the relative -- the acres grown for each
19 of the irrigation districts. So here we have annual
20 average irrigated acres over all the districts for all --
21 averaged for all years and for just critically dry years.
22 So the X axes are alternatives, and under baseline, we
23 have on average for all years about 512 acres grown. And
24 under the 40 percent alternative, this decreases by about
25 23,000 acres. For critical years, the decrease is more
26 significant. There's about -- there's a loss of 80,000
27 acres on average.

28 And how does this translate into revenue? So

1 under -- so this is the annual average revenue from crop
2 production over all of the irrigation districts as output
3 by SWAP, average for all years and critically dry years.
4 So under baseline there's about a billion and a half
5 dollars in economic output, and under 40 percent scenario,
6 this decreases by about 40 million. For critical years,
7 the decrease is about three times bigger, 120 million.
8 So that was the direct economic impacts for the crop
9 produc -- irrigation districts themselves.

10 Now, how does that affect the economy around
11 them? So one model that looks at this is IMPLAN, which is
12 an input/output model that provides a snapshot of the
13 region's economy. So for our regional economic analysis,
14 we used marginable multipliers derived from the IMPLAN
15 model that relate to the direct change in crop revenue
16 output from SWAP to the changing revenue and employment
17 for other industries. We used IMPLAN data from 2010 to
18 derive these multipliers, and they were extracted to cover
19 a larger area around them for the three-county system of
20 Merced and Stanislaus and San Joaquin counties. And the
21 crop groups from SWAP were aggregated into eight IMPLAN
22 crop groups.

23 So what do these IMPLAN (unintelligible)? So in
24 SWAP, the revenue output represents the direct revenue
25 impacts associated with the reduced crop production.
26 IMPLAN (unintelligible) multipliers to estimate indirect
27 and induced impacts throughout the regional economy. So
28 indirect impacts could result in industries that provide

1 inputs to the agricultural industry. So if farmers don't
2 grow as many crops, they won't need as much fertilizer, as
3 many pesticides, and there could be impacts in those
4 industries.

5 Induced impacts could result because of changes
6 in spending throughout the economy as labor income has
7 changed. So farmers aren't growing as much. They don't
8 need as much help, especially during the harvesting and
9 the growing seasons. And then is that -- those workers
10 may need to relocate or change their spending habits.

11 So some results, the direct effect produced by
12 SWAP was the direct economic impact, the baseline
13 (unintelligible) impact -- or economic output was about
14 one and a half billion dollars. And with the multipliers,
15 the induced effect is about another billion -- another
16 billion dollars. So in total, there's \$2.6 billion output
17 related to the economic activity in the districts. Under
18 the 40 percent unimpaired flow objective, this decreases
19 by about 64 million, about 2 and a half percent of that
20 baseline value.

21 And then jobs. So the direct employment for the
22 agricultural areas is about 8,000 jobs with another 10,000
23 jobs just related to that. And under the 40 percent
24 unimpaired flow scenario, there's decrease of 433 jobs,
25 about 2.3 percent. And so all of this information is
26 contained in Chapters 11, 20, and Appendix G, which
27 this -- these along with the agricultural economic
28 analysis spreadsheet can be found at -- on the SED

1 website. Thank you.

2 MR. WARD: Okay. Right on time. Thank you.

3 MR. NELSON: Thank you.

4 MR. WARD: May I make a request that we receive
5 copies of these Power Points? Is that something that you
6 can provide?

7 You're going to leave it on that system? Okay.
8 Great. Because then I can make it available, put it on
9 our website.

10 Dr. Smith?

11 DR. SMITH: Okay.

12 MR. WARD: I wanted to make sure Milton
13 (unintelligible).

14 DR. SMITH: (Unintelligible).

15 MR. WARD: Milton O'Haire is the Stanislaus
16 County Ag Commissioner.

17 MR. O'HAIRE: Sorry for being late. I really
18 messed up.

19 MR. WARD: And Dave White --

20 MR. O'HAIRE: We read the schedule wrong.

21 MR. WARD: -- Dave White to my left with the
22 Business Alliance. Is that what it's called?

23 MR. GROBER: And may I make a request also? Is
24 this -- this is being -- is this being webcast or --

25 MR. WARD: No.

26 MR. GROBER: But it's being recorded?

27 MR. WARD: Yes.

28 MR. GROBER: Can we get a recording of the

1 meeting as well?

2 MR. BOGGS: It will be on the county's website on
3 Monday.

4 MR. GROBER: Thank you.

5 MR. WARD: I'll get you the address.

6 Go ahead.

7 DR. SMITH: Okay. Again, my name's Rod Smith.
8 I'm president of Stratecon, Inc., and my colleague is
9 Jason Bass. We have been retained by the three counties
10 to provide an economic study of the economic consequences
11 of the proposed flow regime on the local economy.

12 Jason and I were actually involved in the IID/San
13 Diego proceedings for the State Board. I was the main
14 economic witness for IID and Jason providing a lot of the
15 economic input analysis at the programmatic level that
16 looked at bookends of a deal based on fully land
17 (unintelligible) as well as efficiency conservation. So I
18 just want to give you all a sense. You probably don't
19 know who I am. I just thought I'd, you know, share a
20 little. Okay?

21 What I'm going to try to do in our two sessions
22 of this final panel is just have a dialogue with you on
23 your thought process, our thought process, what you
24 thought about, how did you think about it, what type of
25 evidence did you turn to. And certainly there's a lot of
26 unknowns here, and so how do we bracket our unknowns? In
27 terms of themes, we'll have discussions about some applied
28 reliability, sustainability, volatility, all this for

1 the -- what it says about investment incentives.

2 We're also going to have a discussion on the fact
3 that there's a vertical structure to the economy which --
4 and I do appreciate the presentation, where what you saw
5 is you started at the farm level, you look at outputs and
6 you look sort of below there, you know, fertilizers,
7 employment, things of that sort. But there's also -- as
8 you'll hear from our panel today, there's also a -- we go
9 down the supply chain. Outputs have impacts on dairies,
10 has impacts on feed lots. There's processing that goes on
11 here. Some of it goes to the (unintelligible) processing
12 that's located here.

13 And full disclosure. My stepdaughter is a
14 regional vice president of Frito-Lay, so some of the stuff
15 goes to Frito-Lay too. So -- so we're going to have a
16 discussion about broadening our scope of understanding of
17 this local economy and think through what will be the
18 implications for how to assess as best we can best
19 available information, best analytical techniques.

20 So I'm going to start with some questions. I'm
21 going to move it around here to my panel. I will swear
22 under oath we have not over-prepared here, so if we have
23 some rough transitions, I hope you hang with us. The last
24 question: Should I just be asking you as a three and then
25 let whoever decide who wants to talk, or should I start
26 addressing individuals? How would you like to proceed?

27 MR. GROBER: I think you can just ask the general
28 question and we'll --

1 DR. SMITH: I think that's the most efficient
2 way.

3 MR. GROBER: We're also not very rehearsed here.

4 DR. SMITH: There you go. Well, I'm going to
5 start with some really simple questions. Whenever
6 Stratecon looks at any water resource situation, as we all
7 know, supply reliability's a key concept about what a
8 water resource is. We know reliable water supplies aren't
9 worth as much as -- unreliable water supplies aren't worth
10 as much as reliable water supplies. Certainly, as we'll
11 hear later, industrial recruitment depends on supply
12 reliability. So I'm going to start with what I think is a
13 softball question, but I could be wrong.

14 What is the reliability of this area's surface
15 water supplies under the baseline?

16 MR. GROBER: You'll have to expand on what you
17 mean in terms of "reliability." We've shown -- and we
18 have the time series showing how the water supply varies
19 over time.

20 DR. SMITH: Correct.

21 MR. GROBER: In fact, that was one of the charts
22 that we show.

23 DR. SMITH: Right.

24 MR. GROBER: We show during periods of drought,
25 multi-year drought in particular, then there is less water
26 available, and that's when there's been additional
27 groundwater pumping.

28 DR. SMITH: Yeah. Well, for example, as you

1 know, State Water -- the Department of Water Resources
2 puts out biannually an assessment of the delivery of the
3 state water project. Did you gentlemen look at their
4 definition of supply reliability, or was that just
5 something you didn't look at?

6 MR. GROBER: What's the purpose of the question?

7 DR. SMITH: Purpose of the question is what's the
8 reliability of the surface water rights under baseline
9 conditions?

10 MR. GROBER: The reliability of the surface
11 water --

12 DR. SMITH: Rights.

13 MR. GROBER: Rights. So now you --

14 DR. SMITH: Of the -- of the irrigation
15 districts.

16 MR. GROBER: I'm not understanding the question.

17 DR. SMITH: Okay. Well, then why don't we move
18 on. Sure. You don't understand the relevance of supply
19 reliability.

20 MR. GROBER: We showed -- we showed what the
21 water availability has been over -- based on a model over
22 an 82-year --

23 DR. SMITH: Yeah. And a very simple,
24 straightforward calculation would be -- in fact, you
25 used -- one could use your data to say what's the
26 reliability of that surface water. And I guess what I'm
27 hearing you say is you didn't do that; that's all. I just
28 wanted to know. Because I couldn't find it and so I

1 didn't overlook it. Okay.

2 Okay. Next question then, it's sort of related
3 to your chart. You see a lot of volatility there, and
4 certainly you've produced a chart where you show what's
5 the average of the baseline versus the 40 percent by, you
6 know, hydrologic conditions. And you made a really good
7 comment this morning when you said there's volatility
8 beyond those averages, and that gets you back to your
9 82-year chart. How did the volatility of that available
10 water get considered in your analysis?

11 MR. GROBER: And I don't recall using the
12 "volatility" term, but I -- we show that there's a
13 variability, and that variability is built into all of the
14 numbers that we generate based on averages and year types.

15 DR. SMITH: Yeah. So, in other words, you
16 averaged. You didn't think about what the implications
17 would be of that volatility. Is that what -- I think
18 that's what I'm hearing you say.

19 MR. GROBER: I don't think I said that. I think
20 we presented the information in terms of both averages and
21 also in terms of year types, but I guess you're looking
22 for something more.

23 DR. SMITH: Okay. So you did nothing more. Got
24 it. Okay. That's good. I think that's the purpose.
25 We're trying to understand what you did and your thought
26 process. So thus far, mission accomplished.

27 I want to pick up now -- and I know some of our
28 panelists can't stay here for the full time. As I said

1 earlier, there's a vertical structure to this economy.
2 It's at the farm level and it goes down to who they, you
3 know, purchase from, but there's also a flow up into the
4 dairies, into the feed lots, into the food processing.

5 If I may call on the ag commissioner maybe to
6 opine on the relevant importance of this element of the ag
7 economy.

8 MR. O'HAIRE: Oh, yeah, sure. As we know,
9 there's a basic farm-gate value, you know, for all these
10 counties here, and there's a huge supply chain that
11 affects that. There's a multiplying factor. For
12 instance, in our county, eight out of the ten top
13 manufacturers are ag based. 38 percent of the jobs in our
14 county are either direct ag or ag related, and those are
15 studies that have been done by the UC -- we've sort of
16 done our own little anecdotal little studies here and
17 actually confirmed that. So there's -- I mean there's a
18 multitude of jobs that are tied to that. And that doesn't
19 even affect -- that doesn't even count for, for instance,
20 those that directly work in the ag field, when they go
21 down to the local Wal-Mart or Macy's or the car wash and
22 spend money. That doesn't even account for that money.

23 So, you know, how much -- how much is that taken
24 into effect as far as economic impact? And I guess
25 that's the -- that's just part of it. I guess I've got
26 some other questions on top of that, but --

27 DR. SMITH: Yeah, I think, if I may, I think what
28 it is, I think, if I heard you correctly, what you're

1 saying is like the tomato processors, Frito-Lay, things
2 that are downstream from the focus --

3 MR. O'HAIRE: Yeah, Foster Farms.

4 DR. SMITH: -- of their study are ultimately
5 linked back to what is produced at the farm field. Is
6 that what you're saying?

7 MR. O'HAIRE: For sure, yeah. There's many, many
8 components: manufacturing, equipment, you know, services,
9 advisory services. You know, it just is a multitude of
10 other entities that are directly tied to agriculture. And
11 I know I said like 38 percent of the jobs are in all
12 three -- it's like 37, actually, all three counties, are
13 tied to agriculture. So, you know, any -- it's going to
14 be a huge ripple effect through the -- every job, you
15 know.

16 So one of the things I wanted to -- maybe this
17 will give you a little -- maybe just give you an idea of
18 what I'm thinking about. When you look at the amount of
19 acres that we produce, just in Stanislaus County, if you
20 take our harvested acres and you look at the number of
21 jobs that are directly or indirectly tied to agriculture,
22 every ten acres -- roughly every ten acres supports a job.

23 Now, may -- that, you know, depends on what ten
24 acres you're taking out, you know, whether it's almonds or
25 peaches or apricots or whatever. But basically every ten
26 acres represents a job, so -- and this one page, you --
27 this one page in there talks about 23 acres -- 23,000
28 acres going -- being fallowed and only affecting I think

1 it's 400 and -- you have it right here, 433 jobs. And
2 that doesn't really add up to me. As I'm looking at that
3 going, wow, how would it only be 433 jobs? And you're
4 going to, you know, possibly fallow 23,000 acres and just
5 rough statistics is every ten acres equals a job. Doesn't
6 even come close, so --

7 DR. SMITH: Maybe one way of thinking about it is
8 it's, again, as I said -- as I said up in (unintelligible)
9 go back (unintelligible), they said -- and this is the
10 logic. You start -- and this is not a critic. You do
11 have to start with the impacts on the farm. There's no
12 doubt about that.

13 MR. O'HAIRE: Sure.

14 DR. SMITH: And by looking at what goes down
15 below the farm in terms of the employers, the farm
16 services, the farm advisors, and that's what IMPLAN is
17 taking care of. But we also have to understand that
18 within this community, impacts on the farm have flow of
19 inputs up -- or downstream, if you will, the vertical
20 structure and -- so it's possible that one way to
21 reconcile the difference between your understanding of how
22 your economy works and their estimates may be that they
23 didn't trace the downstream impacts.

24 MR. O'HAIRE: Yeah, that's the question.

25 DR. SMITH: Right, yeah. It's just a question,
26 and we can't answer -- I think we're here today to talk
27 about questions anyway, if you have a response.

28 MR. WEGGE: Sure. Let me address that. First of

1 all, to the commissioner's point about the averages, you
2 know, I think you said ten acres support one job, or eight
3 acres, something to that effect.

4 MR. O'HAIRE: Around ten. It's just a
5 calculation I pulled up just looking at online data and
6 from UC studies and looking at our crop report.

7 MR. WEGGE: Well, as you pointed out, that is an
8 average, and clearly if we're talking about almonds as
9 opposed to alfalfa, there's a big difference there. And,
10 you know, what -- what we found in our analysis based on
11 optimizing farmer operation is what -- what would go out
12 first as far as out of production would be the lower value
13 crops. So, you know, the relationship between the 400
14 jobs and the number of acres wouldn't, you know, hold true
15 if you're looking at, you know, just the lower value
16 crops. So I just wanted to point -- point that out.

17 MR. BASS: Might I jump in? Did you consider,
18 though, the impacts of the loss of production of those
19 lower value crops, though, on downstream activities?
20 Dairies, for example, use a lot of hay, corn silage,
21 et cetera, which are fundamental parts of the local
22 economy. Was there any consideration for those downstream
23 effects?

24 MR. WEGGE: Absolutely there was. I think that's
25 a different question, the forward linkages, downstream
26 effects from what the commissioner was mentioning. But we
27 did look at the effects on down -- forward linkages,
28 effects on dairies and on cattle growers, on other

1 processors. It was our feeling that -- and I think you
2 would concur with this -- IMPLAN is, as most input/output
3 models, is not designed to look at forward linkages.

4 Now, it can be used for that and data from IMPLAN
5 can be used for that, but it's not a model designed to
6 look at forward linkages. So with that limitation, we
7 tried to work with the information that we had. And,
8 absolutely, we looked at effects both on dairies and other
9 processors.

10 DR. SMITH: Where is that information discussed
11 in the documents? I'm talking specifically on the forward
12 linkage issue.

13 MR. WEGGE: It is described in both Chapter 20
14 and in Appendix G. And I think Chapter 11. Yes.

15 DR. SMITH: Now you confused me, even though I'm
16 very familiar with forward linkages and IMPLAN.

17 MR. WEGGE: Okay.

18 DR. SMITH: You pointed out that the
19 off-the-shelf IMPLAN model does not do forward linkages,
20 and then you said that you addressed forward linkages.

21 MR. WEGGE: Yes.

22 DR. SMITH: So you, therefore, must have taken
23 the off-the-shelf IMPLAN model and adapted it. And where
24 in the document do you discuss how that was done?

25 MR. WEGGE: We didn't do that.

26 DR. SMITH: Okay. That's what I --

27 MR. WEGGE: We took information from IMPLAN, as
28 well as information from other sources, and looked at the

1 relationship between production of alfalfa and other
2 grains to the dairies and other processors.

3 DR. SMITH: And all that information is in the
4 documents you cited?

5 MR. WEGGE: Yes.

6 DR. SMITH: Okay. We'll double-check. That's
7 fine. Just want to be sure we don't have to look
8 elsewhere, that's all. Appreciate --

9 MR. GROBER: And I just want to point out we
10 should continue this conversation as well when we have the
11 other workshops on the 5th and the 12th. The other
12 economist that we had working on this and working with
13 IMPLAN was unavailable today, is out of the country. So
14 that will be helpful to have that.

15 DR. SMITH: Yeah.

16 MR. GROBER: Continue the conversation.

17 DR. SMITH: Yeah, that would be.

18 MR. GROBER: And in the meantime, also, if you
19 have any -- any other comments and observations, to bring
20 those forward.

21 DR. SMITH: You'll be getting them. Today.
22 We're starting. As you say, it's start of a dialogue, and
23 I think it's a productive dialogue. And I forgot to say
24 what I wanted to say. I appreciate this forum. This is a
25 great opportunity, rather than just people reading
26 documents and writing studies, you know. It's sort of
27 good to have some dialogue, just as I found in my career
28 it's good to get out of your office and get out on the

1 ground and on the road too. So that's also good. So it's
2 great that we're out of our offices today.

3 Let's see. I'm going to go to Mark because I
4 know you have to move because you are doing economic
5 development in Merced. And I would like you -- I want to
6 pick up on what -- the implications of volatility in terms
7 of the availability of be it silage, tomatoes, corn, or
8 whatnot does to the food processors and other -- other
9 downstream business use you have already recruited and
10 what would happen if instead of a relative -- as was
11 testified earlier today, this area has done a great job of
12 managing and developing resources so they have a
13 relatively stable supply situation. Yeah, they get
14 critical years; they backstop with groundwater. You have
15 a relatively stable situation. What happens if -- if on
16 annual basis things start jumping around a lot?

17 MR. HENDRICKSON: Well, first of all, thank you
18 for the question and thank you for each of you being here
19 today. I think generally speaking -- and Dave can
20 certainly speak to this as well as I can from a Stanislaus
21 County perspective -- one of the greatest challenges we
22 have here in the State of California is obviously trying
23 to recruit people this direction.

24 Unfortunately, California, due to either urban
25 legend or myth has got a pretty bad rap. As being a place
26 that creates jobs just happens to be the states of
27 Arizona, Nevada, Texas, and everywhere else. The reality
28 is is, you know, the volatility that you spoke to in terms

1 of the fluctuations, in terms of availability is
2 absolutely going to discourage, you know, companies from
3 which are either here and wish to grow or trying to
4 attract new industry this direction.

5 You know, any time that we in the economic
6 development world are trying to recruit somebody to this
7 region, to our respective counties, it's really imperative
8 that we are able to share with them, you know, a clear
9 picture as to what they should expect. And so I think to
10 really address the -- to address the question from just
11 one single perspective, I think it's vitally important
12 that we figure out some creative way here as a part of
13 this to give some certainty to businesses that we've
14 brought here and who were expecting to have a certain
15 amount of available water to meet their needs.

16 But then, you know, also as a part of what we're
17 trying to do when we've got, you know, regional economies
18 that have, you know, double-digit unemployment most times
19 of the year, what can we do to provide some comfort to
20 those that we're trying to recruit as well at a time when,
21 you know, obviously, you know, the San Joaquin Valley's
22 economic recovery is quite a bit slower than most of the
23 economies around the state?

24 So I guess if there was, you know, a question
25 that I would pose is to what degree can you provide some
26 comment as to what comfort can we provide folks that are
27 either here that are, you know, looking to grow or expand
28 their business or what can -- what can you help us with in

1 terms of information that we could provide, you know,
2 people outside the state looking to grow a business here?
3 What would you encourage us to tell them?

4 MR. GROBER: It doesn't sound like a technical
5 question --

6 MR. HENDRICKSON: Not at all.

7 MR. GROBER: -- to how we've done our analysis,
8 so I think that's best a policy question or comment to
9 make before the board. But the answer we'll provide, and
10 I think this kind of speaks to perhaps the theme of some
11 of what you're discussing here, is if you're suggesting --
12 and tell me if I'm inferring too much. You're suggesting
13 that when you see that choppy water supply now because you
14 have times when you can't meet the demand because the
15 supply is constrained by the more variable hydrology more
16 often, another way of looking at that -- we didn't look at
17 that. Another way of looking at that would be, well, just
18 have -- actually have cuts that occur that are in all
19 years so you don't have the same level of agricultural
20 development in all years, I guess would be another way of
21 looking at it. And perhaps that's going to be the nature
22 of some of your comments that you make.

23 So that would be another way of saying, well, you
24 can have -- if you're going to try to keep the reservoirs
25 fuller to maintain a certain reliability of water, that's
26 different from that patchiness that's seen there. I think
27 that would be an excellent comment to make and also an
28 excellent comment to make and say how that would change

1 the economics of the situation. Because we've looked at
2 it one way, but there's, you know, maybe other ways to
3 look at it.

4 DR. SMITH: Yeah, I appreciate that.

5 But go ahead.

6 MR. BASS: Yeah, I'd like to interject on that
7 because it seems like built into your answer with that is
8 this presumption that we can go from here and impose sort
9 of an artificial lower level to keep stability and to
10 avoid this sort of dramatic up-and-down curve that we're
11 looking at.

12 But fundamentally what you're saying is you're
13 going to shift the water supply situation lower. That's
14 what's going to happen. And the analysis you've done is
15 to look at everything on a year-by-year basis. To say,
16 okay, in year 2 -- in 1937 here's what the hydrologic year
17 was. Let's impose all these assumptions on that year in
18 terms of what would have happened in terms of surface
19 water supply availability, what would have therefore
20 happened in terms of groundwater response, what would
21 happen in terms of falling in that year. And you do
22 that year by year and show, yes, a sort of up-and-down
23 curve of impacts, and then you take some averages and
24 present that, 2 and a half unemployment as a result on
25 average. We can dig into the document and find that
26 there's at some point 7, 8 percent loss of jobs in peak
27 critical dry years.

28 From my perspective, the problem with that and/or

1 the oversight, and I want to know if you look on this --
2 this is my question. Did you take on the issue of that
3 sort of lack of reliability, as we call it, or variability
4 in your water supply that you would expect going forward
5 as a result of SED implementation? The long-term effects
6 of regional perception of the economic stability in this
7 region, the long-term water supply situation, it changes
8 drastically.

9 And what you have now is you have an economy
10 which relies significantly on dairies, on food processors
11 who have investigated hundreds of millions of dollars in
12 infrastructure. You also have thousands -- tens of
13 thousands of acres of tree crops which are permanent
14 crops, significant investment in those assets. So you
15 have an economy which is built on a significant amount of
16 infrastructure and farm development infrastructure and
17 development investment, yet now you're taking away the
18 very reason that those investments occurred. You're
19 saying, well, you used to have this water supply
20 situation, a reliable surface supply that even in bad
21 years we still got most of that water. And that was the
22 world. That was the --

23 DR. SMITH: Baseline.

24 MR. BASS: -- the baseline, the context in which
25 all of this development occurred.

26 You have population growth. You have job
27 creation, et cetera. Now what you're saying is we're
28 going to take away that reliable water supply, a big chunk

1 of it. Yes, we can do things to try to smooth it by
2 holding water back and trying to manage it, and we're
3 going to replace it as best we can with what is really an
4 unreliable groundwater supply that's faced with
5 significant issues already declining, declining water
6 quality, all of the issues that have been brought up
7 today.

8 So how are you going to try to reconcile that
9 longer-term or bigger-picture question? We can talk all
10 day long with IMPLAN and each year, oh, okay, ten more
11 jobs, ten less jobs, et cetera, but the bigger picture of
12 what this does to the structure of the regional economy, I
13 don't see anywhere that that's considered. And I want to
14 know, are you going to consider it? Did you consider it?
15 You know, because everything I'm hearing in talking to
16 people in the community, listening to these gentlemen is
17 about our economy is built on this water supply. And now
18 you're taking it away. What are we going to do?

19 And you're saying, well, we'll just pump more
20 groundwater. Well, groundwater is not the solution
21 necessarily because of reliability, quality issues, et
22 cetera. And even there we have SGMA coming, which it
23 doesn't sound like that was necessarily addressed. So
24 what is really the analysis that you can do to sort of
25 give some comfort maybe to what -- all these values?

26 I mean people have invested a lot of money in
27 this economy and relied on this for many years, and now
28 you're saying: We're going to take it away.

1 DR. SMITH: (Unintelligible) let's defer any
2 discussion of groundwater, not because we're not going to
3 get to it, but we get to that later. So (unintelligible)
4 take the remaining part of Jason's question for now.

5 MR. GROBER: Sure. Well, I mean, we're
6 presenting -- and this is great to have this conversation
7 and look forward to getting more comments. We presented
8 one way of looking at this. You know, he's not in the
9 room, but I always hear in my head, you know, working with
10 Dr. Jay Lund says, "All models are wrong; some are
11 useful." This -- you know, you look at water -- you know,
12 the initial water supply. Then you run it through
13 groundwater, and then you're running it through economics.
14 There's -- you know, it's the dismal science. There's a
15 lot of things, a lot of assumptions that one needs to
16 make. I hear your point now about, you know, reliability
17 and, you know, what's the -- is there a new equilibrium or
18 perhaps something, if you will. Well, this is just
19 imposing this -- this new constraint in terms of limited
20 surface water availability and looking at it one way, what
21 would be the economic effect.

22 I'm hearing that a lot of work has gone into why
23 you think the answer might not be wrong -- might not be
24 correct and --

25 DR. SMITH: Yeah.

26 MR. GROBER: -- you will have alternatives, and I
27 think you should provide that because there is probably
28 other ways that you can look at it. But one here is we've

1 just kind of tracked the variability that already occurs
2 and how the system responds to it, and now we're imposing
3 greater variability --

4 DR. SMITH: Right.

5 MR. GROBER: -- and how that -- the system may
6 respond to it. And I think I'm hearing in your
7 comments --

8 DR. SMITH: Right.

9 MR. GROBER: -- that it would do something else
10 then again, and that's -- please --

11 DR. SMITH: And I want you to take this because
12 I'm going to finish to the end of our session with your
13 fundamental question you posed this morning: What could
14 you do differently and better? We'll have some ideas to
15 share at that time. But I do appreciate you understanding
16 now why we raised the reliability question.

17 And maybe to put the tie on the bow on this part
18 of the subject matter, you're looking -- your analysis
19 looks as into -- year by year independently and averaging
20 by water year type or whatever, but says that that is, you
21 know, the way you're looking at it and that is the way you
22 looked at it. The whole issue we want you to think about
23 at -- from a purpose of analysis is think about what the
24 reliability and volatility implications are from an
25 investment perspective. I think that's -- I think
26 that's --

27 MR. BASS: And a value perspective.

28 DR. SMITH: And from a valuation of economic

1 impact. I would think that is -- would be possibly the
2 take-away. I know the commissioner wants to add
3 something.

4 MR. O'HAIRE: Yeah, I just wanted to -- that you
5 guys are hitting on it, but, you know, it's the -- it's
6 the reliability of water for the growers, you know. When
7 they go into -- they go in and they're going to invest and
8 they're going to get loans for this property to farm,
9 that's going to be -- that's going to be very important
10 that they have a reliable source of water. And what
11 you're doing to the system is making it less reliable.

12 So have you studied what that is going to do all
13 the way down to the grower level when they get ready to go
14 in and try to get money to expand or to purchase property
15 or to farm and now they have a -- maybe a not-so-much
16 reliable water source? Has that been evaluated?

17 MR. GROBER: And your question is in terms of
18 long term --

19 MR. O'HAIRE: Long term, right. They make
20 long-term investments. They don't make, you know, a
21 one-year investment. They're looking at it for, you know,
22 generations. So what is that -- what's the economic
23 impact there?

24 MR. GROBER: Any -- any responses? Thoughts?

25 MR. WEGGE: I can take a crack at that. We
26 didn't look at that issue of how this would affect
27 investment over a long period of time. I think, you know,
28 there -- it's a very difficult question to answer in that

1 it requires a lot of assumptions about how resilient the
2 economy is.

3 And so I think in order to address that issue,
4 probably the first place to start would be to look at
5 what's happened during the drought and how -- because
6 that's -- the drought has incurred reductions in water and
7 how -- how has the community, the economy been able to
8 adapt to that. And, you know, that's sort of looking at
9 the past history to help inform the -- what could happen
10 in the future. But I think, you know, it's being able to
11 specifically say how increasing reliability of water
12 supplies might affect the community -- the business
13 community's ability to borrow, to invest, is really a
14 difficult task to do.

15 MR. O'HAIRE: And I would agree with that and --
16 100 percent. It's a very difficult task to do. But when
17 you're talking about taking away a -- something that this
18 community totally relies upon, this economy we have here,
19 I think it's upon the Water Board to not, you know -- no
20 stone should not be overturned. You should be able to
21 drill down to every situation that we're bringing up or
22 that we're not. This is a huge impact on us. It's not
23 like, you know, just something that's going to happen very
24 easily.

25 So you guys have the resources; you have the
26 staff. We're asking the questions. But, you know, I
27 think it's really -- the onus is on you all to really
28 drill down to everything. And that's what I think we

1 would expect, we would want. We want to see all the
2 details, all the numbers, everything looked at because
3 we're -- you know, this is our livelihood, you know. So
4 it's not, you know -- I think that's what needs to be
5 done.

6 MR. GROBER: Well, and this is why -- this is
7 part of the process. So you have that information; please
8 provide it. And don't have to wait until the end of the
9 comment period. We have opportunity on the 5th and the
10 12th of December and anytime in between.

11 MR. WHITE: I have a question. I'm Dave White
12 from the Stanislaus Business Alliance, Opportunity
13 Stanislaus. And our organization has conducted hundreds
14 of interviews of employers here in this county, and we
15 know our economy really well as a result of that. We know
16 what the issues are, what the challenges are because
17 we've -- not only have we interviewed, but we've used a
18 scientific tool to help us understand our economy. So I
19 have a couple of questions for you.

20 Now, I see -- you know, I've seen your
21 presentation. I also am worried about the downstream
22 effect because I don't know if you've seen the California
23 League of Food Processors Study, 2015. Our county --
24 Stanislaus County per capita is the No. 1 food production
25 county in the State of California. In pure volume we're
26 only second to Los Angeles County, and that's a county of
27 7 million people. So it's critically important to us.
28 It's our lifeblood.

1 I used to live in Colorado. Our lifeblood there
2 was aerospace, and when the Defense Department shut down
3 programs, it had a crippling effect on our economy. You
4 turn off the lifeblood, you turn off the economy. So my
5 question is how well do you know our economy? Have you
6 conducted interviews with employers? Have you conducted
7 interviews with farmers? Or are you just using statistics
8 that the State of California produces to make your
9 analysis?

10 Because I think -- I agree with the commissioner.
11 This is a really important issue. You need to dig down
12 deep. You need to really understand our economy.
13 What's -- can I ask, do you know what our unemployment
14 rate is today in Stanislaus County? Any of you guys? Do
15 you know what it is? You don't? Any? Do you know what
16 it is? Okay. Well, then you don't know our economy. Our
17 unemployment rate is 8 percent as of today.

18 And how many -- are you from the Bay Area? Raise
19 of hands? Okay. What county are you from, sir?

20 UNIDENTIFIED SPEAKER: Contra Costa.

21 MR. WHITE: Okay. You know then 4 percent
22 unemployment in Contra Costa County.

23 And what county are you from?

24 UNIDENTIFIED SPEAKER: Sonoma.

25 MR. WHITE: Sonoma. Okay. That's about 4.2
26 percent. If you're from Santa Clara County, it's about
27 3.3 percent.

28 So I hope that you will dig deep, that you will

1 take -- that you won't hurry through this process; that
2 you'll interview the employers, you'll interview the
3 farmers, you'll really learn our economy. Because this is
4 our livelihood. And like Mark said, we can't -- you know,
5 it's hard to attract business into California because our
6 regulatory environment here is not like the regulatory
7 environment in Arizona or Texas.

8 And so what we have to rely on, companies to
9 expand, 80 percent of all the new jobs here. If we want
10 to cut that unemployment rate down, we've got to have
11 local companies expand. And that's -- that's the
12 lifeblood of -- it's not like we're going to get Silicon
13 Valley to move out to Modesto. So we have to rely on our
14 excellent, exceptional companies here to expand. And you
15 guys don't know our economy. If you did, you'd know what
16 the unemployment rate is today. Who's our -- do you know
17 what our -- who are No. 1 employer is?

18 MR. GROBER: If I may say, I just want to
19 provide --

20 MR. WHITE: I'm not -- yeah.

21 MR. GROBER: -- context. Well, this is -- this
22 is -- I'm hearing a number of good questions, but I don't
23 know that the pop quiz on the statistics is that helpful
24 to inform. But I would --

25 MR. WHITE: Well, my point is, sir -- my point
26 is --

27 MR. GROBER: This is a programmatic analysis, and
28 we're -- and we are considering economics. And we've done

1 an economic analysis that -- to inform this decision. And
2 not to diminish how important this is for the area, but
3 again, we've done more than really we're required in terms
4 of doing programmatic analysis and for consideration of
5 economics. That being said, we've done more because this
6 is terribly important for the board, and the board
7 recognizes how hard this is and how important it is and
8 how they want to inform that balancing decision.

9 MR. WHITE: Well, all I'm asking is --

10 MR. GROBER: That being said, so --

11 MR. WHITE: -- I'm asking you to get to know our
12 economy.

13 MR. GROBER: And I've acknowledged a number of
14 times already that if there's pertinent information that
15 we should be considering, then please get it to us as soon
16 as possible, even before the end of the comment period.
17 Because the more we know, the better our document can be
18 to inform the board in making this hard decision.

19 MR. WHITE: I'd be happy to do that.

20 DR. SMITH: Mark, is -- you want to --

21 UNIDENTIFIED SPEAKER: Who's the No. 1 employer?
22 Gallo?

23 MR. WHITE: Gallo, yeah, sure.

24 DR. SMITH: Yeah, Gallo, yeah.

25 Since we're on the economic incentive investment
26 environment structure, is there anything you want to add?
27 I think we're on a roll, so let's go.

28 MR. HENDRICKSON: I think we are on a bit of a

1 roll, and I do appreciate Dave's comments because I think
2 that the comments absolutely -- are absolutely reflective
3 of what we hear in the three counties, you know, we face.
4 You know, I think -- you know, I spoke a little bit ago,
5 and I think as just referenced, obviously, the regulatory
6 climate here in California is not good. I think everybody
7 can acknowledge that. It makes doing business in this
8 region very, very difficult. But I'm very hopeful that,
9 you know, as you continue to advance, you know, your
10 plan -- and, you know, we do hope that you are, you know,
11 listening -- that you do keep in mind that we have, you
12 know, people making very big decisions as to where they go
13 and how they expand.

14 Just last evening I was at a dinner with a few
15 hundred farmers in Merced. And what was so impressive to
16 me as a non-farmer, these are people who wake up every
17 single day with the intention of putting food on your
18 table. And these are folks that work incredibly hard to
19 ensure that not only are we all fed but, you know, most of
20 the world.

21 So I'm very hopeful that as a part of this
22 process, as you continue to, as was suggested, drill a
23 little bit deeper into what's taking place as a part of
24 the development of your plan and the studies that you are
25 basing it from, that you will think about, you know,
26 obviously those -- maybe those unintended consequences of
27 the impacts of our farmers who -- and ranchers and growers
28 who wake up every single day, again, with the intention of

1 doing good for you.

2 You know, I would say kind of as an aside, you
3 know, some of the other challenges that have certainly
4 been expressed to us from an economic development
5 standpoint are related to land value. Okay? And so
6 certainly as we talk about obviously impacts related to
7 having less, you know, water availability, if you will,
8 and obviously you factor in the impacts of SGMA along --
9 along with it, can you maybe discuss to any extent that
10 you studied how this will -- to what degree have you
11 studied, you know, land value reductions?

12 Because clearly we've got a lot of folks out
13 there that are concerned about, you know, what this means
14 for them and their bottom line. So, you know, this will
15 absolutely go into, you know, where companies will grow
16 and expand, et cetera, et cetera. So was there any
17 consideration given as a part of any of your economic
18 modeling that, you know, relates to, you know, the impacts
19 of this plan as relates to overall planned values and how
20 that may prospectively impact, you know, business
21 decisions here in the region?

22 MR. GROBER: Not specifically, not a topic that
23 we -- no. But we looked at conversion. We had come up
24 with some estimates of conversion of prime farmland, but
25 not -- not changes in land value.

26 MR. HENDRICKSON: When you say "conversion," you
27 mean conversion to permanent crops?

28 MR. GROBER: Just -- just loss of prime farmland.

1 MR. HENDRICKSON: Oh, loss of land. Okay. Okay.

2 DR. SMITH: Yeah, if I just may add, though, just
3 wanted this point. The impacts of land value is very
4 important because it gets back to the commissioner's
5 things about how the real world works in terms of finance;
6 right? If you take a 30 percent haircut on your land
7 value, your ability to finance your existing operation
8 sort of gets a little tenuous; right?

9 So I just want to be sure because sometimes
10 economists think land value is just a wealth effect; it
11 has no consequence. And, no, they're the financing
12 mechanism. There is a feedback from a land value of
13 impact to economic consequences of whatever you're
14 studying. So I just wanted to just be sure I shared that
15 perspective (unintelligible).

16 MR. O'HAIRE: Yeah, I just want to check
17 something. I haven't read through the entire, whatever,
18 4,000 pages, but -- so am I correct then you're saying
19 that there's going to be -- I think it's in the economic
20 analysis, page 20.4 -- there's going to be between the
21 three regions, 23,421 acres lost or fallowed, or is that
22 converted? I can't remember exactly what it was. Versus
23 going back -- back in, I saw numbers. And then public
24 meetings back, I think, 2012, '13, there was some talk
25 about 210,000 acres possibly being fallowed and why is
26 that number different. I'm -- am I looking at -- those
27 are two drastically different numbers.

28 MR. GROBER: Generally different numbers. I

1 think, as we mentioned earlier, when we did the last
2 round, we looked at two ways: no replacement water
3 supply, no ground -- additional groundwater pumping or
4 full groundwater pumping. So if you don't do any
5 additional groundwater pumping, then it would lead to
6 great -- even larger water supply losses and, therefore,
7 even higher following.

8 MR. O'HAIRE: So was that -- so was that what --
9 the 200-so thousand acres, was that what that was from?

10 MR. GROBER: That was associated with -- yeah.

11 MR. O'HAIRE: Okay. No backfill. Okay. Another
12 question I have, too, is just to make sure on the data, on
13 Appendix G-67, I'm looking at -- here it appears that
14 you're using -- I want to make sure I'm right. Appears
15 that you're using 2008 crop production numbers on G -- it
16 talks about its average annual total economic output
17 related to agricultural production in irrigation
18 districts, and it looks -- so this is 2008 values, looks
19 like. I just want to make sure that's -- if that is, why
20 aren't we using more up-to-date? Because, I mean, our
21 value is much, much larger than it was in 2008.

22 UNIDENTIFIED SPEAKER: (Unintelligible) 67?

23 UNIDENTIFIED SPEAKER: It's G -- yeah, G-67.

24 MR. NELSON: So that's this -- well, okay.

25 UNIDENTIFIED SPEAKER: It's a graph -- nice,
26 little, colorful graph there on the page.

27 MR. NELSON: Yeah. So that's just in 2008
28 dollars. So (unintelligible) like the value of the dollar

1 (unintelligible).

2 MR. WEGGE: If I could just add something to
3 this. We attempted to keep dollars constant across the
4 various topics, so that -- not for purposes of adding up
5 but, rather, so you could get a sense of the relative
6 importance of different topics if you want to look at
7 monetary values in different sections. So, you know, this
8 analysis was originally done in 2011. We were working
9 with a lot of values from 2008 and 2009, and then when we
10 redid it, we could have updated it by using an inflation
11 factor, but we decided just leave it in 2008 dollars, and
12 it's consistent across the various topics that are
13 addressed in Chapter 20.

14 MR. O'HAIRE: Okay. Well, I would suggest that
15 just -- I don't know about the entire document, but at
16 some point, I think, we would love to see current numbers,
17 even if it's some kind of summary or -- so we can see -- I
18 mean that was, you know, eight years ago. It's almost a
19 decade ago, so we've all moved on since that time and
20 things have -- lot -- things have changed. We'd like to
21 see some, you know, up-to-date real impact numbers in
22 today's --

23 DR. SMITH: Yeah. And, by the way, it's
24 (unintelligible) I -- first of all, I agree. We've got to
25 have a constant dollar. We have to decide which -- you
26 know, what's our base year. I agree with you. So you and
27 I are in total 100 percent agreement. The difference,
28 though, between 2008 and 2016 is not only the inflation

1 but any changes in the relative value; right? And if we
2 go back to 2008, relative to today, Commissioner --

3 MR. O'HAIRE: That's a recession year.

4 DR. SMITH: But --

5 MR. WEGGE: Let me clarify something here.

6 DR. SMITH: Okay. Good.

7 MR. WEGGE: Because the way you're characterizing
8 it makes it sound like we were just -- we just used
9 information up to 2008. That was not the case. We may
10 have used information from 2013 or 2014 --

11 DR. SMITH: Oh, then brought it back.

12 MR. WEGGE: -- and then brought it back to keep
13 things consistent in --

14 DR. SMITH: That wasn't as clear in your written
15 document as your spoken word, but I appreciate that.

16 MR. WEGGE: And the other thing I'd like to point
17 out in response to your question about the land values, we
18 did not specifically look at land values, but we did look
19 at the fiscal effects of the changes in agriculture. Land
20 values wasn't specifically pulled out, and I don't recall
21 whether it was part of a composite type of multiplier.
22 But the fact that we looked at fiscal effects on the three
23 counties and jurisdictions within those counties is
24 something to note.

25 MR. BASS: Were the physical effects done part of
26 the IMPLAN tied to the lost crop production revenues?

27 MR. WEGGE: Yes.

28 MR. BASS: Okay. But not to a specific -- so it

1 didn't really flow through a valuation exercise, the land
2 itself, tied to the production and reliable water supply?

3 MR. WEGGE: No, no.

4 DR. SMITH: Well, first of all, I agree with
5 Professor Lund; models have use and, you know, no -- none
6 is perfect. But sometimes it's good to look at what's
7 happening to the world sometimes as natural experiments,
8 like just think outside of this area.

9 During the 1991 drought, San Diego was -- took --
10 being at the end of the metropolitan water system, took
11 the hugest cutbacks in '91 I think of anyone statewide.
12 And the semiconductor industry, right before they went to
13 Austin, went to Susan Golding's office, who happened to be
14 the mayor at the time, and they said: You get a reliable
15 supply or, you know, the vans are going. It took IID and
16 San Diego, what, 15, 17 years to put together the deal.
17 So those guys were long gone to Austin.

18 So we need to think through what are some of the
19 other types of actual experiences we've had in the state.
20 Maybe not necessarily in these three counties, but
21 elsewhere that have seen something of an impact already.
22 And I'd be interested in your reaction. The one thing we
23 know is -- and I'll try to use a (unintelligible) sense of
24 humor here. The Central Valley Project Improvement Act
25 gave us a natural experiment to observe.

26 Because as we do know, if you're familiar with
27 the CVP allocations to south-of-Delta ag users, there's a
28 major transformation in the data that you download from

1 the, you know, the bureau. Pretty much until the CVPIA,
2 they were getting 100 percent allocations, but for 1977
3 and thereafter, they've had a very vol -- I'm sorry I use
4 this word, sir -- a very volatile history of what their
5 annual allocations are from year to year.

6 Have you -- have you considered at looking what
7 was the impact of that experience, for example, on
8 groundwater pumping in Westlands or well elevations or
9 following patterns as sort of a way to look at what is
10 happened elsewhere as a way of calibrating, you know, how
11 your model's looking at the world? Because I didn't -- it
12 wasn't discussed, as far as I could tell, and I guess I'm
13 a -- I was paid to read all your stuff so I did. I don't
14 remember any discussion of looking elsewhere of what, in
15 fact, has happened to help inform how you look at what's
16 being proposed.

17 MR. GROBER: No, but I look forward to seeing
18 your comments and how we should be looking at that and
19 using it.

20 DR. SMITH: Okay; good. After the break you'll
21 get a few when we return to groundwater. Because I've got
22 some great resources here, and I know I'm losing one.
23 This one's graciously staying.

24 Commissioner, I don't know if you're staying for
25 the whole --

26 MR. O'HAIRE: Oh, yeah. They'll be a power drain
27 with just -- me just here. Losing all these brains.
28 These guys know a lot more than me. I do have a --

1 DR. SMITH: Oh, that's not true.

2 MR. O'HAIRE: I do have a --

3 DR. SMITH: You know a lot more than what we do.

4 MR. O'HAIRE: I wouldn't say that, but I do have

5 one -- I just -- question again. What was the total

6 number that was com -- I probably missed it; it's probably

7 in here. I just want to know. What is the total economic

8 impact that you came up with for the total amount and sort

9 of what was all in that? I know you --

10 MR. GROBER: What is the number you're saying?

11 MR. O'HAIRE: Yeah. You were here a couple -- or

12 a month or so ago here at the board -- I think you said

13 something about 65 -- 65, 64 million.

14 MR. GROBER: The slide is still up. It's the \$64

15 million total sector output under the 40 percent flow.

16 MR. O'HAIRE: So under 40 percent -- make sure I

17 understand this -- 40 percent, this region is only going

18 to lose -- is it \$64 million impact to the entire region?

19 Wow.

20 UNIDENTIFIED SPEAKER: (Unintelligible).

21 MR. O'HAIRE: What's that?

22 UNIDENTIFIED SPEAKER: The three-county area:

23 Stanislaus, Merced --

24 MR. O'HAIRE: Right. Which makes it even more

25 dramatic because you're talking about three counties.

26 So --

27 MR. GROBER: Average annual.

28 MR. O'HAIRE: Average. Again, I'm not an

1 economist. Like I said, when I was down here the other
2 day -- but, for instance, I'm going to -- I'm a resident
3 just like a lot of people here. I've seen what the
4 drought has done. I go around the county, my
5 neighborhood; I see lawns dried up, mediums lost, you
6 know, browning lawns. It's affected just visually which I
7 know -- I know enough about, you know, land value that
8 that's going to drop the value of your home. So just
9 looking at that, just no numbers -- I can't crunch any
10 numbers for you, but Modesto has about 75,000 units. If
11 you put -- if you say each house dropped down just \$1,000
12 in value because of the drought, I think that's a
13 reasonable assumption. \$1,000 is, you know, not -- is not
14 very much. This is going to make it worse, I think.
15 \$1,000 times 75 units is -- that's \$75 million just on
16 that one item. So I don't see how you can come up with
17 only 64 million when we're talking about all these other
18 drastic impacts. This -- so maybe I'm missing something.

19 MR. GROBER: Well, since you bring up the
20 drought, I'm curious. Do you have numbers for what was
21 the effect on the ag economy and over the drought years?

22 MR. O'HAIRE: Well, yeah. Well, part of it, you
23 can look -- you can look at our crop reports. Now, we
24 just showed the changes in the crop report from year to
25 year. Of course, all of that is not drought related.
26 Some of it's -- some of it's, you know, the unit -- it's
27 supply and demand and so forth. But this last year, our
28 crop value dropped down 500 and -- \$508 million. Some of

1 that was because of the drought. We had additional
2 fallowing. I think like two years we fallowed something
3 like 20,000 acres and then another 13,000. So it's -- and
4 the \$64,000 is nowhere near, in my estimate -- again, I'm
5 no economist, but just practically looking at the numbers,
6 it's just -- it's just not even close.

7 MR. GROBER: It's 64 million.

8 MR. O'HAIRE: I'm sorry, 64 million. Well, it's
9 sort of like 64,000, I guess, to us. Not very much.

10 MR. WHITE: You have the replacement of people
11 that have to put in new lawns or, I mean, it's just --
12 it's astronomic --

13 MR. O'HAIRE: Just in my -- just in my
14 neighborhood, I've got three driveways that have dropped
15 because of the -- because of the drought. So I can
16 imagine, you know, it's just -- I mean there's a lot to
17 consider.

18 DR. SMITH: I think a way of tying these things
19 together before we -- and I know Jason's going to build on
20 this point -- is there's life beyond models. I think
21 Mr. -- if Professor Lund would be here, he'd probably
22 agree with that. But we also do look at models, but
23 there's also experience. And this is just my universal
24 Chicago training. You always sort of look at where the
25 evidence is relative to models. And then, you know, how
26 you concoct it into the goulash, that's a different point.
27 But we're not here today about concocting. We're just
28 trying to say what are the elements you may want to

1 consider. And Jason --

2 MR. BASS: And, yeah, I just wanted to add
3 (unintelligible) because I know the drought obviously is a
4 very important source of information. It's very
5 instructive what's been happening in the last few years
6 with respect to ag, with respect to municipal water use,
7 development, et cetera. But the drought is a short-run
8 phenomenon. We have just a couple of years, and the
9 response is a reflection of a short-run response. In
10 other words, people are dealing with the immediate and
11 very difficult and challenging situation of a lack of
12 water supply, so water -- lawns are going brown,
13 et cetera.

14 But when we start talking about the SED, this is
15 a long run, permanent, in theory, transition to a lower
16 water supply. So I think we have to be careful not to
17 focus too much on the short run, you know, information or
18 demonstration of response just in the drought. It's very
19 instructive because clearly it's created significant
20 hardships, significant problems.

21 But I wanted to go into from -- we focused a lot
22 on ag so far, and obviously it's fundamental because
23 that's where the surface supply impacts are going to
24 really flow through, but we haven't really talked much and
25 saw a lot, we believe, in the documentation with respect
26 to the community impacts. And I heard earlier discussions
27 about how water bills have been going up very quickly in
28 the region because well depths have been challenging,

1 water quality issues have been challenging, et cetera, and
2 I wanted to know to what extent you folks have really
3 examined in particular water rates for community members,
4 for households, household water rates.

5 And I've done a lot of work in this arena looking
6 at ratios of things like the average water billed to
7 household income. And in this region, and I'll use Merced
8 County as an example, I think it's upward of 80 percent of
9 the households are within areas that are designated as
10 disadvantaged communities, economically disadvantaged, by
11 the State of California by the Department of Water
12 Resources. I go to the DAC, Disadvantaged Community
13 Mapping Tool, online and it lights up in these counties
14 because a lot of households are, again, in communities
15 where incomes are relatively low, yet you see water rates
16 going up and up and up.

17 Dr. Smith brought up the issue of groundwater
18 depths, and we know that if increased pumping occurs, all
19 else being equal, we're probably going to see increases in
20 groundwater depths. Already an issue that's occurred in
21 the drought. Lot of cost. Talking to the City of
22 Modesto, they're investing new wells. Planada, the
23 community, they had to put in some new wells. This is a
24 region-wide issue already.

25 When groundwater pumping goes up in response to
26 the SED, we're going to probably need more infrastructure
27 investment, et cetera. Costs go up. I mean someone's got
28 to pay for it. A lot of these communities don't have a

1 lot of financial resources. They're going to pass it
2 through to the ratepayers who are already seeing, in many
3 instances, double-digit growth in their water bills.

4 Have you addressed that impact and, also, even in
5 the IMPLAN modeling addressed how that flows through then
6 to the community expenditure profile where you start to
7 see then people having less money to go out to eat because
8 they're spending twice as much on their water bill? So
9 that's -- I wanted to pose that question.

10 MR. WARD: That's -- before you and your team
11 respond, I'll give you a chance to think about that. I
12 think this is a good time to take a break, that this looks
13 like a transition now from the ag econ impacts to urban
14 and drinking water. So why don't we take a ten-minute
15 break. Everybody back here around 2:30; we'll wrap it up.

16 MR. GROBER: Great. Thank you.

17 (Recess.)

18 MR. WARD: All right. We're going to get started
19 again, if you'll all sit down.

20 DR. SMITH: I don't have any kind of questions
21 for you. I want you to talk on the issues that we're
22 talking about that you can say something to talk about.

23 MR. BASS: Okay. If I can think of a smart
24 question, I'll ask it.

25 DR. SMITH: Yeah, yeah.

26 MR. WARD: Okay. We're into the final session of
27 the afternoon, and looks like we've lost Milt and Mark;
28 right? Okay. So Dr. Smith, it's yours.

1 DR. SMITH: Okay. I think in fairness to our
2 good friends from Sacramento, Jason, why don't you just
3 state the question again.

4 MR. BASS: Yeah, I will. I know we were talking
5 and focusing on agriculture and irrigation, but we want to
6 shift over now to urban water, to the communities in the
7 region that rely on -- mostly on groundwater. Well, a
8 large portion on groundwater. They're obviously
9 communities as well, typically the City of Modesto, that
10 rely on surface supplies.

11 But an important question really gets to the
12 characteristics of the household in the region. We have a
13 region where, as has been discussed, we have high
14 unemployment. We have high rates of poverty. We have --
15 relative to the State of California. And we also have a
16 lot of communities, proportionately much larger amount of
17 communities as compared to the state, that are designated
18 as economically disadvantaged. And what we've seen in a
19 lot of these communities over the years, particularly most
20 recently with the drought, has been a need for a lot of
21 investment in new water infrastructure, rising costs of
22 water, a deteriorating water quality, particularly
23 groundwater quality and, therefore, associated costs and
24 water bills that have been rising very quickly as relative
25 to incomes.

26 And so the question really is, is to what extent
27 have you addressed this issue and how the SED
28 implementation, say at the 40 percent level, how that

1 would flow through to additional costs and ultimately
2 affect water bills and whether that's even tenable in the
3 long run is my question.

4 MR. GROBER: I'm not sure what you mean which
5 part is "tenable," but we -- I mean one of the things for
6 cities, cities of course can, you know, afford -- I hear
7 in terms of the disadvantaged communities, but maybe I'll
8 pose it back to your question with a question. Because we
9 look at, you know, the ability to purchase water, you
10 know, and I think we look at figures of \$1,000 an
11 acre-foot or \$2,000 an acre-foot. So with those costs,
12 what -- what -- how much additional cost would that impart
13 to the cities, if there are any?

14 So there basically is no shortage to cities
15 because cities -- you know, it's high value. It's the
16 disadvantaged communities.

17 MR. BASS: Sure.

18 MR. GROBER: So is -- that's -- I think that's
19 part of the perspective that we had is that the -- for the
20 relatively smaller quantities of water for cities, that
21 there would be some purchase possibilities.

22 MR. BASS: Sure. No, there's certainly -- I
23 mean we're not as focused, per se, on water supply issues.
24 Obviously there will be water supply challenges for some
25 of the communities relying particularly on surface water
26 because of the SED, but with groundwater, we're talking
27 about increased depths to groundwater, influences of
28 increased pumping by irrigators affecting groundwater

1 depths. Water quality often gets influenced by greater
2 depths to groundwater.

3 But really the issue just is the issue of cost.
4 We know that if we're out purchasing water as opposed to
5 producing it locally and supply/demand dynamics, that
6 we're probably going to see escalation of cost of water.
7 You're taking away a big chunk of the region's water
8 supply. It would be expected that there would be a cost
9 effect as a result, whether it's because of higher cost to
10 purchase water, whether it's higher cost to pump water
11 because it's deeper, et cetera. Those costs have to be
12 borne by someone, and you have a region, again, that has a
13 significant amount of economic challenges, high rates of
14 unemployment, poverty, and a lot of communities that are
15 designated disadvantaged.

16 You're going to have job losses associated with
17 this, so you're putting additional strain on the economy,
18 some of the bigger picture issues we talked about in terms
19 of in generating new investment regionally in terms of the
20 impacts on existing investment because of the loss of
21 reliable water supplies. So you have a myriad of things
22 that are putting a lot of pressure on the regional
23 economy, and then you're saying, and in addition, now
24 these communities, some of them very small -- we heard
25 from some members of those communities who face -- don't
26 even have any of the financial resources they need to
27 respond to increased costs of water, yet now they're going
28 to be faced with additional costs on top of everything

1 else.

2 How do we expect them to support those additional
3 costs when they're -- the households are already paying
4 water bills that are at percentages of their income that
5 are higher than EPA standards, that are higher than a lot
6 of the -- sort of the standard thresholds that are used to
7 evaluate water supply availability? How do you -- how do
8 you address that? Are you going to address that? And
9 also the implications of increased water bills on regional
10 economic impacts and flow thrust.

11 MR. GROBER: So I'm curious because you went --
12 now you phrased it in terms of addressing that. We
13 disclose a lot of information, and to make this a
14 productive, you know, panel discussion, technical
15 discussion, again, I think I would like to pose it again
16 as a question, but only after making very clear a point
17 that has to do with both the total quantity of water and
18 then the effects as well.

19 I'm seeing a tendency to look at, well, there's
20 this bad effect and then there's this bad effect and this
21 bad effect, and they're all kind of added up and that
22 they're happening everywhere. We've disclosed a limited
23 quantity of water that would be unavailable for public
24 interest use, if you will, so combined agricultural and
25 water supply, and it's shifting of that quantity of water
26 to public trust use for reasonable protection of fish and
27 wildlife.

28 So that's a -- that's a -- if there's one thing

1 that's certain in the modeling, though we didn't discuss
2 today the Water Supply Effects Model and how that all
3 works, but let's just assume for a moment that that's the
4 correct number. It's a -- that's a defined quantity of
5 water, and it can only have so many effects either here or
6 there because -- so the reason I bring this up here in the
7 context of the cities, it's not going to be both in effect
8 here and then the full effect on ag. It's that limited
9 quantity of water. And that's both a fact in terms of the
10 limited quantity of water, so it can't be both in effect
11 to the cities and effect to ag except barring -- I'm
12 hearing what you've said about, you know, how the
13 connectedness of the economy and all of these other
14 things.

15 And, again, I look forward -- we look forward to
16 hearing your comments and your analyses on that because --
17 I digress a bit, but I hear it both disparaged and yet
18 it's useful. We have 3200 pages -- I always forget the
19 number of pages. We have a lot of pages of document there
20 because we've done, I think, a very good job at doing a
21 programmatic analysis for a very big topic. That being
22 said, the reason we're here and the reason the board wants
23 us to be here is that there's a lot more information that
24 could be added to it, which will add great value.

25 But getting back to that limited quantity of
26 water, you can't have all of the effect. It's either
27 going to effect the water supply of the cities or ag or a
28 little bit of both, but it's not the total amount. And

1 there's --

2 UNIDENTIFIED SPEAKER: And I'm not --

3 MR. GROBER: -- (unintelligible) --

4 DR. SMITH: You try to put the --

5 MR. GROBER: I'm almost done, so just let me --

6 DR. SMITH: Yeah, we don't double count, yeah.

7 MR. GROBER: Okay. Okay. But I just want to

8 make sure --

9 DR. SMITH: Right. We don't double count.

10 MR. GROBER: -- because when you're talking for
11 ag -- because if there's a water supply effect to the
12 cities because -- and then here's part of where -- and you
13 as economists would know part of the magic is that it's
14 very easy to show impacts. It's very easy to show that
15 this is going to lead to all sorts of negative effects,
16 but the reality is markets respond to new conditions. And
17 one of the responses here, while money will change hands
18 in terms of water will get to the cities that will provide
19 money for infrastructure to ag that is then maybe taken
20 the hit, but that can improve infrastructure. That
21 infrastructure can lead to greater efficiencies. That
22 infrastructure can lead to increased groundwater recharge
23 taking advantage of wet years.

24 So there's an exhaustive analysis which we also
25 did not do which is how you can actually achieve many,
26 ultimately, benefits from the entire system because this
27 gets at the crux of what I hear. I always hear it in my
28 head, Felicia Marcus, the chair of the Water Board. How

1 do you maximize the beneficial use of water? And there
2 are tremendous opportunities here. And I understand what
3 you're asking, what you're doing is that there's also a
4 cost. There's also all these things that we should be
5 looking at and we acknowledge we need to look at, but
6 let's not lose sight of how much better we can use the
7 quantities of water we already have.

8 MR. BASS: Let me make two points related to
9 that. First of all, I'm not talking about water supply.
10 I'm not trying to double count. I'm not talking about a
11 reduction in water supply to communities. I'm talking
12 about the added cost to communities of mining the
13 groundwater they need, of dealing with decreased water
14 quality from the groundwater as a result of the pumping
15 response that you've modeled with the irrigation
16 districts. So I'm not saying that they're going to get
17 hit by the water supply situation the same as the
18 districts are and double counting. So that's one -- seems
19 like you misinterpreted that.

20 The second thing is just the issue of the overall
21 economic consequences of this. I think we don't want to
22 lose sight of the fact that this is a regional economy
23 that has a lot of these inner ties. And I think we don't
24 want to separate too much irrigation from the communities.
25 They have their own water supply situations, their own
26 water supply needs. But at the end of the day, the jobs
27 that are being generated by the ag economy are the jobs
28 that are supporting these communities, and these

1 communities are reliant on those jobs. And so you're
2 taking away jobs as a result of these impacts potentially,
3 some -- 2 and a half percent by your estimates on an
4 average, but on certain years, significant job losses by
5 our estimation.

6 And then on the other side of the equation,
7 you're saying we're also going to do things as a result of
8 the farmer response, which we expect -- again, we can't
9 just put it back on the farmers to deal with it, but
10 ultimately the result of a reduction in their surface
11 water supplies, how that flows through then to the cost to
12 the cities of pumping. And Rod can talk more about that
13 pumping tradeoff, that groundwater depth tradeoff.

14 DR. SMITH: Yeah, I'm not sure they answered your
15 question, so let's move on.

16 MR. BASS: Yeah, okay.

17 DR. SMITH: And, first of all, I -- let me
18 reassure you again, we are not a -- not in favor of double
19 counting, so -- deal? Okay. So we're there.

20 What is interesting, though, is that if we get --
21 I think what Jason was getting at in part was that as you
22 pump more groundwater, well elevations, you know, change.
23 And as well elevations change, especially as you heard
24 from the panels this morning, on even the large but
25 especially the small systems, intensifies their problems.
26 You heard today that their -- some of these communities
27 are on a trajectory towards hitting their max -- you know,
28 their MCLs.

1 So further changes -- the question would be --
2 and a research question. Okay? A research question would
3 be given the trajectory currently of the communities'
4 trajectories towards reaching their MCLs, how much more
5 groundwater pumping and their impacts on elevations, what
6 happens to that trajectory? Just because you hadn't hit
7 the limit yet doesn't mean you're not going to hit the
8 limit in the future.

9 It's getting back to some of these fundamental
10 things we did at the first session where you can't look at
11 this as an independent year-by-year thing. You have to
12 look at more in the context of the trends and the
13 resource. And we just didn't see any analysis -- to be
14 fair to you, it was news to us today about this data
15 about, you know, moving to the MCLs. We hadn't heard
16 about that one yet. So I think that's a way of putting in
17 that increased pumping will further lower elevations.

18 Now, as far as I can tell reading your material a
19 few times -- I didn't have glasses before this
20 engagement -- is that you didn't have any information
21 available to you on how to tackle it, what could be the
22 possible impact of increased pumping on well elevations.
23 Is that correct?

24 MR. GROBER: I think what we're saying is we
25 don't have detailed information to do this in a very
26 detailed fashion throughout the project area, which is
27 why, again, we did the programmatic assessment. I'm
28 hearing -- I think we heard this morning that there could

1 be hot spots or something there was suggested where there
2 might be some variations. And, again, if there's
3 information that can be provided, then do please provide
4 it.

5 DR. SMITH: Yeah. Again, a natural experiment
6 that's been occurring actually in San Joaquin County --
7 and the only reason why I know this, I represent Central
8 San Joaquin Water Conservation District as an expert in
9 the federal litigation against the breach of contract on
10 the New Melones, so I learned a little bit about that
11 area. And from just a study point of view, the bureau did
12 a great job of creating volatility in availability of
13 surface water. And the San Joaquin Flood Control District
14 puts out annual reports on continuous data of well
15 elevations of certain key wells they have, and four of
16 those wells happen to be in the -- happen to be in the
17 Central San Joaquin Water Conservation District. So that
18 would be an -- that could be some evidence you may want to
19 look to.

20 Because we've looked at it and, indeed, well
21 elevations were on secular decline for only 40 or 50
22 years. Once Central San Joaquin got access to surface
23 water, that trend slowed. And then when the bureau
24 started seesawing available surface water deliveries, the
25 well elevations were just sort of there doing a tango.
26 And from that case study or that natural experiment, you
27 can identify what's the impact of a change in surface
28 water on well elevations.

1 So, again, there is information out there. We
2 are -- we, we, us, are in an adventure of being
3 detectives. We have certain information but not as much
4 as we'd like to have. So what we've got to do is piece
5 together -- right? -- based on the information we do have
6 and take advantage of some of these experiences, you know,
7 of actual circumstances. And so the two that Jason and I
8 have turned to thus far, I've told you. One is the
9 Westlands experience, and the other is -- I'm just
10 identifying the Central San Joaquin because it does
11 provide some insight to what is the impact of the changes
12 in surface water availability.

13 And, by the way, there is a diversity and then a
14 sense of wells that you can't study, you know. Some wells
15 have a greater impact than others. And if you knew more
16 about the subbasins and talked to your hydrologist, you
17 can understand all that. So there is information out on
18 well elevations. Similarly, the districts have at least
19 provided us information, what, on their trends; right? In
20 elevations?

21 MR. BASS: Elevation trends and pumping and how
22 pumping affects the elevations.

23 DR. SMITH: Right. So we're trying to solve a
24 mystery here -- right? -- with pieces of information.
25 We're trying to be Sherlock Holmes; right? Try to divine
26 from pieces. But there's information out there, and
27 everything that we've run into, these impacts are
28 material. And so I would invite you to take a look

1 when -- as we finish our work, we'll certainly share -- I
2 think we're retained to share work with you, I suspect,
3 but you have to talk to Keith about that. But -- so there
4 is things we can do better, okay, on that. And I'd just
5 like you to keep an open mind and start thinking about
6 revisiting what can you say about well elevations. Our --
7 sure. Go ahead.

8 MS. HUBER: Consideration of well elevations in
9 Chapter 13. I was just trying to find the table.

10 DR. SMITH: The quantification of impact though?

11 MS. HUBER: It's more an evaluation of current
12 well elevations relative to groundwater depth. There is
13 more concern for those wells that are close to the top of
14 the aquifer, and we point out a few small districts where
15 there would be potentially the need to make new wells.
16 And impact SP1 talks about impacts associated with
17 drilling new wells or deepening existing wells.

18 DR. SMITH: Yeah, I'm familiar with that table,
19 and that's a snapshot of what -- what the current well
20 depths are. I instead was talking about what was the
21 trend of and actual data we have on well elevation and how
22 has it evolved over time and, indeed, how that evolving
23 trend is impacted by the availability of surface water.
24 So I (unintelligible). When I read that table, that was
25 sort of what's your view of the head room was, of how much
26 could well elevations change without someone having to
27 deepen a well, your well depth table.

28 MS. HUBER: Right. So clearly well --

1 groundwater elevations vary up and down through time, and
2 if the groundwater deficit increases, then there would be
3 more of a trend downwards and there's more concern for
4 wells being adequately deep, which is why we considered
5 the impact of making new wells within Chapter 13. And I
6 think there's also a financial consideration in Chapter
7 20, but I agree that it's not -- you know, we cannot say
8 how many wells will need to be deepened.

9 DR. SMITH: Yeah, but actually I -- thank you for
10 that comment because it gives me an opportunity to make
11 something of (unintelligible). A lot of these questions
12 are difficult; right? We can agree on that. A lot of
13 these questions we don't have as much information as we'd
14 like, if we're doing a Ph.D. thesis, to try to get our
15 Ph.D. signed off by our advisor. But because it's hard
16 doesn't mean there's no impact.

17 MS. HUBER: Yeah, I think --

18 DR. SMITH: I'm sorry. Just because it's hard to
19 do, doesn't mean it's zero impact. I think the proper
20 thing is to say it's an unknown impact until we start
21 trying to improve our understanding.

22 MS. HUBER: Yeah, well, we agree. And for like
23 impact SP1, we say there is potential significant impact
24 associated with construction of new wells, for example,
25 but there are a lot of other things that potentially could
26 be required work as well.

27 DR. SMITH: Did I cut you off? I'm sorry.

28 MR. WEGGE: Well, again, I guess I'd just like to

1 return to a couple of issues, one of Jason's and one of
2 yours just to follow up on what Les said. You know, as
3 far as Jason was mentioning ratepayer effects and, you
4 know, did we look at that. Yes, we did look at that, and
5 we concluded that there would be effects on ratepayers
6 because it's likely that costs would get passed on to
7 those ratepayers. But without knowing the extent of the
8 costs and without knowing specifically how the individual
9 districts would be impacted and given that it was a
10 programmatic analysis, we tried to lay out what we knew.
11 And what we didn't know, we acknowledged that.

12 So in answer to your question where I think you
13 were going about ratepayer effects, we did analyze that,
14 and it's in Chapter 20.

15 MR. BASS: Okay.

16 MR. WEGGE: And just to follow up on the issue
17 of --

18 MR. BASS: Could I actually just respond a
19 little --

20 MR. WEGGE: Sure.

21 MR. BASS: -- just to interject one thing before
22 you get -- go back to something Rod said. One of the
23 things that was just raised a minute ago was that there's
24 an expectation or a vision that there will be investment
25 in infrastructure and activities to improve efficiencies;
26 that it's not all bad, that there are ways to mitigate
27 effectively is what I heard, whether it's groundwater
28 recharge in wet years as one example. Well, again, that

1 takes a lot of money, and so I wanted to ask -- and that's
2 the crux of my question before.

3 And I know, Tom, you met -- you responded
4 somewhat is who pays for that cost? And if that cost
5 ultimately flows through the businesses and the farming
6 interests and households in this region, their cost of
7 water went up, they're in the same situation they were
8 before but their cost of water is higher. And when you
9 have an economy that is often struggling -- we've heard
10 about, you know, unemployment rates. We've heard about
11 poverty. We've heard about a lot of things, the
12 challenges in this region for continued economic growth
13 where population continues to go up more rapidly than the
14 state. How do you support the water supply
15 (unintelligible) that population and also support the
16 level of cost necessary to meet those water supply
17 obligations?

18 DR. SMITH: Yeah. It's really a cost
19 (unintelligible) analysis; right?

20 MR. GROBER: And this is what becomes very
21 interesting about these questions. And I really
22 appreciate the questions, and I'm sure the audience does
23 as well, but it's very hard when you look at any single
24 piece of this proposal without considering other pieces.
25 And here I want to harken back to, you know, again, how
26 many times have I said this is hard and you're living
27 proof. No, this is hard to do this, and there's many
28 different ways of looking at it. There's many different

1 pieces, parts to this puzzle, but the -- my introductory
2 remarks about it being hard, we also encourage settlement,
3 which is important. Parts of settlement can involve also
4 money changing hands, you know. It's not the subject here
5 today. It will be the subject in the future in terms of
6 the City and County of San Francisco and potential
7 shortages depending on how contracts, water rights are
8 interpreted, things like that. Those are opportunities
9 for money to change hands to build infrastructure.

10 And, again, without speaking in the same thing as
11 you -- I'm sure you're all aware, currently there are
12 water transfers that occur from districts in the area for
13 sales, and that brings in money. You know, water I think
14 we would all agree is -- it's a very valuable substance.
15 It isn't as even highly valued as it should be in many
16 cases. This is going to create some new stressors and
17 opportunities, but through those, that can help to build
18 that infrastructure in this area.

19 I'd also like to link this -- and there is a
20 connection here because here we're kind of looking at what
21 are the effects on, you know, drinking water, water
22 levels, hearing about economic concerns. It's important
23 to note that when we went out with this proposal in 2012,
24 one of the top criticisms -- in fact, I just -- I just
25 turned to it. And, you know, for those of you -- I'm sure
26 you've all looked at it -- it's a 3,000-page document, but
27 we have about a 100-page executive summary.

28 One of the things that was pointed out was

1 concern that we needed to explain and improve our
2 reservoir operation assumptions and surface groundwater
3 supply and quality effects. That's because in the first
4 round, as we've already discussed a bit here today, we
5 made the assumption of either no reliance on groundwater
6 or full reliance on groundwater. We also didn't do -- we
7 didn't look at reoperating the reservoirs. We basically
8 said, well, let's just keep it the same. Criticism we
9 heard is it wouldn't be the same. If we had less water,
10 we're going to hit those reservoirs harder. That's
11 basically what created that, as you refer to it, that
12 volatility.

13 So there's -- there's different perspectives,
14 different interests, different stressors, and many
15 different ways to look at it. We've looked at one way
16 that presents, we think, a full picture, but I can't
17 emphasize enough how important it is to provide these
18 different perspectives. And then in the end just to
19 manage everyone's expectations, then you'll have to --
20 everyone will have to look at that once again in the
21 context of the overall picture, which I'm hearing that is
22 of great interest to all of you as well.

23 DR. SMITH: Yeah. Okay. I appreciate the
24 sentiment. Let me just pick up on one thing because this
25 is a question. Stratecon is probably in -- one of the
26 things we do is we actually do water transactions, so
27 we've closed some deals over the years. And from that
28 perspective, I didn't see where you looked at what was the

1 market value of the surface water lost in this area
2 relative to the market value of the water the exporters
3 will receive.

4 And now what I'm -- because I remember way deep
5 in one of your tables, your estimate on average I think
6 was 77,000 acre-feet a year was going to go to the
7 exporters. So the dealmaker (unintelligible) sort of
8 looks at it this way. Again, you want a different way to
9 look at the world? Here it comes, my friend. You're
10 asking these people to say, well, you know, you divert
11 water here or here or there. You can't -- you got to send
12 some of the water downstream.

13 Now we got water down at this diversion point.
14 What's now available for consumptive use? One thing you
15 can do is assign that water to them and say you got some
16 of your water here; take your restrictions. Water that's
17 available down, you know, at another point, you know. Why
18 isn't it their water or not? So I asked myself a
19 question. There's a market value there. So did you do
20 any market valuation of what -- of the water lost versus
21 the water gained? I didn't see it. But, again, with
22 3,000 pages, you know, you miss something.

23 MR. GROBER: The short answer is no.

24 DR. SMITH: Okay.

25 MR. GROBER: But it's good that you mention it
26 because that really is something that helps inform some of
27 the settlement discussions to talk about clarification
28 just to make it important. And, again, it's hard when we

1 do this in a disjointed fashion because we haven't talked
2 about, you know, many elements of the analysis and the
3 fish benefits and what we're doing in this phase as
4 opposed to the next phase.

5 But an important point to make is that we're
6 looking in this phase just what would happen with the
7 increased San Joaquin River flows, and then you mentioned
8 that additional amount of pumping that would occur.
9 That's based on current rules, the current regulations in
10 terms of export limits, inflow export ratios, things like
11 that. All of that is going to be addressed in Phase 2
12 because the intent of this proposal is to protect
13 migrating salmon on the San Joaquin River tributaries.
14 Part of that migration includes through the Delta. So
15 there will be new regulations as part of the Phase 2
16 update.

17 DR. SMITH: Okay. Okay. Let's go to groundwater
18 and SGMA just because -- well, we've got 20 minutes.
19 Certainly Jason and I have no clue what is going to be the
20 explanation to SGMA here. So up front, disclosure, okay,
21 whatever it is, would you agree that probably there will
22 be less groundwater pumping allowed than today? We don't
23 know what that difference may be, but whenever SGMA gets
24 implemented, you can't pump as much as you can today.
25 Would you agree with that as just a general premise?

26 MR. GROBER: Sorry to disappoint you, but this is
27 why this gets into the realm of all being rather
28 speculative because it's about sustainability. It's as

1 much about how much water you're getting in the ground as
2 how much you're taking out. So it depends on in response
3 to this what the local area does in terms of additional
4 recharge, active recharge as opposed to the passive
5 recharge that's generally occurring.

6 DR. SMITH: I would agree with that answer, but
7 let me pick off the pieces. The reason why I would agree
8 with the answer is before those recharge programs come in,
9 I would believe that pumping under SGMA will be less than
10 today. I agree with what you then added is that
11 because -- they could pump 100 acre-feet histor -- or they
12 pumped 100 acre-feet historically. SGMA, before they do
13 anything of a recharge project, they only do 50. Now they
14 can do a recharge project. Maybe they do a great recharge
15 project. Now they can do 150. Well, as Jason has already
16 pointed out, that didn't come for me. So there's a cost
17 to move, you know, in my example from the 50 to 150.

18 So let me fine-tune my question a little better,
19 is prior to any of those adjustments, it's got -- the
20 amount of pumping that will be allowed prior to any other
21 investment will have to be less than today. Would you
22 agree with that?

23 MR. GROBER: You're saying with the qualification
24 that you might do some additional recharge?

25 DR. SMITH: Yeah, yeah. In other words, before
26 you do additional recharge.

27 MR. GROBER: Some hypothetical in the future,
28 and --

1 DR. SMITH: No, no, no. Not in the future. You
2 implement SGMA tomorrow.

3 MR. GROBER: Well, there's the rub. These are,
4 and we discussed this morning, separate processes. This
5 area, as we've disclosed in this, already has areas that
6 are -- appear to be in overdraft. So that would be
7 suggestive of having to go in the other direction,
8 reducing overdraft. And this project imposed on it, we've
9 done the analysis that there would be at least initially
10 and for some time additional groundwater pumping.

11 DR. SMITH: Right.

12 MR. GROBER: The question is how long will it
13 take for things to happen.

14 DR. SMITH: Right.

15 MR. GROBER: How will all this come together?
16 How much additional groundwater recharge will there be?

17 DR. SMITH: Right.

18 MR. GROBER: A lot of changing conditions,
19 changing circumstance. So we've presented one -- one
20 thing that could be occurring. And likely, based on the
21 most recent drought when SGMA's already in place and
22 groundwater increased, a scenario that will unfold. Will
23 it unfold exactly like that? That's back to all models
24 and assumptions are wrong. It will be something else.

25 And it's important for you to provide that
26 something else in that broad context, both of what and
27 when and how they would be different. And you referred to
28 volatility and reliability. If there's an alternate model

1 that you suggest that should be assessed, then please
2 provide.

3 DR. SMITH: Okay. This is right now our current
4 thinking. Certainly before SGMA is implemented, there
5 will be what we'll call for -- picking up on your
6 formulation for unknown period of time, there will be
7 some -- in response to less surface water supply, increase
8 in groundwater pumping. The way I characterize your
9 approach is you assume 100 percent offset. What I mean by
10 an offset, for each acre-foot of surface water that's
11 looked -- no longer available, you're going to increase
12 groundwater pumping by an acre-foot. Continue that 100
13 percent offset until you hit a maximum. Maximum defined
14 either by the 2009 or 2014 threshold. That's your model;
15 correct?

16 MR. GROBER: I didn't know that was a question.
17 We didn't come up with any date certain of --

18 DR. SMITH: No, no, no, no. I said until.
19 Whenever it was, you have a full offset, one-for-one
20 offset, of the increased pumping until total pumping hits
21 a capacity constraint. That's what's creating the --

22 MR. GROBER: Oh, you mean in the moment --

23 DR. SMITH: Yeah, in the moment.

24 MR. GROBER: -- (unintelligible) maximum pumping?

25 MR. BASS: Up until SGMA comes into place.

26 DR. SMITH: Yeah, yeah.

27 MR. Bass: Basically said we're doing analysis
28 (unintelligible) SGMA.

1 MR. GROBER: Well, I think you're saying two
2 different things.

3 DR. SMITH: Okay. That's fine.

4 MR. GROBER: The maximum pumping that we --

5 DR. SMITH: Oh, no. What I mean is you can't
6 pump indefinitely up to offset everything, the peak
7 reduction. The -- you're going to hit a maximum,
8 groundwater pumping maximum.

9 MR. GROBER: Well, I -- maybe we're using
10 different terms.

11 DR. SMITH: Yeah.

12 MR. GROBER: The maximum pumping is -- we just
13 used a level, a maximum pumping based on 2009 information.

14 DR. SMITH: Yeah, no. That's what I'm saying.
15 You defined a maximum.

16 MR. GROBER: The way we've -- we viewed it is
17 that we didn't change that maximum pumping rate. That's
18 just what --

19 DR. SMITH: No, I understand. That's what I
20 mean. It's a maximum. So you have 100 percent offset
21 until you hit a capacity constraint as defined. Okay?

22 What's interesting about the Westlands study is
23 that if you look at the data -- and once we finish ours, I
24 guess we'll be able to share it to you -- you get a 50
25 percent offset. That's been the experience based on
26 about, what, 22 years. And what's interesting from a
27 scientist or an economic researcher's point of view is we
28 know Westlands had great variability in available surface

1 water year to year, so it's not like we're trying to
2 extract from small variations. It's really remarkable.
3 It's like a 50 percent offset. And some of the
4 discussions we've done -- because we do believe in
5 getting -- not only looking at data but talking to real
6 people.

7 When we talked to the Westlands people about that
8 offset, they hadn't looked at the data in that way, and so
9 they were sort of interested in it. But, you know,
10 there's a lot of good reasons why you don't have that
11 full one-to-one offset. And that probably gets us into
12 too much of ag economics, so let me just say that's not
13 unreasonable.

14 So what's interesting is if you use that
15 approach, that's 50 percent offset until you hit your
16 maximum pumping, what that's going to do, it's going to
17 reduce a bit your stressor, to use your concept. I agree
18 about increased groundwater pumping is going to be a
19 stressor in this area. It reduces the pressure there, but
20 it's really going to increase the land following by a lot.

21 So in terms of your point, you know, there's two
22 models, let's say. It's 100 percent offset until maximums
23 hit. A 50-50 offset, 50 percent offset until the same
24 maximums hit. One's going to have a little less stressor
25 than the other, but one's going to have a lot more impact
26 on the local economy. And so what we're doing, again, is
27 trying to look at experiences anywhere we can find them
28 and how to see what happened, to help us inform. And, you

1 know, as you can imagine, that's -- those differences are
2 going to have -- you know, where does reality fit within
3 those is going to, you know, be really -- those are
4 different futures.

5 MR. GROBER: So you've been -- I guess it's never
6 seems to be a friendly phrase, but you were putting not
7 words in my mouth, but you were saying things that I was
8 saying. Let me say something back.

9 DR. SMITH: Good. No, no, no. I was letting you
10 know how I characterize your approach; that's all. That's
11 all. Just being honest.

12 MR. GROBER: So an analysis that, say, looked at
13 no additional groundwater pumping, your suggestive that
14 would be a better reflection --

15 DR. SMITH: No.

16 MR. GROBER: No?

17 DR. SMITH: Before SGMA's --

18 MR. GROBER: Or it would be -- it would be a
19 glide slope down to --

20 DR. SMITH: Yeah.

21 MR. GROBER: -- to (unintelligible).

22 DR. SMITH: Another one, okay, real simple. A
23 hypothetical. And you say math is good. I agree with
24 you. Math is good. As a former math major, math is
25 great.

26 I got a situation where I had 100 acre-feet of
27 surface water. I lose 50. I had a 25 -- 100 -- 25
28 foot -- 25 acre-feet of groundwater pumping for a loss.

1 Rather than, you know, increasing to 75, it only
2 increased, you know, by half of the loss. And as you got
3 more lost groundwater, you could increase your pumping
4 until you hit that maximum. Because what you guys do is
5 you have the full offset until the maximum's reached.

6 MR. GROBER: And you're saying there should be
7 some glide slope?

8 DR. SMITH: Yeah, glide slope. And I guess
9 the -- our argument's based on looking at over 20 years of
10 experience of what's happening in Westlands, as opposed to
11 just, oh, isn't this a cool assumption, you know. And
12 that will have very different impacts. It would be less
13 stress on the groundwater base, but there's still a lot of
14 stress relative to today.

15 MR. GROBER: Yeah, but you're saying it would
16 adjust over time.

17 DR. SMITH: It should adjust over time. Now,
18 when we get to SGMA, I don't see -- until you start adding
19 recharge projects or something else, until SGMA, you
20 cannot increase your groundwater pumping. I would not
21 blame the reduction in groundwater pumping fully on the,
22 you know -- you know, the flow restriction. You have an
23 implementation of SGMA, whenever it's going to occur, 10
24 years, 15 years, whenever that shift point's going to be.
25 But once we get into that SGMA world, the idea that we can
26 increase ground pumping -- groundwater pumping at all to
27 offset the loss of surface water is just problematic.
28 It's just an opinion.

1 MR. GROBER: No, no. I -- that's -- this is
2 what's great about panel discussions.

3 DR. SMITH: Right.

4 MR. GROBER: So I look forward to seeing what
5 assumptions you would be --

6 DR. SMITH: Right.

7 MR. GROBER: -- suggesting and then also how you
8 would suggest dealing with what I characterize as
9 uncertainty because there's the recharge part of the
10 equation. Because there's a lot of big unknowns, and I
11 think all of this useful discussion --

12 DR. SMITH: Yeah.

13 MR. GROBER: -- shows what a big case somebody
14 already thinks. It's not what (unintelligible) is.

15 DR. SMITH: (Unintelligible) follow up. Okay?
16 So, therefore, I think we, in our opinion, we think the
17 baseline of analysis -- again, we don't -- we think the
18 short-term, just looking, averaging with the short-term
19 model is not the right -- you got to look at it more of a,
20 you know, a longer-term perspective. Within that
21 longer-term perspective, we're going to hit out of the box
22 increased groundwater pumping either by your 100 percent
23 offset model or 50 percent offset model, whatever it is,
24 until you get to SGMA.

25 And once you get into SGMA, you're going to
26 transition to a new world where there's no offset of
27 groundwater pumping in response to the flow objectives --
28 and here's where we get some common ground, I hope --

1 until we do new investment. Would you agree with that
2 sort of definition of a baseline?

3 MR. GROBER: When you say, "new investment,"
4 meaning --

5 MR. BASS: Recharge.

6 DR. SMITH: Recharge.

7 MR. GROBER: Oh, yeah. Uh-huh.

8 MR. BASS: Or other actions, right.

9 DR. SMITH: Or other actions.

10 MR. GROBER: Yes. I think it's important to
11 note -- again, I'm -- you know, of course I'm both
12 defending and disclosing our analysis, but some of this
13 discussion really gets at the crux of, say, why we didn't
14 use the 2014 levels of groundwater pumping. Because
15 rather than that glide slope approach, which you're
16 referring to, it's rather looking at, well, how about a
17 lower level that is, perhaps, underestimating what the
18 current capacity is just because that's, as we
19 characterize it, more sustainable than 2014 levels.

20 DR. SMITH: Right.

21 MR. GROBER: I don't think we're disagreeing
22 about, you know, big concepts.

23 DR. SMITH: Yeah. Well, that's -- that's why
24 it's good to start the first discussion. We see how we've
25 looked at the world, same or differently. Yeah, because I
26 agree with you too. To think you could put the
27 (unintelligible) indefinitely from 2014 would be
28 irresponsible analysis, because if we think of the Supreme

1 Court's decisions in groundwater adjudications, a concept
2 of safe yield is really sort of average recharge plus the
3 concept of temporary surplus. And the concept of
4 temporary surpluses in light of the fact you don't always
5 pump, you know, the average annual recharge, your demands
6 are low or (unintelligible) or whatever. So you have,
7 like, something in storage so you can peak above safe
8 yield for a few years. And then all the groundwater
9 adjudications in California, that's what watermasters are,
10 you know, always trying to keep track of.

11 And so I do agree that to look at peak stressing
12 in response to a drought and have a model that thinks,
13 well, we can just go up there indefinitely is just --
14 that's bad resource economics anyway. I --

15 MR. WARD: While we're all enjoying this two-way
16 conversation immensely, believe me, we've got about 15
17 minutes left.

18 DR. SMITH: Yeah.

19 MR. WARD: So, Dave, did you have -- I sense
20 you --

21 MR. WHITE: I do. And I still don't understand
22 this regional -- and maybe it's just me. I'm a little
23 dense. But this regional economic impacts, you did not
24 take into consideration the processors?

25 DR. SMITH: Yes, they did not.

26 MR. WHITE: That you did not? It was just
27 agricultural output; correct?

28 MR. WEGGE: The processors were evaluated but not

1 as part of the regional economic analysis using IMPLAN.

2 MR. WHITE: Okay. Well, to me, that's a very
3 significant flaw in your study because here, at least in
4 our county, we have a lot of very significant processors.
5 And I can tell you anecdotally that when fields go fallow
6 and tomatoes are not grown, the processors react to that.
7 They lay people off. They don't produce as much.

8 UNIDENTIFIED SPEAKER: They move.

9 MR. WHITE: Or they leave because they can't
10 expand. So to me, that's a major flaw in your analysis.

11 MR. WEGGE: Let me -- let me clarify something.
12 All I was saying was that we didn't use this particular
13 model to look at the effects on processors. We looked at
14 the effects on processors, but we did not feel that IMPLAN
15 was the right tool to look at those effects.

16 MR. WARD: Where was that in your --

17 DR. SMITH: Which tool did you use then?

18 MR. WEGGE: We didn't use a tool. We --

19 DR. SMITH: That's right. So, therefore, it
20 wasn't -- see, when you say you didn't use a tool, like
21 his presentation, we can go back to the slides, it was all
22 down. You didn't go forward and then you say this is the
23 IMPLAN results.

24 MR. WEGGE: Right.

25 DR. SMITH: It didn't look forward. So these
26 results are without looking at the processors, and now I
27 hear you say: But we did something else.

28 MR. WEGGE: Yes.

1 DR. SMITH: And as Walt said, where is that in
2 the document?

3 MR. WEGGE: Well, we talked about this earlier.
4 It's in Chapter 20, Chapter 11, and Appendix G.

5 MR. WHITE: Well, I guess what I would like to
6 see --

7 MR. GROBER: I just wanted to -- we'll have more
8 information on this on December 5th or 12th. I don't know
9 when we're discussing the economics, but our economic
10 expert is not here today. And I think in conversations
11 we've had with him, and I can't refer you to where in the
12 document it is, but some of the variability or the ranges
13 that were considered in terms of how the processors would
14 be considered, that would be absorbed by the pros -- crops
15 from out of area and shipping and things like that. But I
16 will -- we'll have more of the details of that on the 5th
17 or the 12th.

18 MR. WHITE: I can tell you anecdotally that many
19 of our processors have local supply, and it is because
20 many of them are farm fresh, want to be quick to market.
21 And, for example, one tomato processor here, their whole
22 mantra is that they can get their tomatoes in the can in
23 six hours. So it does have an effect. And I would like
24 to see a chart -- this regional economic impacts chart, I
25 would see -- I would like to see the processors included
26 in that, because I think it's going to be significant.

27 MR. GROBER: Well, we -- we recognize, I think,
28 that it is important. We just felt that the tool that we

1 used to do the analysis of crop production was not the
2 right analytical tool to evaluate the effects on
3 processors and dairies.

4 DR. SMITH: So, Walt, is what I'm hearing -- let
5 me see if I can -- because I know my client will ask me:
6 What the heck does all this mean? I think when Tim did
7 the presentation, it was step by step. It was good. It
8 was appreciated as the IMPLAN results. These are the
9 IMPLAN results. So, therefore, the answer to your
10 question is this does not include the processor
11 (unintelligible) issue.

12 Now, you're saying it was addressed elsewhere,
13 and we'll reiterate again, because we missed it the first
14 time, but it's -- you know, you read stuff; you miss it.
15 But then I'm puzzled. If you had that elsewhere, why
16 wasn't that included in your full -- we get IMPLAN plus
17 the other work to get to the full result?

18 MR. WEGGE: Well, because, one, we did not
19 estimate -- we described what we thought the effects would
20 be in terms of whether processors -- as you pointed out,
21 some of them get a large share of their product locally;
22 some of them don't. Those are issues that from a modeling
23 standpoint you need to be able to figure out. And the
24 IMPLAN model doesn't allow for that, so it's beyond the
25 capability of the IMPLAN model to accurately capture that.
26 So --

27 MR. WHITE: I get that. But, again, if you're
28 going to be presenting to the public an argument of this

1 is what the impact is going to -- and at least this is
2 what's being presented to you. And I -- maybe my
3 assumption's wrong, but if this is the same chart that
4 you're intending to show the Water Board of what the
5 impacts are going to be and you're not articulating
6 strongly enough what the impacts are going to be to the
7 whole economy, not just to ag but to processors, to the
8 community, and et cetera, then I don't think they're going
9 to get the whole picture. Despite the fact that it might
10 be buried somewhere in the report, it needs to be shown
11 very clearly.

12 MR. GROBER: And your point is well taken which
13 is why, I believe -- and we'll be -- we'll have to talk to
14 the other expert that was involved in this. And my
15 thought is that it's covered implicitly, but your point is
16 well taken; show us where is it. So hold that thought.

17 DR. SMITH: (Unintelligible) the math.

18 MR. WEGGE: And the other point I'd like to make
19 about the other person who couldn't be here today who is
20 at UC Davis, works at UC Davis, he would have been the one
21 to make contact with the processors, contact with the
22 growers. We collectively don't know exactly all the
23 contacts he made. So I know that he did, but I can't sit
24 here and tell you what they are. But --

25 DR. SMITH: Yeah.

26 MR. WEGGE: -- so he would be the best person to
27 explain that. I know he didn't just, you know, sit in his
28 office at UC Davis and run the model and say, okay, here

1 are the results. It was --

2 DR. SMITH: Well, that's fair.

3 MR. WARD: Who is that specifically?

4 DR. SMITH: I think Lund, Lund. Lund, isn't it?

5 MR. WEGGE: Josué --

6 UNIDENTIFIED SPEAKER: (Unintelligible).

7 MR. WEGGE: Azuara.

8 UNIDENTIFIED SPEAKER: I'm getting

9 (unintelligible).

10 DR. SMITH: It's someone. It's someone, yeah.

11 MR. GROBER: Josué Medellín-Azuara.

12 DR. SMITH: Oh, okay.

13 MR. WHITE: May I ask another question? And

14 actually, Jason and I were talking about this. Okay. For

15 example, let's suppose the water -- you know, the water

16 flows are increased to the Delta, farmers lose a certain

17 percentage of water, and we talk about fields going

18 fallow. Now, some fields, the loss -- there's not a huge

19 impact pertaining to the investment they made in those

20 fields because they could be row crops. But what about

21 the loss of investment if a farmer has to -- if a farmer

22 has to destroy his acreage of almonds or something that

23 really required a huge investment? Is that figured -- is

24 that -- have you determined that at all in this model?

25 MR. GROBER: That's available in our appendices

26 that show that with -- well, that's what the SWAP model

27 does is that it does not hit the permanent crops. Does

28 not hit the high value crops. It's just having an effect

1 on the lower value crops.

2 MR. WEGGE: What he means by "hit," I mean it's
3 considered in the model, but the extent to which the
4 reduction in water affects different crop types, it works
5 sort of from the bottom, lower value, net value crops, and
6 it works its way up. So if you're just eliminating or
7 reducing a small amount of water, it's going to only
8 affect the lower value crops.

9 DR. SMITH: Under the model.

10 MR. GROBER: So it's -- yeah, so it's in the
11 model, but it doesn't -- the effect on almonds doesn't get
12 triggered because there's not the level of reduction of
13 water in order to have that effect.

14 DR. SMITH: Commissioner?

15 MR. O'HAIRE: Well, yeah, I was going to say in
16 reality probably -- I don't know how accurate that is.
17 You go up and down the Valley and you see orchards being
18 pulled out, ripped out. So I'd say it will affect some of
19 the permanent crops eventually, sure.

20 I did have a question, sort of -- a couple
21 actually, real quick. I was just wondering -- really a
22 big-picture question for me. I know we've got a lot of
23 detail here. We're talking about all these impacts,
24 numbers, and so forth. But, you know, when you're putting
25 budgets together, when it's your household or your company
26 and -- you know, I always, as a manager, I want to see the
27 worst-case scenario.

28 And, you know, we're talking -- I had mentioned

1 earlier about this. We talked about the 210,000 acres
2 fallowed, and we've talked about all these different
3 downstream effects. And to me, that's what I would -- I
4 mean, I'm just speaking for myself personally. That's
5 what I would want to see. I would want to see, okay,
6 what's the worst-case scenario here? What are we looking
7 at? You know, give me all -- everything that's tied to
8 this. I want the big number. That may not be what
9 happens, but I want to see it. And I think the public
10 should see it, because it could actually happen. And I
11 think we need to be aware of that.

12 And what I've found out in life is, you know,
13 especially with government, a lot of times they
14 underestimate, you know. I'm not saying anything
15 particular about you. Just in general, federal
16 government, whatever. They say, oh, it's going to cost \$3
17 billion, and by the time it's done, it's, you know, \$9
18 billion. It's three times that.

19 So I'm not saying that's the situation here, but
20 I think we need to see the big number. That's what I want
21 to see. I want to see the full -- give me the -- you
22 know, I want to see the whole nine yards as to what the
23 potential impact to this -- to this area could be. And it
24 should be down to the detail where we can see it.

25 MR. GROBER: And --

26 MR. WHITE: And we can understand it.

27 MR. GROBER: And we appreciate that sentiment,
28 but it's -- the problem is that cuts both ways, especially

1 when you're doing like a CEQA analysis, CEQA document.
2 Because we don't want to just overstate every impact and
3 then just sort of, well, everything's bad and everything's
4 expensive and then it doesn't really provide resolution on
5 what -- really what we're trying to do here. Which is why
6 the comments are good. We're trying to present what we
7 think are the real effects and also the real costs.

8 Everything we're hearing here, if you think there's
9 something different we should have, then we will need --

10 MR. O'HAIRE: But in reality, it's a range. I
11 mean life's -- we're never going to hit it -- we know
12 that. You can't hit it exact.

13 MR. GROBER: Sure.

14 MR. O'HAIRE: You're not God.

15 MR. GROBER: And there's some --

16 MR. O'HAIRE: It's nice to have that range and
17 say we -- gee, this is at -- where at one end we think we
18 can be and here's the other end, and it's probably going
19 to be somewhere in between there, you know.

20 The other thing I just quickly would say -- maybe
21 it's still on our topic here -- it's back -- it's sort of
22 back to the residential areas. Did you work with -- I'm
23 just -- because I get down in (unintelligible). Maybe
24 it's small stuff, but did you -- did you talk with the --
25 or did you work with the water districts to see what type
26 of impact this would mean to the residents as far as like
27 watering? Like I -- again, I'm going back to my own
28 situation. I live in town. We're down to the wintertime

1 one watering a week, summertime two waterings a week. And
2 I'm sitting here thinking, gee, are we going to be down to
3 one watering a week during the summertime? I don't know.
4 I don't know if that is going to mean that's going to
5 happen.

6 They're already cutting out a lot of trees in
7 Modesto because of the drought and because of the lack of
8 watering. There's a -- there's other impacts, as we
9 mentioned a little bit earlier, but, you know, there's
10 other impacts besides -- you know, there's property value.
11 There's -- trees are going to be going. There's --
12 rotting and dying and infestation, beetle infestations.

13 There's a whole lot of other things, I think,
14 that would happen. That's very important to the residents
15 to know that, you know, possibly your yard trees could be
16 dying, your yard is going to be going brown and -- you
17 know, and what's the impact of that? I don't -- you know,
18 I don't -- was that studied? Is that included in here
19 anywhere?

20 MR. GROBER: Not at that granular level that
21 you're describing.

22 MR. O'HAIRE: Okay.

23 DR. SMITH: Well, I promised you one thing is
24 that I -- we'd take you up on your great plea that you
25 started with this morning. What from our perspective
26 could you consider doing differently or better? Okay. In
27 no particular order, and just to just show you, no
28 particular order, lot of scribbling, I'm going to try to

1 capture the essence of these two panels.

2 I think you need to define your time horizon.
3 And where does the interface with SGMA implementation
4 happen within that time horizon? I know everything's
5 going to be tough, so I don't -- I won't go each into
6 these, how tough. But at least consider doing that.

7 I think you've also heard that averages are good,
8 but you've got to realize that economically they can be
9 misleading, so open your mind up to think about
10 volatility.

11 Similarly, consider reliability. I think we have
12 to be sure how we think about how we're addressing
13 sustainability. I think to ground truth models and
14 assumptions to the extent you can is a real good idea. I
15 mean, I share with you we're looking at a couple things of
16 what's happened in Westlands and Central San Joaquin.
17 There may be other things, so be mindful.

18 In terms of the issue about orchards coming out,
19 Commissioner, I do know that if you take the 5 to the 46
20 to the 101, you can see how that The Wonderful Company,
21 aka, Paramount, have ripped off -- have taken down
22 hundreds of acres. So ground truth your models.

23 I think in terms of other things and challenges,
24 know the structure of the local economy. I think you
25 heard today that there's significant issues related to
26 impacts downstream from ag as it relates to processing,
27 dairies, feed lots. Sorry Frito-Lay, you know, my
28 stepdaughter. You know, you have to think about that

1 because what we're hearing from the economic development
2 officials of the states -- from the counties who have been
3 on this panel today, that is a material issue.

4 And I think what my other punch list would
5 include, that -- and I think this gets your point,
6 Commissioner. We have to think in terms of risk analysis;
7 right? What is our risk? These are hard things to do. I
8 mean, we do it. You know, it's hard but, you know, to not
9 do risk analysis at all is, you know, is troubling, at
10 least to some of us.

11 And then I think the last thing is to say let's
12 keep the discussion going. Thank you.

13 MR. GROBER: Thank you.

14 MR. WARD: And that's it. We ended it right on
15 time.

16 MR. GROBER: You're a great timekeeper.

17 MR. WARD: You'll be seeing -- you'll be seeing
18 more of us, hearing more from us. We're not going away.
19 And --

20 MR. GROBER: We -- even if we might not always
21 look like it, we appreciate the opportunity. Hopefully we
22 do look like it.

23 MR. WARD: All right. We do. Thank you all very
24 much, and everybody who stayed all day long.

25 As Keith Boggs said, we'll have this out on our
26 website. So whatever that's worth to the people, that's
27 where you'll be able to go back and review it. Thank you.

28 --o0o--

1 STATE OF CALIFORNIA,)
2)
3 COUNTY OF STANISLAUS.)

4
5 I, LISA S. COELHO, a Certified Shorthand Reporter
6 in and for the County of Stanislaus, State of California,
7 do hereby certify:

8 That in December 2016 and January 2017 thereof, I
9 transcribed the text/electronic/audiotaped recording of
10 the proceedings; that the foregoing transcript constitutes
11 a full, true, and correct transcription of all proceedings
12 had and given.

13 IN WITNESS WHEREOF, I have hereunto set my hand
14 and affixed my Official Seal on January 9, 2017.

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LISA S. COELHO, CSR #9487
Certified Shorthand Reporter