BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

CALIFORNIA WATERFIX WATER RIGHT CHANGE PETITION HEARING	)))

JOE SERNA, JR. BUILDING

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

BYRON SHER AUDITORIUM

1001 I STREET

SECOND FLOOR

SACRAMENTO, CALIFORNIA

PART 1A

FRIDAY, AUGUST 5, 2016

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APPEARANCES

CALIFORNIA WATER RESOURCES BOARD

Division of Water Rights

Board Members Present:

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

Staff Present:

Diane Riddle, Environmental Program Manager
Dana Heinrich, Senior Staff Attorney

PART I

For Petitioners:

California Department of Water Resources:

James (Tripp) Mizell
Thomas M. Berliner

INTERESTED PARTIES:

State Water Contractors:

Stefanie Morris

San Luis & Delta-Mendota Water Authority:

Rebecca R. Akroyd

Westlands Water District:

Rebecca L. Harms

The Sacramento Valley Group:

David Aladjem

Sacramento County Water Agency:

Aaron Ferguson

INTERESTED PARTIES (Continued):

North Delta Water Agency & Member Districts:

Kevin O'Brien

The City of Brentwood:

David Aladjem

East Bay Municipal Utility District:

Fred Etheridge

Friant Water Authority & Friant Water Authority Members:

Gregory Adams

For Bogle Vineyards, Diablo Vineyards, Stillwater Orchards and Islands, Inc., City of Antioch

Osha Meserve

Central Delta Water Agency, South Delta Water Agency (Delta Agencies), Lafayette Ranch, Heritage Lands Inc., Mark Bachetti Farms and Rudy Mussi Investments L.P.:

Dean Ruiz, Esq.

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

Thomas H. Keeling

I N D E X

E X H I B I T S

SACRAMENTO COUNTY WATER AGENCY EXHIBITS:

Friday, August 5, 2016 9:00 a.m.

PROCEEDINGS

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CO-HEARING OFFICER DODUC: Good morning, everyone. It is 9 o'clock, and welcome back to the California WaterFix Petition hearing.

In case you've forgotten overnight, this is Tam Doduc, Board and Hearing Officer. To my right is Board Chair and Co-Hearing Officer Felicia Marcus, and Board member Dee Dee D'Adamo. To my left are staff assisting us today, Dana Heinrich and Diane Riddle.

A couple quick announcements.

If an alarm sounds, we are required to evacuate immediately. Please take the stairs and not the elevators down to the first floor and exit out to the park. If you cannot use the elevator, you will be directed to a protected vestibule.

This hearing is being recorded, Webcasted and a court reporter is present, so when you are speaking, please use the microphone.

And lastly and most importantly -- I'm now turning to look at Ms. Riddle -- please take a moment to put your phone on silent or do not disturb. Again, if you think it's set that way, please check, Miss Riddle.

MS. RIDDLE: It actually was.

CO-HEARING OFFICER DODUC: All right. With that, I believe we are ready to proceed to Petitioners' second panel.

Would you have your witnesses rise and raise their right hands.

(Witnesses sworn.)

JOHN BEDNARSKI, GWEN BUCHHOLZ and SERGIO VALLES called as witnesses for the Petitioners, having been first duly sworn, were examined and testified as follows:

CO-HEARING OFFICER DODUC: Thank you. You may be seated.

Mr. Mizell.

MR. MIZELL: Thanks. Good morning.

The panel you have before you today is on the engineering testimony. These are the chief -- Yes, very exciting technical information that's going to go on today, so . . .

The three panel members are John Bednarski, Sergio Valles and Gwen Buchholz.

As we indicated before, we had a fourth member who is not available, but should his expertise be required, we'll bring him back for cross-examination purposes at a later date.

So, before we begin, Mr. Bednarski, can you

please tell me if DWR Exhibit 17 is a correct copy of your Statement of Qualifications.

WITNESS NO. 1: Yes, it is.

MR. MIZELL: And is DWR-57 a correct copy of your testimony?

WITNESS NO. 1: Yes, it is.

MR. MIZELL: Thank you.

Sergio, is DWR-18 a correct copy of your SOQ?

WITNESS NO. 2: Yes, it is.

MR. MIZELL: Thanks.

And is DWR-58 a correct copy of your testimony?

WITNESS NO. 2: Correct.

MR. MIZELL: And, Miss Buchholz, is DWR-32 a correct copy of your SOQ?

WITNESS NO. 3: Yes, it is.

MR. MIZELL: And is DWR-72 a correct copy of your testimony?

WITNESS NO. 3: Yes, it is.

MR. MIZELL: Thank you very much.

If it's the right time I can have the panel start their direct testimony.

CO-HEARING OFFICER DODUC: Please do.

DIRECT EXAMINATION

MR. MIZELL: Mr. Bednarski, please summarize for the Hearing Officers your written testimony using the

subject you prepared.

WITNESS BEDNARSKI: Yes. Thank you.

Good morning, Members of the Board. I appreciate this opportunity to present to you the engineering aspects of the California WaterFix.

There'll be three specific areas that I'll be addressing today in my testimony:

I'll be talking about the proposed facilities for the California WaterFix and the refinements that have been made over the last several years as we've been going through the EIR/EIS process.

I'll be talking also about the construction potential effects to water users and the mitigation measures that have been incorporated into this Project.

And also, finally, talk about flood protection measures.

There are five areas of features that I will be discussing today that, together, comprise the California WaterFix. We have the intake facilities, the tunnels, forebays, Clifton Court Pumping Plant, and the Head of Old River Operable Gate.

As the Engineering Team has been developing the engineering components of these facilities, there have been a number of aspects that we have worked to incorporate into developing all of these components into

a cohesive system. Let me go through those just briefly.

We've been applying all of the key parameters given to us by the Department of Water Resources to give them a fully operational and functional system.

We've been striving to reduce, minimize or eliminate any impacts to the surrounding areas in the Delta that these facilities will be constructed in.

We've been responding throughout the process to community input that we've received along the way from various public meetings and responses to comments.

We've been striving to improve the system flexibility for future operations of the system, and also making accommodations to improve system efficiency overall for the California WaterFix system.

I'm going to present now a series of panels that will walk the Board through some of the major revisions that have been made to the California WaterFix over the last several years.

(Slides displayed on screen.)

WITNESS BEDNARSKI: This first panel represents the system as it was characterized when the administrative draft of the Project was issued in July of 2012.

This was a 15,000 cfs system with five river intakes, pump stations at each of those five river

intakes, a large Intermediate Forebay as we refer to it, and then what we called an intermediate booster pump station that was located near that Intermediate Forebay.

And I'll go into more detail on these specifics. I know these graphics are a little bit small.

But, again, this was a 15,000 cfs system and it conveyed the water through two 33-foot diameter tunnels down to Clifton Court Forebay.

Now, responding to comments that we have received after the Draft EIR was issued.

Revisions were made to the program. The capacity was revised to 9,000 cfs. We relocated and revised the size of the Intermediate Forebay, reconfigured the alignment of the tunnels so that there was a greater use of public lands and to avoid some areas that we had received comments on. We relocated the terminus of the Project at the north end of Clifton Court.

After that time, a number of optimizations and revisions were made to the Project again, and these were issued in the Revised and Recirculated EIR in July of 2015, and that is the present Project that is in front of the Board for your review.

And this Project now includes -- We still have three river intakes. It is still a 9,000 cfs Project.

However, we have moved the pump stations from each of these intakes down to the south end of the Project. So under the current configuration, the water will now flow by gravity from the Sacramento River approximately 40 miles south to Clifton Court. And at that point, we have a 9,000 cfs pumping plant that will lift the water from the tunnels and place that into the north part of Clifton Court.

So now I'm going to kind of walk through some of the engineering refinements that we have made over the last several years to address again some of the comments that we have received to the EIR, comments that we've received from actually speaking with the community, and, also, as we revised the EIR, reducing other impacts along the Project.

2013 configuration of the intakes included pumping plants at each of the three river intakes. These were 46,000-square-foot two-story buildings. Along with all the mechanical and electrical equipment, these would require large high-voltage transmission lines to be brought into each of these three sites in order to power these facilities.

The first revisions that we made to that was to remove the pump stations from these locations and combine the three pump stations into one down at Clifton Court.

This allowed us to eliminate, of course, the construction of the pump stations but also remove the high-voltage transmission lines that would be there permanently if otherwise we had pump stations at those locations.

Another revision -- and this appears in the Recirculated EIR -- was that we reconfigured the sedimentation basins that collect the water that come through the screening structures along the intakes.

These sedimentation basins are very important in that they will drop out any sediments that are coming down the Sacramento River that we want to keep out of our tunnels.

So, previously, we had concrete sedimentation basins that were supported by thousands of concrete piles that would have to be driven into the ground or constructed into the ground.

So, by turning these now into earthen-lined basins, we've been able to reduce the amount of concrete at these structures by about 80 percent. Our feeling is that this significantly reduced the construction impacts at each one of these three intake structures.

We are also proposing to use a series of slurry cutoff walls that will actually ring the sedimentation basin sites, and you will see this in a following video.

But the slurry cutoff walls will effectively

isolate the groundwater, the subsurface water within the sedimentation basins from the surrounding area so that we will be able to dewater inside the sedimentation basin area for our construction activities without affecting surrounding groundwater levels.

So, I mentioned earlier we relocated and resized the Intermediate Forebay. You have here the original Intermediate Forebay when we had 15,000 cfs Project. The Intermediate Forebay by itself was approximately 850 acres.

You can see down below it a hashed box. That was the intermediate pump station so, collectively, these two structures were approximately a thousand acres. They were located on the Pearson Tract close to the intakes. They would collect all of the water from the five intakes at that time.

You can see at the right of that slide, that's the Stone Lakes Preserve area, so it was located very close to the Stone Lakes Preserve area.

We have since that time relocated the Intermediate Forebay and dramatically reduced its footprint. So the footprint of the forebay now is approximately 97 acres, and with the hatched area, which is an overflow containment area, it's approximately 125 acres there. So we've reduced the overall footprint

of the Intermediate Forebay by about eight-fold through this process. We've moved the Intermediate Forebay now to the Glanville Tract so it is away from the Stone Lakes Preserve area.

We made some modifications down at the Clifton Court. Originally, in the original Draft EIR, we had the tunnels terminating at the north end of Clifton Court. At that point, there was going to be a siphon under Italian Slough that would bring the water, the screened water, into the north portion of Clifton Court.

We have now terminating the tunnels on DWR property at the northeast corner of Clifton Court so there's no requirement for a siphon underneath Italian Slough at this point in time.

I might just point out that all the water diverted from the three screened intakes, the screened water will be delivered into the north half of Clifton Court.

Clifton Court will be bifurcated with a divider wall so that all the screened water is contained in the north half of Clifton Court. And then the south half of Clifton Court will be expanded in order to give DWR the same amount of operating volume in Clifton Court as they have now.

So we'll be expanding Clifton Court to the

south so that they have the same operational volume so that, when we're in the dual operational mode, they can continue to bring water in from the Old River intake inlet into Clifton Court and it will continue to operate as it is.

The current Skinner Fish Screen Facility will also continue to operate as is. Our proposed California WaterFix will not impact the existing Skinner Fish Facility.

So, now we've put all the components together into the system, I'll just walk the Board through all the components so you can see this as it is presently structured.

You can see the tunnel alignment there from north to south. But we have our three river intakes along Sacramento River. As we're moving south, there's actually two -- three tunnels that collect the water from these intakes and then bring that water to the Intermediate Forebay. The Intermediate Forebay allows us to combine those three individual flows and split them equally between the two Main Tunnels that proceed from the Intermediate Forebay south.

At the bottom near Clifton Court, as I mentioned before, we have a new pumping plant, a 9,000 cfs pumping plant.

And then we have the Clifton Court Forebay which I just briefly mentioned in the previous slide. Clifton Court will be bifurcated in the half and the south half of that forebay will be expanded to the south.

Now, we have the tunnels. As I mentioned, we have what we call north tunnels and then the Main Tunnels.

The north tunnels, there's a collection of two different tunnels, approximately 13 miles, that will be collecting water from the three intakes and bringing that down to the Intermediate Forebay.

The Main Tunnels, or the twin tunnels, are the 40-foot diameter tunnels that will run from the Intermediate Forebay 30 miles -- approximately 30 miles south down to the pumping plant in Clifton Court Forebay.

Now, taken altogether, this is a very large tunneling Project. The tunneling construction costs represent about approximately two-thirds of the overall cost of the California WaterFix.

Now, we have, through our engineering work, done a lot of investigation into the size of the projects that we feel are -- can be readily developed. And by breaking up the contracts on the Main Tunnels into actually four smaller contracts, and then breaking up -- Each of those contracts is about seven and a half miles

of tunneling.

Breaking those up with intermediate vent structures halfway through, we've been able to segment this Project into what we feel are tunneling Reaches that can be very successfully designed and constructed by qualified tunneling contractors.

We've done quite a bit of work researching the industry and understanding the capabilities on a global basis of the capabilities of tunneling contractors and also manufacturers of tunnel-boring equipment, and we feel quite confident that there is a large inventory of both tunneling machine capability and also tunneling contractors that can successfully implement this Project.

Finally, the final component of the California WaterFix is the operable gates located at the juncture of where the Old River splits off from the San Joaquin River. This is the location where DWR presently installs a rock barrier on a seasonal basis, so there will be a permanent operable gate. And I'll discuss that a little bit further on in my testimony.

This is, like, a flow diagram just kind of breaking down the various components of the California WaterFix.

We have the three starting at the left, the three river intakes, each one sized at 3,000 cfs. The

size of these intakes is consistent with other successful intake -- screened intake structures along the Sacramento, Glenn-Colusa and Tehama-Colusa Water Districts. And so we feel again the technology and the engineering has already been developed for designing and constructing these types of intakes.

Sedimentation basins immediately downstream of the intakes will settle out any particulate matter before the water is deposited into the two smaller tunnels. It's actually shown as three here but one tunnel joins there.

Do you see, a 28-foot diameter tunnel joins the second tunnel at the Intake No. 3 and then two tunnels flow into the Intermediate Forebay.

Again, under certain water level conditions in the Sacramento River, water will be able to flow by gravity from the Sacramento River down to the combined pump plant at North Clifton Court. And under certain water level conditions, that water will be able to overflow at that point and go directly into North Clifton Court without pumping.

Under the other remaining operational conditions, the pumps will have to be operated to lift that water into Clifton Court.

After the Intermediate Forebay, then, you can

see the twin 40-foot-diameter tunnels convey the water equally down to the combined pumping plant and then into North Clifton Court.

Now, we'll talk about the intake structures from an engineering perspective.

The Engineering Design Team was provided with a series of design criteria that we utilized to determine the size and configuration of the intake screens and the structures that go with those screens.

This criteria was developed by the Fish Facilities Technical Team separate from the Engineering Team, and the size of the intake structures was determined by that team to be consistent with the size of other intakes that have been successfully developed on the Sacramento River.

So you can see the single intake maximum capacity is 3,000 cfs, three intakes along the river for a maximum capacity of 9,000 cfs.

And then one of the important criteria in sizing these screens is the screen approach velocity of .2 feet per second to protect the smelt. That is the smelt criteria that will allow the smelt to successfully pass by the screens without being entrained into the screens when the screens and the intakes are in operation.

So this is an overview of the intake structures. Again, you have the screens and a collection box system that's along the river. Channels will -- Box conduits, or concrete box channels, will convey the water from this distribution box into the sedimentation basins, and then the water will flow by gravity to the outlet structure which is actually the starting point for the tunnels. The tunnels are at the bottom of that outlet structure, and from there the water will flow, then, by gravity and be collected at the Intermediate Forebay.

This is a three-dimensional rendering of what the intakes look like.

You can see the pile foundation and the coffer dams will all be located below ground, and then above that will be the concrete structures that will house the screens.

The screens are shown in a -- in a light green color there just above the red coffer dam. Those screens are about 15 fight high. Their exact dimensions depend on which intake structure you're at. The darker green color is just a blank panel. That is not the screen structure itself.

But once the water flows through the stream, it will be collected in a distribution box on the back side.

And we've broken up the intake structures into

six specific areas. And you're seeing 1/6th of an intake structure here with the two box conduits that then lead away from that.

And the reason that we did that was, we wanted to ensure that we would get even flow on a consistent basis across all of the screens so that we could inform -- ensure a uniform flow through the intake structures.

These box conduits are important in that there are flowmeters inside of these box conduits. And where you see the call out for a slide gate, that is actually a control gate that will adjust up and down to ensure an even flow through each of these 1/6th modules of the intake structures. And in that way, we'll be able to successfully control the amount of water that's diverted from each of the intake structures.

So each of these intake structures will be built in these 1/6th modules, and then each intake structure will work in conjunction with itself to be able to evenly control the amount of flow that's being diverted from the Sacramento River down to the pumping structures in the south.

As I mentioned earlier, the water flows through the sedimentation basins and then drops into an outlet structure, which is actually the starting point for the

tunnels down below. The water will drop anywhere between about 100 to 125 feet at the intake structures before it enters the tunnels.

Okay. Now, I'll move into the next part of the presentation where we'll talk about some of the groundwater or subsurface water control measures that we have planned into the California WaterFix, and there's four different components that I'm going to discuss: Slurry cutoff walls, toe drains, the tunnel lining and system itself, and then finally some of the geotechnical studies and monitoring programs that will be undertaken as we move forward with the design and the construction of the facilities.

So the slurry cutoff walls are intended to hydraulically isolate the construction areas for dewatering. We will need to dewater areas in order to be able to construct the facilities. And in order to dewater those areas without impacting surrounding groundwater levels and groundwater wells, we're going to be constructing a series of slurry walls to isolate our construction areas from the surrounding areas.

We will also be utilizing the slurry walls to help us control seepage from any of the forebays and embankments that we will be constructing. And you'll see a cutaway later on that shows how these slurry walls will

be built into any of the levees that we will be constructing as part of these forebays and set basins.

We'll also be using a series of toe drains with any of the levees and embankments that will allow us to collect any seepage water so that it will not be -- you know, flow outside of our containment area.

Seepage water is a normal occurrence for levees. They can't be entirely waterproofed, but we want to be able to collect that water and then divert it back into our system rather than it becoming nuisance water surrounding our Project site.

Secondly, the tunnel lining system, extremely important. We're going to talk about that in a little bit more detail in a few minutes.

But the tunnel lining system is designed to be constructed in a way that will give us extended live time of basically a waterproofed tunnel environment, whether the tunnels are operating in order to present exfiltration from the tunnels when we're in operation, or if the tunnels are dewatered to prevent infiltration of groundwater into the tunnels.

Let's talk a little bit about dewatering and the use of the slurry cutoff walls as we're proposing.

In the Delta, and the areas of the California WaterFix, the groundwater level will be virtually at the

groundwater surface or very close to it, which would make it very difficult to construct the WaterFix facilities without doing a dewatering operation.

In the initial drafts of the EIR, DWR had recommended the use of dewatering wells and it disclosed that, if these dewatering wells were used, there be a very widespread cone of influence and depressed groundwater levels around these dewatering sites in order to dewater to the level that would be needed for our construction activities.

Since that time, we have modified our proposal and are instead proposing to use what we call slurry cutoff walls that will be installed around the perimeter of all of our construction sites in the Delta, in particular the intake structures, the Intermediate Forebays. And these will allow us to basically isolate our construction sites and the groundwater in those construction sites from any of the surrounding areas.

Once the slurry cutoff walls are installed, we'll be able to dewater that area without affecting the surrounding groundwater levels.

It's intended that the slurry cutoff walls will be developed and extended down to a depth that they intercept an impervious clay layer. And if that impervious clay layer is not found through our

geotechnical investigations, we will be able to create an impervious layer by a grouting operation that would be utilized to improve the ground in those areas.

So now I'm going to go through a short -- it's about a four-minute video that's going to go through the construction sequence on the intake structures, and I'll narrate that as we go along.

There's going to be a little bit of a warmup here.

(Videotape played.)

WITNESS BEDNARSKI: But as you're aware, there's three intakes on the Sacramento River along -- adjacent to Highway 160 between Courtland and Clarksburg on the east side of the Sacramento River.

We're going to focus on Intake No. 2 in this video.

One of the first activities we'll be doing is clearing the sites and preparing those for construction activities.

So, the footprints that we've shown in the environmental documents show the approximate sites that we will be clearing. And then --

Now, this is the first series of slurry cutoff walls that will be installed as part of the Project. You can see we excavate the material, put in a cementitious,

and now you can see the ring of the slurry cutoff walls around the Project site.

Once those slurry walls are installed, then, the dewatering wells can be installed within that enclosed area and we can begin dewatering that site.

As necessary, we'll be doing a ground improvement operation to inject grout into the ground to basically strengthen and stabilize that ground.

And then the next activity will be to remove any of the unsuitable subsurface materials, particularly peats and other soft materials, in preparation for construction of the box conduits.

These are the conduits that I showed you on that three-dimensional diagram that will allow us to monitor and control the flows and evenly distribute it across the entire length of each of the intake structures.

Now, with this Project, we will be relocating a portion of Highway 160 at the intake structures, and so all of the work that we're doing up to this point is a predecessor to relocating Highway 160. The present location of Highway 160 is where the intake structures will go. Once that relocation is completed, we will move the traffic on to the new portion.

Now, these are the first structural walls of

the intake structures to be completed -- they're called diaphragm walls -- and the differentiation between those and slurry walls is that there's actually reinforcing steel installed in these walls with knockout panels that will allow us to connect the actual intake structure to the conduits that have already been constructed behind those.

Then, next, we'll be installing the coffer dams along the Sacramento River, and this will allow us to isolate the work areas from the Sacramento River and then dewater that space between the coffer dam and the diaphragm cutoff wall.

Once the sheet pile wall is installed, we'll be able to excavate that area, again do any ground improvement that we need to stabilize that ground, and begin constructing and installing the foundation piles.

Now, the exact method that these piles will be installed, they can either be driven piles or they can be cast-in-place piles. This will probably be a means and methods that will be determined by the construction contractors when they propose their bids on the job.

Following the installation of the piles, the actual intake structure and distribution boxes will be constructed and the screens will be installed.

And then, finally, a series of collection

conduits will be installed on the back side of the screen intakes.

Again, ground improvement will be utilized if necessary. We'll be determining when ground improvement is necessary based on additional geotechnical investigations.

Finally, we'll begin working on the land side of the intake structures, constructing the outlet shaft. This will connect to the tunnels.

At a couple of the sites, this shaft may also be used to drive the tunnels from these locations, so we may have tunnel-boring machines launching from this location and moving outwards towards the Intermediate Forebay.

But, again, these outlet structure shafts will be constructed within the previously-constructed slurry walls, so they are not anticipated to be any impact on the surrounding groundwater levels.

Finally, the construction of all of the remaining land side facilities will be completed, and then the coffer dam will be removed.

Now, we need to flood the inside of the coffer dam in order to be able to pull the sheet piles out. That's what you're seeing there.

Once the sheet piles are removed, we'll be able

to begin moving water in through the screens and into the outlet shaft.

So, that completes the -- kind of the overview of the construction activities planned for each of the intakes.

So the next thing that I'd like to talk about is the existing water diversions.

We've done field investigations. We've also looked at the State -- State Board records and we've identified that there are 10 users, I believe -- 10 users of water that will be affected by our operations and construction at the intake; 10 of these will be temporarily affected by our construction activities; and five will be permanently affected.

I'll also talk now about some of the mitigation measures for the temporarily affected.

We are optimistic that we will be able to extend their existing piping from the river and relocate some of their pumps that provide water from the river without having to install new actual diversions at the river. So that will be our first option.

Then, secondly, if we're not able to do that for these temporarily-affected diversions, we'll be installing new wells for them on a temporary basis, or providing them an alternate supply of water for their

irrigation purposes.

And then the mitigations for the permanently affected, we will be going through the same temporary mitigation measures. But then, if they're permanently affected, we will be relocating their diversions outside of the intake structures themselves and then -- or, if that is not possible, we will be providing them a turnout from the sedimentation basins located at the intake structures.

So I'm going to go through each of the intakes and you'll be able to see where these affected turnouts are located.

At Intake No. 2, there are six total. Three of them are permanent -- permanent relocations that will have to take place because they fall right within the footprint of the intake structures.

And then the remainder are -- The remaining three are temporary relocations. You can see them in green. These are located where the Highway 160 relocation will take place.

So we're -- Our first, again, mode of mitigating these relocated temporary diversions would be to extend their existing infrastructure away from the Project site and then reconnect their -- their pumps and other infrastructure to allow them to continue to use

their existing diversions.

One of the things that we found out when we were researching the subject is, there are a couple -- several of these diversions were not in the State Board's database so we're going to have to do more investigations on those as far as whether they are actually legal users of water.

At Intake No. 3, we have no permanent -- permanent relocations. All of these are in the State database. These will be temporary relocations.

Then moving on to Intake No. 5, there's four total. Two of these will be permanent relocations. Again, both of these two were not -- were not within the State's database so we'll have to do more investigation on those. We have no information as to the amount or quantity of their -- their diversions.

Okay. I've got a couple short videos on the tunneling coming up, but what I wanted to do was sort of set the stage for -- for those by giving you an explanation as to our plans for the Main Tunnels, but these would be representative of the north -- north tunnels also.

So, there's two 40-foot inside diameter tunnels. They'll be separated by about 90 feet. The size of the tunnel-boring machines that will be utilized

will be about 45 feet in diameter.

They're relatively deep tunnels, about 150 feet deep. Again, we're expecting that the ground water level is virtually at the surface, so this is considered soft ground. We have silt, sands and clays in various layers all the way through the ground. We have a peat layer at the top. In some areas, it's deeper than others.

The water pressure, because it's fully saturated ground, is about 60 pounds per square inch at the bottom of the tunnel. So that's roughly what you might have at your garden hose depending on the water pressure at your house.

And it may not seem like very much, but when that water pressure is applied across the face of a 45-foot excavation, the forces there are very large, and if we were not able to successfully control those forces as we open up that tunnel for excavation, that ground would want to rush in and basically flood the tunnel and the tunnel-boring machine.

So the technology that we are planning to use is what they call a pressurized face tunnel boring machine. It means that the tunneling equipment itself will exert a counterforce with air pressure to basically resist the water pressure that wants to move the soil into the tunnel.

And I think the video does a pretty good job of describing that. On the right-hand side of this slide, you can see the tunnel-boring machine that was used recently for the Port of Miami. It was roughly the same size as the machines that we're proposing for this Project. It was an -- also a pressure -- a pressure-faced tunneling machine.

These machines are used very commonly throughout the United States. In fact, a few years ago, Sac Regional Wastewater District used about a 12-foot diameter tunnel-boring machine for one of their sewer tunnels.

Other places: Like the Port of Miami; many of the Metro tunnels that are done in Los Angeles; San Francisco; throughout the United States; the Seattle large SR 99 tunnel; in Washington, D.C., there's a number of these types of tunnels. Basically, this technology is pretty standard on a worldwide basis.

So now what I'd like to do is move into two videos that will explain how these machines operate and specifically how they operate to control the ground in front of the machine in a -- in a controlled manner so that tunneling can take place successfully.

And then the second video discusses how the tunnel will be constructed after the machine passes by.

We are planning -- proposing to use what we call a concrete segmental liner. It will be a segmented liner that will be constructed in pieces with gaskets to allow us to con -- to eliminate water flow either out of the tunnel or into the tunnel, and you'll see a short video on how those are assembled.

This is a narrated video so there should be some sound with it.

(Videotape played as follows:)

"With its rotating cutting wheel, the tunneling machine breaks the material from the tunnel face. The material is then transferred to the belt conveyer system in the rear of the shield via a screw conveyer while the hydraulic cylinders press the machine forward continuously.

"The reinforced concrete segments, known as lining segments, are installed under the protection of the shield's skin.

"When the ring building has been completed, the machine can push itself against the new tunnel ring and drill further into the soil.

"The working method of an EPB shield is basically made up of two phases: The tunneling phase, and the ring-building phase.

"During the tunneling phase, the cutting wheel,

which rotates at a speed of up to 2.7 revolutions per minute, is pressed against the tunnel face with a pressure of up to 400 Bar by means of hydraulic cylinders.

"24 hydraulic motors drive the cutting wheel via a gear ring developing a drilling torque of up to 38,000 kilometers.

"Under this high pressure, the disk cutters and cutting knives, made of high-strength steel, loosen the material at the tunnel face.

"For shield tunneling in non-stable soils, a loss in stability at the tunnel face is compensated by creating a support pressure.

"In the case of the Earth Pressure Balance Shield, the soil which was excavated by the cutting wheel is used to support the tunnel face.

"In order to reach a state of equilibrium, the support pressure is transferred by the hydraulic cylinders via the bulkhead to the soil which avoids an uncontrolled penetration."

WITNESS BEDNARSKI: That's it. Okay.

(Further videotape played as follows:)

"A complete tunnel ring consists of several segments called lining segments. These prefabricated, reinforced concrete elements are

produced with millimeter precision in a factory which is especially installed aboveground for this purpose.

"Following quality control, they are then transported into the tunnel by mine cars.

"In the front section of the backup, the lining segments are lifted individually by a special transfer crane.

"It lifts them onto the segment feeder which transports the elements to the front of the tunnel.

"The positioning of the segments always follows the same routine:

"The erector lifts the stone from the segment feeder.

"The hydraulic cylinders are then retracted from the corresponding installation point.

"The segment is positioned precisely, holding side contact next to the previous-installed ring using a remote control.

"Now the hydraulic cylinders are extended again to secure the segment in its position and to subsequently bolt it into the previous ring.

"During this process, machine and tunneling personnel are protected by the shield's skin against the earth pressure and any possible groundwater.

"In this way, the lining segments are installed on each side alternately.

"The key segment with its tapered sides is slotted into position last and distributes the loads in the ring, completing the ring building. Subsequently, the next tunneling phase can start.

"The end of the shield, the so-called tailskin, is equipped with a circular tailskin sealing. This provides a seal between the seal structure of the shield machine and the segment ring.

"This in turn guarantees the necessary sealing between the interior working space and the exterior earth pressure.

"The remaining annular gap between the outer side of the lining segments and the soil is continuously filled with grout via injection holes in the tailskin, or in the lining segment, in order to provide a bed for the tunnel tube and to stabilize it."

WITNESS BEDNARSKI: Okay. I believe that's it for that video.

(Slide show begun.)

WITNESS BEDNARSKI: Now we'll move on to another component of the tunneling activities which deals with the shafts.

There will be a number of tunnel shafts that will be constructed along the tunnel alignment. You saw the construction of one of those types of shafts at the intake structures.

There will be a number of other shafts constructed, and these shafts will be used to either launch the tunneling operations, which is to start the tunneling operations, and then provide basically an access point into the tunnels for operational personnel, the tunneling -- you know, the construction crews bringing in the lining segments, bringing out the reusable tunnel material or tunnel mud from the tunnels as the machines are excavating.

And then, also, the second type of shafts that will be utilized are what we call retrieval shafts. At the end of the tunneling operations, the machines will be removed from the ground so a shaft will be constructed at the end of the tunnel run and the contractors will be able to remove their equipment from those shafts.

At about the midpoint on the tunneling drives -- Now, each of these tunnel drives is about seven and half miles, so at about the midpoint, there will be what we call a vent shaft that will be constructed by the contractor.

And these'll be smaller shafts in diameter but

will allow the contractor to drive their tunneling machine into that shaft and so, under atmospheric conditions -- so this will open to the atmosphere of these shafts -- they will be able to do maintenance work on their tunneling equipment.

So you can see we've broken up the Project into about these seven-and-a-half-mile Reaches and then each Reach has been broken again in approximately half. So the tunnelers will be tunneling about 3 miles at a time before they can get to a point before they can do maintenance on their equipment.

Now, they also have the ability to do maintenance in between those points by injecting grout down into the ground, stabilizing the ground, and then driving the tunneling machine into that location so they have a safe and secure location underground to work on their equipment.

These shafts will be constructed with diaphragm walls in much the same manner that the slurry cutoff walls will be constructed.

So, as these shafts are constructed and put into operation, we do not believe there will be any impact on surrounding groundwater levels once the shafts are installed.

They'll be installing a diaphragm steel wall

with reinforcing steel, placing the concrete, and then removing or excavating the soil from inside the shaft and installing what we call a tremie concrete bottom.

This is a very large plug, about 30 feet deep -- 30-foot-thick plug of concrete at the bottom of the shafts, and that allows the shafts again to be watertight and also to in -- decrease their buoyancy so they would not be uplifted by the uplift forces in the Delta because of the saturated ground condition.

Now I'll move on to the forebays and the embankments there.

As I mentioned, we'll be using slurry wall construction in these embankments, again, so that we can isolate each of these forebay locations, so that dewatering can take place inside the construction site without impacting any of the groundwater levels outside of that area. You can see the slurry wall in the center of the embankment levee.

And then, secondly, we'll be installing toe drains on the land side of these embankments, again, to collect any seepage water that may make its way through the embankment.

The next slide here is just an aerial view of what we're envisioning the Intermediate Forebay to look like.

At the top of the slide, you can see the two tunnels from the intakes arriving and delivering water to the Intermediate Forebay.

The Intermediate Forebay is a collection point for water from the three intakes. It allows us to then split the water evenly between the two 40-foot tunnels, and you can see those are on the bottom left side. Those would be the 40-foot tunnels exiting the Intermediate Forebay.

Next we move on to Clifton Court. You can see, on the left side, this is the existing Clifton Court with the Old River intake kind of on the -- on the right side of that. And then you can see the Skinner Fish Facility is on the left side.

On the right side of this panel now, you can see what we are proposing to construct with the California WaterFix.

We basically bifurcated the Clifton Court in half so that screened water is delivered to the north half. And then through a series of canals, that water is then brought down to the Jones and Banks Pumping Plants.

We also have the south half of Clifton Court which, as I mentioned earlier, we'll be expanding that to give DWR the operational volume of water that they need in order to continue on with their -- their current style

of operations.

But the North and South Clifton Court will be designed and configured so the dual operation of Clifton Court could be utilized as needed by DWR.

Finally, we get to the Clifton Court Pumping Plant. This is an aerial view. This is in the northeast corner of Clifton Court. The West Canal is at the top of that slide. The bottom of the slide is actually the north part of Clifton Court.

So the tunnels will arrive into the bottom of each of these pump stations. The water will well up, and we had our utilizing vertical turbine pumps to lift the water from this location and deposit that into the north half of Clifton Court.

So now I'm going to speak for a couple minutes about the Head of the Old River Operable Gate. This is final portion of the WaterFix facilities.

Again, it's located where the Old River splits off from the San Joaquin River. It's a location where DWR presently installs a rock barrier. You can see it here.

As I mentioned, it's going to -- it's going to be a permanent facility constructed within the existing confines of the levees.

There's going to be bottom-hinged gates that

can be either raised or lowered depending on conditions. There'll be a fish passage structure, as well as a boat lock and some other miscellaneous facilities that go along with that.

And, again, it's going to be within the confines of the existing channel so there's no levee relocations required with this facility.

This is an artist's rendering of that. You can see the operable gates in the center of the river and, then, just to the -- kind of to the right of that, there's a boat passage and a fish lock.

Flood protection will be taken into account at all of the aspects of the California WaterFix.

At the intake sites, in particular, we'll be required to obtain a Section 408 Permit from the U.S. Army Corps of Engineers.

So we'll be providing both temporary and long-term protection measures along the Sacramento River as these facilities are constructed. I've talked about a number of those as far as the use of the slurry walls.

The elevations of all of the California WaterFix facilities will include elevations that will protect us from the 200-year storm, plus sea level rise.

And then in the surrounding levees that will be passing underneath the non-Corps levees, it's our

proposal to do a series of assessments of the existing condition of those levees.

We know that they're stable at this point, but as our tunneling equipment tunnels underneath there, we want to make sure that we fully understand the geology underneath each of these levees.

We'll be providing improvements, as necessary. So if there -- some of the levees are deemed to be needing reinforcement before our tunneling passes underneath them, or before any of our construction equipment uses those levees for access roads, we'll be making improvements to those portions of the levees.

And then, finally, we'll be utilizing a Monitoring Program through all phases of construction to make sure that there's no deterioration of those levees.

And that concludes my presentation at this point in time.

Thank you very much for this opportunity.

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

Anything else, Mr. Mizell?

MR. MIZELL: No. That concludes our direct testimony at this point.

The panel is available for cross-examination.

CO-HEARING OFFICER DODUC: All right. Thank

you.

We'll begin with Group Number 3, the State Water Contractors.

MS. MORRIS: Stefanie Morris for the State Water Contractors.

We don't have any cross-examination.

Thank you.

CO-HEARING OFFICER DODUC: Thank you, Miss Morris.

Group Number 4.

MS. AKROYD: Rebecca Akroyd for the San --

CO-HEARING OFFICER DODUC: I don't think the microphone is.

MS. AKROYD: Sorry.

Rebecca Akroyd for the San Luis and Delta-Mendota Water Authority.

We don't have any questions for cross-examination.

CO-HEARING OFFICER DODUC: Thank you.

Number 5, Westlands.

MS. HARMS: Rebecca Harms on behalf of Westlands Water District.

We have no questions for cross.

CO-HEARING OFFICER DODUC: Thank you, Miss Harms.

Number 6, Coalition for a Sustainable Delta . . . is not here.

Group Number 7, please.

MR. ALADJEM: Good morning, Chair Doduc. David Aladjem for the Sacramento Valley water users.

CROSS-EXAMINATION BY

MR. ALADJEM: Mr. Bednarski, nice to meet you. Thank you for testifying this morning.

WITNESS BEDNARSKI: Thank you.

MR. ALADJEM: Let me begin --

CO-HEARING OFFICER DODUC: Mr. Aladjem, can you get closer to the microphone?

Thank you.

MR. ALADJEM: Can you hear me now?

Mr. Bednarski, you've headed up the engineering effort on the tunnel since about 2013; isn't that true.

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: Okay. And, as such, you've been in charge of the redesign of the California WaterFix Project as it has transitioned from the Bay-Delta Conservation Plan through -- into its current configuration; right?

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: Okay. And you were familiar with the many design constraints on the Project. I think you

mentioned that in your testimony this morning.

Is that right?

WITNESS BEDNARSKI: There are constraints, yes.

MR. ALADJEM: You said in your resumé that you were in charge of reconfiguring the river intakes, tunnels and pumping systems to achieve budget, schedule, and environmental commitments for the program; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: Could you identify for the Board the chief constraints on the Project, as you redesigned it, from the Bay-Delta Conservation Plan to the California WaterFix.

WITNESS BEDNARSKI: Well, I think -- I believe that those were identified in my testimony.

MR. ALADJEM: Could you tell us where?

WITNESS BEDNARSKI: Sure.

On Page 4 of my testimony, I believe we begin to list out all of the numerous changes that have been made to the Project over the last several years, beginning at the bottom of Page 4 of my testimony.

MR. ALADJEM: I'm just waiting for State Water Board staff to get that up here.

I think -- I think we want DWR-57?

MR. MIZELL: Yeah. DWR-57.

MR. ALADJEM: No, those are the -- my prepared slides. We're looking for DWR-57 in the Board's --

MS. HEINRICH: Page 4.

MR. ALADJEM: Page 4.

(Document displayed on screen.)

MR. ALADJEM: So, Mr. Bednarski, you were about to say?

WITNESS BEDNARSKI: Yes. So, starting on Page 4 with the section called Engineering Refinements, I discussed the number of specific changes that were made to the Project since 2013.

MR. ALADJEM: I see that, Mr. Bednarski. That's not quite my question.

My question were -- was: What were the constraints that were imposed upon you and your Engineering Team in redesigning the Project? Not what changes were made but what direction for constraints you were given.

WITNESS BEDNARSKI: I'm not sure that I quite follow your question.

MR. ALADJEM: Let me reask the question.

Did anyone from the Department or the State Contractors or Metropolitan, your employer, tell you, "These are the parameters we have to meet. These are the criteria we have to use in redesigning the Project"?

WITNESS BEDNARSKI: I would not say we received specific instruction. We were operating under the same general requirements that applied to the Project previously.

We knew that we were receiving input from a variety of sources, including public comments, during that time. We wanted to be responsive to those public comments and adjust the Project accordingly.

We also recognized that, with that, there were opportunities to make other revisions to the Project that would improve its efficiency and flexibility of operations, so we took that opportunity to do that also.

We also had a program budget that we needed to stay within.

So all of these had to be worked together.

MR. ALADJEM: Let me drill down a little bit more.

You identified that you received -- or the Department received, as I recall, tens of thousands of comments on the Bay-Delta Conservation Plan; isn't that right?

WITNESS BEDNARSKI: That's my understanding. I don't specifically know, but that's my understanding.

MR. ALADJEM: Did anyone from the Department tell you, "Based upon the public comments we've received,

we should redesign the Project to do X, Y or Z"?

WITNESS BEDNARSKI: Yes. We were -- Yes.

MR. ALADJEM: What was that instruction?

WITNESS BEDNARSKI: We were asked to examine whether we could relocate certain facilities to move them from one area to another.

MR. ALADJEM: Could you be more specific.

WITNESS BEDNARSKI: Specifically -- I mentioned this in my testimony -- one of the facilities was the Intermediate Forebay. That was . . .

MR. ALADJEM: Are -- Were there others?

WITNESS BEDNARSKI: The pumping facilities.

MR. ALADJEM: Anything else?

WITNESS BEDNARSKI: The alignment of the tunnels.

MR. ALADJEM: Anything else?

WITNESS BEDNARSKI: Those were the major ones that I can remember at this point in time.

MR. ALADJEM: Okay. Let me move to Slide 1, which is Page 5 of your testimony.

(Document displayed on screen.)

MR. ALADJEM: Thank you.

Mr. Bednarski, this is following up on the discussion we've just been having.

You say here that, "Specific changes to the

Project include," and then you list a number of these, which we've begun to discuss.

Were there any other major changes to the Project?

WITNESS BEDNARSKI: I believe they've all been listed in my testimony.

MR. ALADJEM: Okay. In terms of the -- Let me start here with the bifurcation of Clifton Court Forebay.

You indicated that the forebay will now extend to the south; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: Do you know, Mr. Bednarski, who owns that land to the south?

WITNESS BEDNARSKI: I do not personally know. It's not owned by DWR.

MR. ALADJEM: Thank you.

In terms of the tunnels, I had a question for you about their operation.

You indicated that there were -- there's substantial -- and correct me if I get this wrong -- hydraulic pressure at 100 or 150 feet below the surface, and, therefore, there needed to be air pressure to stabilize the tunnels; is that correct?

WITNESS BEDNARSKI: I believe my testimony was that, during construction, there would need to be, yes.

MR. ALADJEM: Okay. Thank you for the clarification.

After the tunnels are completed, would there need to be that air pressure?

WITNESS BEDNARSKI: No, there would not.

MR. ALADJEM: Okay. Presumably, would the tunnels be filled with water at that point in time and that would counteract the water pressure underneath the surface of the earth?

WITNESS BEDNARSKI: The design of the tunnel lining segments will counteract that effect. The tunnel -- The tunnel can be empty and still be structurally sound and waterproof, so it does not rely on the water to do that.

MR. ALADJEM: Do you know, Mr. Bednarski, whether the tunnels would be emptied during operation?

WITNESS BEDNARSKI: They would not be emptied when they're operational.

MR. ALADJEM: That wasn't quite my question.

Do you know in the proposed operation of this facility whether the Department anticipates that the tunnels would ever be empty?

WITNESS BEDNARSKI: Yes, they do.

MR. ALADJEM: When would that be and under what conditions?

WITNESS BEDNARSKI: From -- On some schedule, yet to be determined, the Department would dewater the tunnels and do an inspection of those tunnels.

MR. ALADJEM: And would those inspections be annual? Every 10 years? Every month?

WITNESS BEDNARSKI: I do not believe that the frequency has been identified at this point in time.

MR. ALADJEM: Mr. Bednarski, if I understand your resumé correctly, you were in charge of Metropolitan's Inland Theater Project --

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: -- is that correct?

Based on your professional experience, what would be a typical maintenance routine here?

WITNESS BEDNARSKI: Possibly every 10 years.

MR. ALADJEM: So the tunnels would be filled when -- except for that interval every 10 years when maintenance and inspection would occur.

WITNESS BEDNARSKI: Based on my experience.

MR. ALADJEM: Thank you.

You also mentioned the dual operation of the tunnels and Clifton Court Forebay.

Would it be possible to operate both the North Delta Diversion and the South Delta Diversion at the same time?

MR. MIZELL: I'm going to object to this:

We're not on the Operations testimony at this point in time. This is just Engineering.

MR. ALADJEM: Chair Doduc, I'm trying to understand the physical capacity of the facilities. He's the engineering expert, and I'm entitled to ask that question.

CO-HEARING OFFICER DODUC: Thank you Mr. Aladjem.

Please answer, Mr. Bednarski.

WITNESS BEDNARSKI: We've provided the capability that that type of operation can take place.

MR. ALADJEM: Thank you.

Mr. Bednarski, you're familiar with DWR Exhibit 212?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Did you prepare that exhibit, or was it prepared under your direction?

WITNESS BEDNARSKI: It was prepared under my direction.

MR. ALADJEM: Were you in charge of ensuring that that exhibit met applicable engineering standards?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Were there other key members of your team who participated in that development of

DWR-212?

WITNESS BEDNARSKI: Yes, there were.

MR. ALADJEM: Could you identify them, sir.

WITNESS BEDNARSKI: There were many people.

It would be a long list of which I'm not sure I recall all of the names.

MR. ALADJEM: That's -- That's fine.

Would it be fair to say, if I had questions about DWR-212, that you're the proper person to ask?

WITNESS BEDNARSKI: You can start with me.

Yes.

MR. ALADJEM: Thank you.

Returning to Page 5 of your testimony.

You indicated you believed these are the chief changes that were made in the Project; is that correct?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Is there a complete list anywhere else in your testimony or in the Department's exhibits that lists all the changes that were made from the BDCP to clean WaterFix?

WITNESS BEDNARSKI: I believe that the Recirculated EIR/EIS lists a number of these changes that we've made to the Project. I'm not sure if that --

MR. ALADJEM: Can you --

WITNESS BEDNARSKI: Sorry.

MR. ALADJEM: Excuse me.

WITNESS BEDNARSKI: Yeah.

MR. ALADJEM: I was going to say: Can you identify where in the Recirculated Draft that would occur?

(Witnesses conferring.)

WITNESS BUCHHOLZ: I'm trying to remember whether -- I'm Gwen Buchholz.

And I'm trying to remember what chapter it is. Chapter 4 or 5.

CO-HEARING OFFICER DODUC: Miss Buchholz, good morning. Good to see you again.

WITNESS BUCHHOLZ: Um-hmm.

MR. ALADJEM: Madam Chair, I would be certainly happy to have that information provided at the break, just for the record. There's no reason to waste time here.

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

MR. ALADJEM: Mr. Bednarski, could I direct your attention to DWR Page 212 -- excuse me -- Exhibit 212, Page 66. That should be the second slide.

(Document displayed on screen.)

MR. ALADJEM: And you're familiar with this exhibit; correct?

WITNESS BEDNARSKI: Yes, I am.

MR. ALADJEM: I want to direct your attention down.

If you could slide the -- move the slide down there.

A little further.

There we go.

Section 4.4.1, Operating Assumptions.

Do you see that, Mr. Bednarski?

WITNESS BEDNARSKI: Yes, I do.

MR. ALADJEM: Okay. The first bullet there reads, as an operating assumption, to (reading):

"Operate safely and reliably, complying with all applicable regulations, including all long-term Delta operating rules developed by the BDCP."

Would it be fair to revise that statement to say all operating rules developed by the Department?

MR. BERLINER: Objection as to who you're referring to as the Department.

MR. ALADJEM: The Department of Water Resources. Excuse me.

WITNESS BEDNARSKI: It's my understanding DWR will be the operator of these facilities, so if that is the case, then I would say yes.

MR. ALADJEM: Thank you.

Let me direct your attention to the fourth bullet, which says (reading):

"Minimize impacts to the established operational methodology and control philosophy of both the SWP and CVP downstream of their respective existing export pumping plants."

Can you see that?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Mr. Bednarski, can you describe what you meant by "operating methodology and control philosophy"?

WITNESS BEDNARSKI: We provided -- We are providing water through these facilities that will match the hydraulic gradients that go into the existing pumping facilities.

MR. ALADJEM: So, if I could understand this correctly, you're -- When you minimize impacts, you are trying to maintain that hydraulic gradient; is that correct?

WITNESS BEDNARSKI: We're trying to maintain the existing gradient to those pumping facilities.

MR. ALADJEM: Thank you very much. That's helpful.

Let's move on to the next slide, which is the next page of DWR-212.

(Document displayed on screen.)

MR. ALADJEM: And let me direct your attention, Mr. Bednarski, to Table 4-6, which is entitled (reading):

"Daily Operational Considerations for Withdrawal from the Sacramento River."

Do you see that, sir?

WITNESS BEDNARSKI: Yes, I do.

MR. ALADJEM: I have highlighted on the slide here a factor that is hydrological and the first comment there is (reading):

"Limitations on volume available for export based on flow rate within the Sacramento River per BDCP."

Do you see that, sir.

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Again, can we substitute "per BDCP" for the "Department of Water Resources"?

WITNESS BEDNARSKI: Consistent with my previous response, I would say yes.

MR. ALADJEM: Okay. Can you explain, sir (reading):

"Limitations on volume available for export based on flow rate within the Sacramento River"?

Does that mean that exports would be limited to some percentage of the flow rate in the Sacramento River,

presumably at the intakes?

WITNESS BEDNARSKI: It's my understanding that flow rates through the intakes will be limited based on the volume of water in the Sacramento River at any time.

Flow rates in the Sacramento River, not volume of water. I'm sorry. I misspoke.

MR. ALADJEM: So if there is X cfs in the Sacramento River at the intakes, then there is some percentage of that that would be available for diversion of the intakes; is that correct?

WITNESS BEDNARSKI: It's my understanding that there will be guidelines set for the operation that will limit the amount that can be diverted based on the flow rate in the Sacramento River.

MR. ALADJEM: Would it be correct, Mr. Bednarski, from your previous answer, to say that those guidelines have not been established?

MR. MIZELL: I'm going to object to it being speculative on his part. He's an engineer for the facilities' design, not the Operations Panel, which is going to discuss the operation criteria we're setting forth.

MR. ALADJEM: And, Chair Doduc, as an engineer, he is giving criteria of his designing this facility. I'm entitled to know what percentage of flow he's

designing this facility to divert.

MR. MIZELL: I agree he's allowed -- He is perfectly equipped to answer design specification question but not operation questions.

CO-HEARING OFFICER DODUC: I believe the question from Mr. Aladjem was whether those operational criteria has been provided to him.

MR. ALADJEM: That is correct.

CO-HEARING OFFICER DODUC: On that basis, he may answer.

WITNESS BEDNARSKI: Those -- Those operational criteria have not been provided to us.

MR. ALADJEM: So, Mr. Bednarski, let me see if I understand this.

You understand that the intakes are going to divert a certain -- let's use a percentage because I'm not technically able to say anything else -- the flow in the Sacramento River. You have not been provided the operational criteria.

How do you design a facility like that?

WITNESS BEDNARSKI: Our design is presently based on the elevation of the water in the Sacramento River, and our design criteria was to allow 3,000 cfs of diversion at different water level elevations in the Sacramento River.

MR. ALADJEM: So, let me see if I understand what you just said.

At different water stage in the Sacramento River, you have designed a facility so that it can always divert at each of the intakes 3,000 cfs; is that --

MR. BERLINER: Objection: Misstates the witness' testimony. He didn't say "always" and he didn't say an amount.

CO-HEARING OFFICER DODUC: Mr. Aladjem, please restate.

MR. ALADJEM: I am trying, Chair Doduc, to accurately state it. I'm looking for a correction from the witness.

Let me try that again.

Is the facility designed so that it can divert at each of the intakes 3,000 cfs under differing stages of water in the Sacramento River?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Thank you.

Let me move on to the System Mode of Operation.

One of the comments there is "Water Right Decision 1641 and subsequent amendments."

What did you mean by that, Mr. Bednarski?

WITNESS BEDNARSKI: Operations of the system by DWR would be consistent with that Decision 1641.

MR. ALADJEM: Mr. Bednarski, Decision 1641 did not contemplate North Delta Diversions; did it?

WITNESS BEDNARSKI: I am not personally knowledgeable of decision D-1641.

MR. ALADJEM: Thank you.

Let's move along to the bottom of that page.

You indicate here (reading):

"The BDCP is expected to include long-term water operating rules for the Delta, including North Delta Diversion bypass rules representing the minimum flow required to be maintained in the Sacramento River downstream of any diversion (intake) location."

Do you see that, sir.

WITNESS BEDNARSKI: Yes, I do.

MR. ALADJEM: Has the Department developed those long-term water operation -- operating rules for the Delta?

WITNESS BEDNARSKI: I do not know.

MR. ALADJEM: Okay. Would there be other design constraints on the intake structures besides the ones that are listed here in Table 4-6?

WITNESS BEDNARSKI: Can we see Table 4-6?

MR. ALADJEM: Oh, I'm sorry. Can we go . . .

(Document displayed on screen.)

MR. ALADJEM: Scroll down, please.

WITNESS BEDNARSKI: Could you repeat your question, please.

MR. ALADJEM: Sure.

Would there be any other design constraints that you used to develop the intake design other than these criteria in Table 4-6?

MR. MIZELL: Objection: Misstates the evidence.

These are design considerations, not constraints.

MR. ALADJEM: I'll accept the correction.

Mr. Bednarski?

WITNESS BEDNARSKI: Can I answer the question?

MR. ALADJEM: Yes.

WITNESS BEDNARSKI: Yes. I believe in my testimony and in the presentation, I gave a list of criteria that were given to the Design Team through the work of the Fish Facilities Technical Team that prescribed some additional design criteria for the intakes.

MR. ALADJEM: Very good.

Let's continue on, then, with the next slide. And thank you for the transition to the Fish Facilities Technical Team.

(Document displayed on screen.)

MR. ALADJEM: This slide should be DWR-57, Page 9.

Mr. Bednarski, have you -- do you have that in front of you?

WITNESS BEDNARSKI: Yes, I do.

MR. ALADJEM: So you said in your testimony that "site selection included, in no particular order," a number of different factors here:

". . . A site's ability to: Minimize effects to aquatic and terrestrial species, maintain a diversion structure's functionality, provide adequate river depth . . . provide adequate sleeping flows . . . and minimize effects to land use and community . . ."

Excuse me. And also to maintain flood neutrality.

Is that correct?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Were those, in combination with Table 4-6, the considerations you used to design the intake facilities?

WITNESS BEDNARSKI: The criteria, yes. We received this input from the Fish Facilities Technical Team that took into account these parameters when they

sited the location of the intakes and gave those locations to us.

MR. ALADJEM: Let me follow up on that, sir.

The Fish Facilities Team identified the locations for the intakes; is that correct?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Could you describe how that process occurred?

WITNESS BEDNARSKI: I was not involved in that process.

MR. ALADJEM: Who would know how that process occurred, sir?

WITNESS VALLES: I'm a little bit familiar with it but -- This is Sergio Valles of Metropolitan.

There was a group of five agencies that got together -- and that was NIPS (phonetic), the Fish and Wildlife, the Fish & Game, DWR and the Bureau -- and they jointly worked together to determine the best location for -- for the facilities.

MR. ALADJEM: And so -- First of all, good morning.

WITNESS VALLES: Good morning.

MR. ALADJEM: Would it be correct to say that that Fish Facilities Team was composed primarily of Biologists rather than Engineers?

WITNESS VALLES: I believe they actually did have Engineers involved.

MR. ALADJEM: Do you know who was involved, either for DWR or for the Bureau of Reclamation, as an Engineer?

WITNESS VALLES: I do not know. Or do not recall. Let me put it that way.

MR. ALADJEM: As part of that evaluation of these intake locations and the design of the intake, did DWR consider potential water quality effects either upstream or downstream of the intakes?

MR. MIZELL: I'm going to object: Speculative; and also a portion for Part II.

The Fish Facilities Technical Team is something we'll discuss in Part II because it is primarily a biologically-based decision. And whether or not it included water quality, we can certainly discuss that at that time.

These Engineers, though, indicated they're not part of that team and it would be speculative on their part to presume what was discussed.

MR. ALADJEM: Chair Doduc, first of all, this is a question about DWR, and we have the Department here.

Second is the question of engineering criteria.

Third, in terms of water quality, an injury to

a legal user of water can be a degradation of water quality.

All of this is fair game right now.

MR. MIZELL: I would object as asked and answered because they've already discussed that they have received the output of the Fish Facilities Technical Team and used that in their design.

MR. ALADJEM: Chair Doduc --

CO-HEARING OFFICER DODUC: Mr. Aladjem, you don't have to continue. I'm going to allow you to ask your question.

MR. ALADJEM: Thank you.

CO-HEARING OFFICER DODUC: And ask the witnesses to answer to the best of your ability. And if your answer is to defer to the witnesses to come, you may do that as well.

But these witnesses may not be back, so Mr. Aladjem, you may ask your questions.

WITNESS VALLES: I'm not aware of what criteria they used specifically. For us, the important criteria is the .2 feet per second approach velocity. That's how we size the intakes.

MR. ALADJEM: Very good. Thank you.

Mr. Bednarski, let's move to the next slide which is DWR-57, Page 2.

You say here, beginning on Line 4 (reading):

"Construction impacts having the potential to affect other users of water are generally limited to potential impacts to existing water supply facilities and potential impacts to groundwater levels."

Is that right?

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: So if the Project were to change water levels in the Delta, that would not be a construction-related impact.

Am I understanding your testimony?

WITNESS BEDNARSKI: That's correct. This sentence only refers to construction impacts.

MR. ALADJEM: Okay. So, in terms of water level impacts, would those questions be properly addressed to Mr. Leahigh?

WITNESS BEDNARSKI: Possibly.

MR. ALADJEM: Should I address them to you?

WITNESS BEDNARSKI: No. I would not be able to answer those questions.

MR. ALADJEM: And as the Engineering Manager for this Project, are you aware of who else would have technical knowledge about water level impacts in the Delta from this Project?

WITNESS BEDNARSKI: Can you be more specific about where the water levels are that you're referring to?

MR. ALADJEM: In the vicinity of the intakes first.

WITNESS BEDNARSKI: So, along the Sacramento River?

MR. ALADJEM: Yes.

WITNESS BEDNARSKI: I believe that could be either Mr. Leahigh or the Modeling Team.

MR. ALADJEM: Okay. And more generally in the Delta?

WITNESS BEDNARSKI: The same.

MR. ALADJEM: Thank you.

A similar question about water quality. Would Mr. Leahigh be the appropriate person to ask questions about water quality effects of the Project in the vicinity of the intakes?

WITNESS BEDNARSKI: Yes, or the Modeling Team.

MR. ALADJEM: Thank you.

If I could direct your attention further down on that page, Lines 13 and 14. You say (reading):

". . . No adverse water quality effects to beneficial uses from construction-related activities would occur."

And earlier in that paragraph, you make reference to an NPDES Permit, and there is the BMPs, Best Management Practices; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: Could you describe what BMPs are being considered here to address the construction-related impacts of the Project?

WITNESS BUCHHOLZ: If I may, Madam Chair.

The BMPs associated with this NPDES Permit for storm water discharges and non-storm water discharges are presented in Appendix 3B of the Draft EIR/Draft EIS in -- in detail. We could read them, if necessary, but they're in Appendix 3B.

CO-HEARING OFFICER DODUC: Mr. Aladjem.

MR. ALADJEM: Um-hmm. Thank you.

CO-HEARING OFFICER DODUC: Would you like her to expand or are you satisfied with that?

MR. ALADJEM: I will, again, take a reference from Miss Buchholz after the end of the cross-examination as to a specific page.

CO-HEARING OFFICER DODUC: Thank you.

MR. ALADJEM: But following on Miss Buchholz, since we don't have those quite in front of us today:

Has the Department developed a Mitigation Monitoring Reporting Program for those BMPs?

WITNESS BUCHHOLZ: Not at that time, but they made the commitment in Appendix 3B to prepare one.

MR. ALADJEM: And, Ms. Buchholz, you have extensive experience as an environmental consultant; isn't that correct?

WITNESS BUCHHOLZ: I have experience over many years as such.

MR. ALADJEM: You're too modest.

Would the reporting of those BMPs be directed to the State Water Board or other regulatory agencies, and if so, could you identify the likely agencies? Obviously, since you haven't written the MRP, you don't know exactly.

WITNESS BUCHHOLZ: Associated with water quality?

MR. ALADJEM: Yes.

WITNESS BUCHHOLZ: The water quality certainly would go -- In this case, it could go through the Central Valley Regional Water Quality Control Board and, therefore, under the State Water Resources Control Board.

It could also potentially be considered by some of the counties, basically as we described in Chapter 8 of the Draft EIR/Draft EIS and the Circulated Draft EIR, Supplemental EIS and Appendix 3B.

MR. ALADJEM: My next slide, please.

CO-HEARING OFFICER DODUC: Mr. Aladjem.

MR. ALADJEM: Yes.

CO-HEARING OFFICER DODUC: Before you move onto your next slide on this topic, do you anticipate your cross-examination to take additional time?

I'm looking at the court reporter. I want to take a short break for her and for all of us.

MR. ALADJEM: Chair Doduc, this is sort of in the middle of my cross, so I think this would be a good opportunity for a break.

CO-HEARING OFFICER DODUC: So let's do that, and we will reconvene at 10:45.

(Recess taken at 10:26 a.m.)

(Proceedings resumed at 10:45 a.m.)

CO-HEARING OFFICER DODUC: All right. It is 10:45.

And before we begin, Mr. Mizell, I believe you have a scheduling question?

MR. MIZELL: Just a scheduling question, yes, Hearing Officer Doduc.

And it may have been out of an overabundance of optimism, but is there any expectation that we would need the Operations Panel here today, or are we pretty confident that that will take place starting next week because we --

CO-HEARING OFFICER DODUC: I'm confident that will take place next week.

MR. MIZELL: Okay.

CO-HEARING OFFICER DODUC: Even in the best case of optimism, if we do finish all the cross-examination, redirect and recross of this panel today, I don't think anyone will object to leaving a bit early on a Friday afternoon. So I think it's safe to say next week.

MR. MIZELL: Very good. And then we'll let him continue with his job and not attend this afternoon.

CO-HEARING OFFICER DODUC: Excuse me?

MR. MIZELL: John Leahigh. We'll let him continue to operate the Project and we won't bring John Leahigh into the audience with the expectation that he might present today.

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

Mr. Aladjem, please continue.

MR. ALADJEM: Thank you, Chair Doduc.

Mr. Bednarski, welcome back.

WITNESS BEDNARSKI: Thank you.

MR. ALADJEM: Let me address a question that you identified during your direct testimony, sir.

Do you recall the animation that you showed

this morning?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: As part of that animation, you showed a coffer dam being built out into the Sacramento River for the intakes.

Do you recall that?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Can you tell us how far the coffer dam would extend into the Sacramento River?

WITNESS BEDNARSKI: I don't recall the specifics of that.

MR. ALADJEM: Do you recall approximately?

(Witnesses confer.)

WITNESS BEDNARSKI: Approximately 50 to 80 feet.

MR. ALADJEM: Did the Department, in your engineering development of the California WaterFix, analyze the effects of that encroachment into the Sacramento River on water stage immediately adjacent to the intakes?

WITNESS BEDNARSKI: I believe we did, yes.

MR. ALADJEM: What was the result of that analysis?

(Witnesses confer.)

WITNESS VALLES: I believe it was less than

.1-foot -- or one of a foot, so about a little bit more than an inch.

MR. ALADJEM: Thank you, sir.

(Document displayed on screen.)

MR. ALADJEM: Mr. Bednarski, let me direct your attention to Page 14 of your testimony, which I think is now up here on the screen. Yes, it is.

At Lines 21 through 23, you talk about the Department determining current use of existing diversions, et cetera.

Would that apply to diversions that are licensed or permitted by the State Water Resources Control Board?

WITNESS BEDNARSKI: Yes, it would.

MR. ALADJEM: Could you expand on what the Department would do as part of that evaluation?

WITNESS BEDNARSKI: We would determine the amounts of the water diverted, the patterns of that diversion, and also the water quality of that water that's diverted.

MR. ALADJEM: And you would presumably rely, as part of that analysis, on the records of the State Water Resources Control Board?

WITNESS BEDNARSKI: Yes. If those are available, we would, yes.

MR. ALADJEM: Next slide.

(Document displayed on screen.)

MR. ALADJEM: The top of Page 15 of your testimony, sir, the first bullet, you say (reading):

"The Department may assist with securing permits and" --

I presume it's "well design" -- or "will design," excuse me.

Could you describe what the Department's intent is with this provision.

WITNESS BEDNARSKI: Yes. The Department's intent with all of these relocations is to make the diverter whole in -- in all manners for these temporary diversions.

So we will secure the Permits, the materials, implement the construction of those facilities that are required as part of the Project, and pay for, as it says, the implementation of these mitigation measures.

MR. ALADJEM: Thank you, sir.

Page 19 of your testimony, next slide.

(Document displayed on screen.)

MR. ALADJEM: You indicate that (reading):

"Implementation of mitigation measures will include relocation" -- or -- "relocating or replacing agricultural infrastructure" --

Et cetera, and the process would follow the same framework as relocating water diversions.

Do you see that testimony?

WITNESS BEDNARSKI: Yes, I do.

MR. ALADJEM: And your previous answer about assisting in securing Permits, paying for those Permits, et cetera, would that apply here to agricultural canals as well?

WITNESS BEDNARSKI: Yes, it would.

MR. ALADJEM: Next slide, Page 12 and 13 of your testimony, sir.

(Document displayed on screen.)

MR. ALADJEM: You say at the bottom, Lines 27 and 28 of Page 12 (reading):

". . . The channel margin habitat will be sited to avoid existing riverbank structures such as water diversions, and therefore construction of channel margin habitat will not displace existing water diversions."

Do you see that, sir?

WITNESS BEDNARSKI: Yes, I do.

MR. ALADJEM: Could you explain to us:

Will the Department simply avoid the areas around existing intakes for the location of channel margin habitat?

WITNESS BEDNARSKI: We will avoid them, yes, we will.

MR. ALADJEM: And will there be distance between each of the diversions and the new habitat?

WITNESS BEDNARSKI: Yes. I believe it's 200 feet.

MR. ALADJEM: If another regulatory agency -- say, for instance, the Department of Fish and Wildlife -- were to say that the -- those diversions had an effect on the channel margin habitat that would be installed, what would the Department do, if anything, about that requirement?

WITNESS BEDNARSKI: We would modify the location of the channel margin habitat so that it's consistent with the -- with those requirements.

MR. ALADJEM: And if the United States Army Corps of Engineers with the California Flood Control -- Flood Protection Board were to require a levee district to riprap an area around one of those diversions, presumably the Department would again move the channel margin habitat?

WITNESS BEDNARSKI: I'm not quite sure I follow your question as to the need to riprap around a diversion and how that would relate.

MR. ALADJEM: Let me try it this way.

WITNESS BEDNARSKI: Sure.

MR. ALADJEM: If a regulatory agency like the California Central Valley Flood Protection Board were to require riprapping an area to protect levee stability that had been identified for channel margin habitat, presumably the Department would move the channel margin habitat.

WITNESS BEDNARSKI: Yes, that is correct.

MR. ALADJEM: Thank you.

Mr. Bednarski, the third portion of your testimony related to flood control impacts; correct?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: I'd like to direct your attention to Page 9 of DWR-66, the testimony of Mr. Nader-Tehrani, I believe is the pronunciation.

Are you familiar with this exhibit, sir?

WITNESS BEDNARSKI: No, I'm not.

MR. ALADJEM: Okay.

A question for Mr. Mizell: Will he -- Will Mr. Tehrani be a part of the Operations Panel?

WITNESS BEDNARSKI: No. He will be part of the Modeling Panel, which is --

MR. ALADJEM: Modeling?

MR. MIZELL: Modeling, yes.

MR. ALADJEM: Thank you.

So, Mr. Bednarski, do you know whether the Department has modeled the effects of the WaterFix Project on water levels adjacent to the diversions? I seem to recall earlier this morning you said that it had.

(Witnesses confer.)

WITNESS VALLES: I think you will have to ask the Modeling Group for --

MR. ALADJEM: Okay.

WITNESS VALLES: -- that.

MR. ALADJEM: Mr. Bednarski, you indicated in your testimony this morning that the Department would file a Section 408 Permit with the Corps of Engineers; correct?

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: Um-hmm. Can you tell us what the status of that application is, sir?

(Witnesses confer.)

WITNESS BEDNARSKI: I -- I don't know at this point the status of that. I'm not involved in that Permit process.

MR. ALADJEM: Can you tell us whether the Engineering Group was given any instruction about design criteria that would be necessary for the issuance of a 408 Permit?

WITNESS BEDNARSKI: I -- I don't recall whether

we . . .

MR. ALADJEM: Let's turn back to a more direct construction discussion, Mr. Bednarski.

You said early on this morning that the redesign of the Project would reduce a number of the elements of the Project in terms of the amount of concrete, the number of pilings, et cetera; is that correct?

WITNESS BEDNARSKI: Yes, at the intakes.

MR. ALADJEM: Can you tell us the reduction, roughly, in the quantity of concrete, the number of piling -- pile-driving strikes, the other operational parameters of that construction?

MR. BERLINER: Objection: Compound question.

CO-HEARING OFFICER DODUC: Mr. Aladjem.

MR. ALADJEM: Let me rephrase.

Can you tell us how many piles the Department is proposing to drive as part of the construction of the intakes?

WITNESS VALLES: Yes. There was actually a table in the C that actually shows you that. I think there's, like, 1110 piles for the long intakes, long intakes being 1667.

MR. ALADJEM: Okay. And, sir, for each of those piles, can you tell us approximately how many times

they have to be driven to be driven into place?

MR. MIZELL: Object: It's speculative.

MR. ALADJEM: If he's an engineering expert, this is part of what is within his knowledge. If he can't answer, he can obviously not answer.

CO-HEARING OFFICER DODUC: Mr. Bednarski or Mr. Valles?

WITNESS VALLES: It's a really difficult question to answer, because it's totally dependent on the type of soil that you're driving in and right now we don't have a lot of geotechnical information.

But right now, the plan is to use vibration to drive the piles, and the last 30 percent of the piles, we'll actually try to strike them into place to set them.

MR. ALADJEM: Thank you. That's very helpful.

And, sir, you just talked about the geotechnical investigation.

There is an extensive memorandum, I believe, from Ms. Buchholz on geotechnical investigation going to groundwater effects.

Would it be fair to infer from your answer just now that you don't have that same level of detail as to the soils at the location of the intakes?

WITNESS VALLES: We have a few borings on the riverside where we had access to -- to the site. But we

don't have much information on the land side where we didn't have access to the property at the time.

MR. ALADJEM: Thank you.

Mr. Bednarski, on Page 26 of your testimony, and continuing to Page 27, you talk about the evaluation of haul routes.

I believe this is right at the end of my slides, perhaps the last slide.

(Document displayed on screen.)

MR. ALADJEM: Yeah, 26 and 27. There we go.

So the Department is committed to evaluating and improving all the haul routes for the construction of the intake facilities in California WaterFix generally; is that right?

WITNESS BEDNARSKI: No, it's not.

MR. ALADJEM: Could you, then, clarify what the Department is planning to do to evaluate all routes and improve them when necessary?

WITNESS BEDNARSKI: As stated in the testimony, we're committed to carrying out necessary improvements on affected levee sections that would avoid potential deficient levee sections.

So we will be identifying any sections that are deficient for the proposed or envisioned operations, and we'll be improving those sections only.

MR. ALADJEM: And to what level would you improve those sections, sir?

WITNESS BEDNARSKI: To improve them to the point that they are consistent with the type of construction activities that we would anticipate on those sections.

MR. ALADJEM: So, if a section were to be used as part of the haul route, and it was anticipated that there would be X number of trucks per day, the section would be improved to a standard that would allow for that traffic to be carried successfully; correct?

WITNESS BEDNARSKI: It would be improved if, through the field investigations, it was determined that it could not otherwise carry that traffic without improvements.

MR. ALADJEM: And those improvements would include both the stability of the levee as well as the height of the levee?

WITNESS BEDNARSKI: Stability as it would pertain to potential impacts from truck traffic, yes.

Height of the levee? To the extent that our truck traffic would cause some subsidence from the settlement or something like that, yes. We would return it to its original elevation.

MR. ALADJEM: And speaking of elevations, you

indicated in your testimony this morning that the intake structure would be elevated to the level of a 200-year flood including sea level rise; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: Has the Department determined what elevation mean sea level that would be?

WITNESS VALLES: At the intake locations, it raises the current level by about 6 feet.

MR. ALADJEM: About 6 feet. Thank you.

In analyzing the engineering criteria -- Or developing engineering criteria -- excuse me -- did the Department consider the stability and flood protection provided by levees that would be adjacent to the site but not part of the facility?

WITNESS VALLES: It was not our plan to redo all the levees in the area, other than the location affected by the intakes.

MR. ALADJEM: Thank you. That wasn't quite my question.

Let's assume for the sake of discussion that the levees in the areas adjacent to the intake facilities have a hundred-year protection; and let's assume that the new facilities have 200-year protection.

It's possible that a flood of more than 100 years but less than 200 years would involve the

inundation of areas around the intake; isn't that correct?

WITNESS BEDNARSKI: Yes, that's correct.

MR. ALADJEM: Could you tell me, Mr. Bednarski, what design features of the intake facilities have been developed to protect those facilities as against that situation?

WITNESS BEDNARSKI: Yes. The levees and the intake structures within the footprint of our activities have all been raised to that elevation, as have the levees and embankments and elevated paths that house the sedimentation basins, the sediment drawing basins and any of the support equipment that we have to operate the intakes. Those are all set at that 200-year flood plus sea level rise.

MR. ALADJEM: Chair Doduc, if I might have just one moment to review my notes.

CO-HEARING OFFICER DODUC: Go ahead, Mr. Aladjem.

MR. ALADJEM: Chair Doduc, no further questions.

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

I believe Group 7, Mr. Aaron Ferguson, would also like to conduct cross-examination as part of

Group 7.

CROSS-EXAMINATION BY

MR. FERGUSON: Good morning, Mr. Bednarski.

WITNESS BEDNARSKI: Good morning.

MR. FERGUSON: Good morning, Mr. Bednarski.

I'm Aaron Ferguson representing the Sacramento County Water Agency.

I'm going to ask you a few questions related to potential construction impacts on local facilities that Sacramento Water Agency manages.

CO-HEARING OFFICER DODUC: Mr. Ferguson, you need to get closer to the microphone, please.

MR. FERGUSON: So, on Page 2 of your testimony, you indicate that (reading):

"Construction impacts having the potential to affect other legal (sic) users of water are . . . limited to . . . impacts to existing water supply facilities and . . . groundwater levels."

And those are the sorts of impacts that you analyzed in your testimony; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. FERGUSON: As part of that analysis, you analyzed whether there are impacts on various surface water diversions, agricultural canals, as well as potential impacts on groundwater in or around the

facilities; is that correct?

WITNESS BEDNARSKI: That is correct.

MR. FERGUSON: Did the Engineering Team analyze any potential construction impacts to existing groundwater production facilities that may be in the path or in and around the various Cal WaterFix facilities, such as intake for the tunnels?

WITNESS BUCHHOLZ: If I may. Gwen Buchholz.

The -- We didn't do -- We weren't able to obtain the well logs from private wells, whether they were agricultural or potable water wells.

We used some very regional information to indicate the trending of how many wells might be in the area that was prepared by previous studies by Department of Water Resources.

And during -- In the Environmental Impact Report, Draft Environmental Impact Report, Draft Environmental Impact Statement and Recirculated Draft EIR and Supplemental Draft EIS, we indicate that the very first thing that will be done during the design phases is to obtain detailed information on those wells.

And in light of that knowledge that we know that they could be in the area, but we don't know the specific locations, we would -- we included mitigation measures to reduce the effect -- the construction

operations of the WaterFix facilities on those wells to a level of less than significance.

MR. FERGUSON: So would that potentially --

(Cellphone ringing.)

CO-HEARING OFFICER DODUC: Hold on, Mr. Ferguson. I'm being annoyed by someone's phone.

UNIDENTIFIED SPEAKER: My apologies.

CO-HEARING OFFICER DODUC: That's why I say check and recheck.

Mr. Ferguson, please continue. Thank you.

MR. FERGUSON: So, Miss Buchholz, in terms of the mitigation, would that include potential impacts -- And I understand the mitigation in the environmental documents concerns impacts to perhaps the agricultural wells in and around the intakes; is that correct?

WITNESS BUCHHOLZ: That's included, and that's referenced in Chapter 14 of the environmental documents.

MR. FERGUSON: Would the mitigation potentially include any impacts to, say, municipal wells found in and around the path of the proposed facilities?

WITNESS BUCHHOLZ: The municipal or individual private potable wells as well as agricultural wells are addressed in Chapter 7 as well as Chapter 14 for the agricultural facilities.

MR. FERGUSON: Okay. Okay. I'd like to talk a little bit about Reach 2 of the intake tunnel, the tunnel that -- Correct me if I'm wrong. It's the tunnel reach that extends from Intake 3 to the Intermediate Forebay; is that correct?

WITNESS BEDNARSKI: Yes, it is.

MR. FERGUSON: Okay. And your testimony indicates that the -- what are called the inverts to the north tunnels are projected to be at around 122 to 135 feet below mean sea level; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. FERGUSON: Roughly.

And the invert is the bottom of the tunnel; is that correct?

WITNESS BEDNARSKI: That's right.

MR. FERGUSON: Okay.

WITNESS BEDNARSKI: The inside bottom.

MR. FERGUSON: Okay. Can -- I have a slide, one of the mapbook slides. Can you go ahead and bring that up?

(Document displayed on screen.)

MR. FERGUSON: This is a mapbook from the revised environmental document.

Can you please turn to Sheet 1, I think it's called.

Continue down.

So can we stop right there.

So I -- I just want to be clear. We're talking about Reach 2 extends out of the bottom of Intake 3 there; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. FERGUSON: Now can we slide down to the next slide, please.

(Document displayed on screen.)

MR. FERGUSON: And stop. Or actually can you go up, please?

So it's a little hard to read.

Can you scroll up a little bit, please?

But that is Reach 2 continuing there from the previous slide; is that correct?

WITNESS BEDNARSKI: Yeah. Yes, it is.

MR. FERGUSON: Okay. And is it -- At the top, it's a little hard to read, but does it pass through the town of Hood --

WITNESS BEDNARSKI: Yes, it does.

MR. FERGUSON: -- or underneath the town of Hood?

WITNESS BEDNARSKI: Yes.

MR. FERGUSON: Okay. Thank you.

Sir, are you aware of the existence of two

drinking water supply wells that the Sacramento Water Agency uses to provide drinking water in the town of Hood?

WITNESS BEDNARSKI: I am not.

MR. FERGUSON: Okay. I'd like to focus in a little bit on these wells and the potential relationship between these wells and the tunnels.

So can you go ahead and please bring up the next item.

(Document displayed on screen.)

MR. FERGUSON: And I'm going to want to -- I'll explain what's in this.

I'm going to want to mark this as SCWA Exhibit 1.

(Sacramento County Water Agency's Exhibit 1 marked for identification)

MR. FERGUSON: There's two slides to it. What the engineers at the agency did was do their best to look at Reach 2 as it's explained in the mapbook and then try to plot it across the town of Hood in order to get a sense of the relationship between the relationship of the proposed tunnel and the existing drinking water wells.

So you'll see on the left side of the screen the Agency's Well 19, that's their -- called their Third Street well, is approximately 410 feet to the west of

where the tunnel is proposed to be located, and approximately 185 feet to the east is their Well 20.

So my first question to you: Does the alignment of the tunnel in this area, the WaterFix tunnel, roughly coincide with your understanding of where the -- the surface features that would cross under the passing at approximately Fourth Street?

WITNESS BEDNARSKI: Yes, I believe it does.

MR. FERGUSON: Okay. Thank you.

Can you please slide down to next slide.

(Document displayed on screen.)

MR. FERGUSON: So the Engineers as well have also prepared a cross-section, just to try to, you know, present a relationship between where the tunnel would be, recognizing that the invert elevation will be -- you know, could be in a range of 125 to 130 feet.

And you see the two potential elevations of the tunnel there in the middle and then the relationship to the two wells.

And the Well 19 is at -- an open-hole well 192 feet below ground. And then Well 20 on the screen about 122 feet, and I believe it has some additional screens as well that are lower.

So -- Now, I understood you to say that you weren't aware of the existence of these wells; is that

correct?

WITNESS BEDNARSKI: I was not.

MR. FERGUSON: Okay. So as part of the Engineering Team analysis, there was no analysis of whether the WaterFix construction and operation activities could, say, impact the physical integrity of these wells or the aquifer in or around these wells; is that correct?

MR. MIZELL: Objection: Misstates the testimony Miss Buchholz provided where analysis was provided.

CO-HEARING OFFICER DODUC: Mr. Ferguson asked if a certain analysis was done. I believe Mr. Bednarski could answer that question.

WITNESS BEDNARSKI: Not on these specific wells, no, I don't believe there was an analysis done.

MR. FERGUSON: Okay. So, in your opinion, you know, you spoke -- Let me see. You spoke a lot about the proposed boring technology and approach that's going to be used.

Could the proposed tunnel boring approach potentially disrupt the physical integrity of these -- these wells, given the proximity to the tunnel?

WITNESS BEDNARSKI: No.

MR. FERGUSON: Does the Cal WaterFix -- and

perhaps I prefer the answer from Miss Buchholz. But I just want to be sure I heard it correctly.

Is there a monitoring strategy to ensure that the integrity of wells like these are not compromised during the boring process?

WITNESS BUCHHOLZ: That's one of our mitigation measures, yes.

MR. FERGUSON: Okay. And you indicated that that's in the groundwater section of the EIR.

WITNESS BUCHHOLZ: It's in Chapter 7, Chapter 14 and Chapter 20.

MR. FERGUSON: I'd like to talk a little bit about your testimony regarding the tunnel-boring machines and the approach to that tunneling.

So, you indicate that the proper use of the machines greatly reduces the potential for overexcavation -- I'm sorry.

The pressure balance machines greatly reduce the potential for overexcavation and resulting surface settlement; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. FERGUSON: So there is the potential for some surface settlement in this process; correct?

WITNESS BEDNARSKI: If the equipment is not operated properly and monitoring is not conducted, there

is the potential.

MR. FERGUSON: So, in your opinion, if there were to be surface settlement in and around the ground level above the boring machine, could that impact the physical integrity of wells such as these?

MR. MIZELL: Objection: Vague. Where would the surface element occur and . . .

MR. FERGUSON: So if there were -- If there was surface settlement -- It's not real specific in the testimony so I'm not clear, either.

But if there was surface settlement as a result of the tunnel boring, would it occur at the surface of the tunneling machine?

WITNESS BEDNARSKI: Most likely, yes.

MR. FERGUSON: Okay. So if that would occur above the surface of the tunneling machine, with these sorts of spatial relationships, with these municipal wells, could that have an impact on any of these facilities?

WITNESS BEDNARSKI: I don't believe so.

MR. FERGUSON: Do you -- In your opinion, could it cause groundwater well hole movement, do you believe? There's . . .

WITNESS BEDNARSKI: I don't believe so.

MR. FERGUSON: Do you know whether the surface

settlement could cause any -- any change in the aquifer production characteristics?

WITNESS BEDNARSKI: I'm sorry. Could you repeat your question?

MR. FERGUSON: Could the -- Could any settlement caused by potential overexcavation, which you explained in your testimony, result in any effects on the aquifer that serves these wells in such a way that it could, say, adversely change the aquifer production yield?

WITNESS BUCHHOLZ: I guess if I could restate the question so I understand it.

First of all, I think the surface settlement would be different. This is a different settlement than occurs when we have an overdraft in the groundwater and it causes regional land subsidence.

This is, say, something that would happen to construction area above the area if the equipment was not operated correctly and monitored correctly.

So I don't believe that this would change anything and cause subsidence and compaction of the aquifer geo -- hydrogeological conditions.

And, again, mitigation measures would require monitoring for production at all the wells in the vicinity of the construction. This will be especially on

well Number 20, which would be relatively close. Monitor West 19 or W19 would not be as close.

MR. FERGUSON: Okay. So I just heard you to say, Miss Buchholz, that there will be monitoring occurring in wells like these for their production yield --

WITNESS BUCHHOLZ: Right. The length --

MR. FERGUSON: -- that started before the WaterFix tunneling and, then, during and after to understand if there's been an effect?

WITNESS BUCHHOLZ: Right. The proximity between the well and the construction zone, that criteria has not been determined yet.

MR. FERGUSON: Okay. So when you say the criteria has not been determined yet, that means that -- that must mean there are no thresholds for determining potential impacts?

WITNESS BUCHHOLZ: At this point in time, no, there's not a quantitative threshold, and that would become part of the Mitigation and Monitoring Report that still has to be prepared.

MR. FERGUSON: Okay. Thank you.

I'd like to talk briefly about the tunnel lining system.

Mr. Bednarski, you indicate that the tunnel

lining system and methodologies will minimize potential effects to groundwater during construction and operation.

So please correct me if I'm wrong, but are you acknowledging there could be effects to groundwater during construction operation of the tunnels as it relates to the presence of the tunnels in the ground and the tunnel lining system that would be employed?

WITNESS BEDNARSKI: We -- We do not believe there'll be any impacts to the groundwater regime during construction.

MR. FERGUSON: What potential effects might there be during construction?

MR. MIZELL: Objection: Vague.

Can you clarify what type of effects you're looking for?

MR. FERGUSON: Could there be potential dewatering effects as a result of, say, the lack of integrity of the tunnel lining system?

WITNESS BEDNARSKI: No, there will not be.

The tunnel lining system is multifaceted. There is the . . . the segments with the gaskets that will go into compression once the segments are lined, and then there's an annular grouting that is placed around that outside of the segments to seal it.

So we do not believe there'll be any impact on

the groundwater.

MR. FERGUSON: So, will there be a monitoring plan in place over time to assess the performance of that tunnel lining system and whether there could be impacts on the aquifer as a result of leakage or potential dewatering?

WITNESS BEDNARSKI: I believe there would be.

MR. FERGUSON: Okay. Thank you.

So, I'd like to talk a little bit about groundwater flow and potential groundwater surface water interaction in and around the areas of the river where the intake tunnels will be located. I'm particularly interested in Reach 2 but I'll ask more generally perhaps.

So Reach 2 of the tunnel will be about 40 feet in diameter; is that correct?

WITNESS BEDNARSKI: Yeah, that's correct.

MR. FERGUSON: Okay. And it'll -- Reach 2 in particular run about, what, six and three-quarter miles from intake to the Intermediate Forebay?

WITNESS BEDNARSKI: Yes.

MR. FERGUSON: At an elevation, again, at about 122 feet beneath sea level?

WITNESS BEDNARSKI: Yes.

MR. FERGUSON: So that's a substantial

construction; correct?

WITNESS BEDNARSKI: Yes.

MR. FERGUSON: So could a tunnel of that size in this location on the Sacramento River have an impact on the surface water/groundwater interaction or change the surface water/groundwater interaction in any manner?

WITNESS BUCHHOLZ: Well, we looked at the available geotechnical visions in this area and coupled that with the information that was compiled by the United States Geological Survey, and, if I could observe from your exhibit here that's up right now on Figure CWA 1-1.

The tunnel would be to the left of that figure, if I've got this oriented right. I believe the left is the riverside --

MR. FERGUSON: Yes.

WITNESS BUCHHOLZ: -- of the map?

So we see groundwater recharge in this area to the wells, both -- especially in the area, both from the east coming off the mountains, and groundwater direction towards the river. And we also see groundwater recharge from the river back to the land side.

We don't believe that the structures you can see in the red circles, where they're dashed or dotted or solid or dotted, would be the overall recharge of the production rates of these wells at these kind of depths,

because the geology appears to be interbedded layers of sand and clays, and sands -- salty sands -- salty clays so we believe that the recharge would continue and that that tunnel structure would not affect recharge of those wells.

MR. FERGUSON: Okay. Thank you, Miss Buchholz.

I'd like to talk real briefly about the intakes and the same issue, surface water/groundwater interaction and groundwater recharge.

So my understanding is, the intakes will range in length from about 1259 feet to 667 feet; correct?

WITNESS VALLES: Correct.

MR. FERGUSON: And there will be slurry cutoff walls around these facilities; correct?

WITNESS VALLES: Correct.

MR. FERGUSON: And I believe from DWR-218, which Miss Buchholz prepared, it indicates that the slurry walls may be as deep as 150 feet.

Is that accurate?

WITNESS VALLES: I believe it -- That's correct.

MR. FERGUSON: Okay. So my understanding from the testimony is that the slurry walls are used to address issues of potential dewatering surrounding the surrounding aquifer; is that correct? As well as

potential seepage from the sedimentation basins into those aquifers as well.

WITNESS VALLES: Yeah. Those slurry walls basically protect both sides of the wall.

MR. FERGUSON: Okay. So did the -- Did the Engineering Team -- Forgive me, Miss Buchholz, but I believe it's your testimony you indicated -- and this is DWR-218 -- you indicated, around the intakes, water generally flowed from the river to the east, is that correct, into the basin?

WITNESS BUCHHOLZ: It depends on each intake. Some of the intakes -- The first most northerly intake has water -- groundwater/surface water around both sides to it.

But primarily in the areas adjacent to the river, you'll see water moving -- migrating from the river if it's high enough in towards the recharge of the groundwater wells, especially if they're at these depths.

MR. FERGUSON: Okay. So did the Engineering Team analyze the potential impacts of groundwater recharge associated with these 3,000-plus-foot barriers, essentially, to the -- and analyze potential impacts on groundwater recharge in the area?

WITNESS BUCHHOLZ: We used the United States Geological Survey, Central Valley and Hydrologic Model to

look at regional trends of moving -- of the -- of water that would be removed because of the intake location.

We believe that the slurry walls now that are -- and that was considering a slurry -- or the diaphragm wall along the levee road.

We'd leave that with the slurry walls surrounding the entire site, but the groundwater would still move around this structure, because the aquifer is so much larger than the areas that will be included by the slurry walls.

And we believe that -- But at the same time, we would continue, as I said -- as we said in Chapter 7 and 14 and 20, that we would begin a Monitoring Program for wells that would be considered close but that distance hasn't been determined yet. It will be in the Mitigation and Monitoring Plan.

MR. FERGUSON: Okay. You were focused on particular wells, Miss Buchholz.

Is there any broader analysis of -- and maybe you said this -- any broader analysis of impacts to the aquifer and the subbasement itself and the --

WITNESS BUCHHOLZ: The actual modeling in the -- that's presented in Chapter 7 of the Draft EIR Supplemental -- Draft EIR/Draft EIS was actually much more of a regional aquifer recharge and effects on the

regional aquifer than it was on individual wells.

MR. FERGUSON: I have no further questions.

I would, if I might, if it's the appropriate time, to request that these two exhibits be moved into the record.

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

I think I'm going to request that all exhibits used for cross-examination be identified, but then let's wait until the completion of all the panels and all the cross-examination before moving it into the record.

MR. FERGUSON: Thank you.

CO-HEARING OFFICER DODUC: All right. We will now move into Group Number 8, Tehama-Colusa Canal Authority.

No one's here from Group 8.

Group 9, North Delta Water Agency.

Mr. O'Brien is coming up.

CROSS-EXAMINATION BY

MR. O'BRIEN: Good morning, Members of the Board and staff, members of the panel.

If we could pull up the PowerPoint which is DWR-2, Page 19, please.

(Document displayed on screen.)

MR. O'BRIEN: Mr. Bednarski, you testified

about water rights in the vicinity of the proposed intakes that will be affected by the Cal~WaterFix Project; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. O'BRIEN: And, as I understand it, you and your colleagues have identified 10 water right holders that will be temporary -- temporarily affected, and of those 10, five will also be permanently affected; is that correct?

WITNESS BEDNARSKI: I believe it's 15 total.

MR. O'BRIEN: Okay.

WITNESS BEDNARSKI: I have the numbers here.

MR. O'BRIEN: That was my question.

WITNESS BEDNARSKI: Let's see. Yeah, it's 15 total.

MR. O'BRIEN: Okay. So just -- Just so I'm clear on this:

So we've got ten that will be temporarily affected, and then an additional five that will be permanently affected, but we're not counting the five under the temporarily affected category.

WITNESS BEDNARSKI: That's right.

But we would go through the same process during the temporary construction activities. Then they would convert over to being permanently affected.

MR. O'BRIEN: Okay. And when you use the term "affected" in this slide, what do you mean?

WITNESS BEDNARSKI: That our construction activities would -- would in some measure require us to modify their existing facilities so that they could continue their operation as they do today.

MR. O'BRIEN: You referred to construction activities, but I want to focus in on the permanently affected group.

WITNESS BEDNARSKI: Um-hmm.

MR. O'BRIEN: I assume that those five water users would be affected after construction activities are completed and the Project is in operation.

So I guess my -- my question is: With respect to those five, what do you mean by the term "affected"?

WITNESS BEDNARSKI: Well, as my testimony stated, we will actually be relocating completely the location of their current diversion to another location, so . . . there'll be another site for their diversion identified and implemented.

MR. O'BRIEN: I understand that. We're going to get to that in a minute.

But I want to -- I want to make sure I understand your use of the term "affected." It's triggering these other actions that we're going to talk

about.

And I just want to make sure I understand how you personally define that term as you used it in this slide.

WITNESS BEDNARSKI: Actually, when we reviewed this slide, we felt that there was a typographical error and we meant "effected." Effected. And they were impacted would be another term to use in its place, that they were impacted by our operations.

MR. O'BRIEN: Would another term be "injured"?

MR. MIZELL: Objection: Calls for a legal conclusion.

MR. O'BRIEN: I'm not asking for your conclusion. I'm asking for your interpretation of the word that's used in your slide.

CO-HEARING OFFICER DODUC: Go ahead and answer.

WITNESS BEDNARSKI: Do you want me to answer?

CO-HEARING OFFICER DODUC: Yes.

WITNESS BEDNARSKI: I would not use that term.

MR. O'BRIEN: You would not use the term "injured."

WITNESS BEDNARSKI: I would use "effected" or "impacted."

MR. O'BRIEN: What's the difference between "impacted," "effected," and "injury" in your mind?

WITNESS BEDNARSKI: You're asking for personal opinion?

MR. O'BRIEN: Yes.

WITNESS BEDNARSKI: "Injured" is that they are in a lesser situation than when we started this Project.

"Impacted," they would have -- there would be a temporary impact and then we would restore the quantity and quality of water to what it was before the Project.

MR. O'BRIEN: So, in your mind, the distinction between "injured" and "impacted" is essentially a temporal issue; is that correct?

WITNESS BEDNARSKI: In my personal opinion, "injured" is, there is some continuing lasting effect that is of a lesser level than when we started our construction activity.

MR. O'BRIEN: Okay. Fair enough.

Do you know, is there any document available that identifies by name these 15 water right holders that will be affected?

WITNESS BEDNARSKI: Yes. I believe that's in the testimony or the documentation here.

CO-HEARING OFFICER DODUC: I think somebody's phone is vibrating.

Thank you.

WITNESS BEDNARSKI: I believe that's listed in

DWR-221.

MR. O'BRIEN: 221. And that includes names of those users?

WITNESS BEDNARSKI: Yes, it does.

MR. O'BRIEN: Okay. Thank you.

Have you or any members of the Project Design Team actually spoken with any of these 15 water users?

WITNESS BEDNARSKI: Not to my knowledge.

MR. O'BRIEN: Has anyone affiliated with the Cal~WaterFix Project spoken to any of these water users, to your knowledge?

THE WITNESS: Not to my personal knowledge.

MR. O'BRIEN: Are you aware of any plans to do so?

WITNESS BEDNARSKI: Not -- Not to my knowledge.

MR. O'BRIEN: Has the Project Design Team done any analysis of the specific water diversion needs of any of these 15 water users in terms of rates, diversion, that sort of thing?

WITNESS BEDNARSKI: Not at the present time. That activity was going to be undertaken in the future.

MR. O'BRIEN: Do you have a time frame for that?

WITNESS BEDNARSKI: If the Project is permitted to move to the next phase, Preliminary Design, we would

be beginning those activities at that point in time.

MR. O'BRIEN: And that would occur after this State Board process is concluded?

WITNESS BEDNARSKI: As far as the Engineering Team goes, whenever we are authorized to do that, commence Preliminary Design, we will begin those activities.

MR. O'BRIEN: So I take it from your previous answers that there really hasn't been any focused analysis of what it will take to fully mitigate impacts of the Project on these 15 water users.

Is that a fair statement?

WITNESS BEDNARSKI: At the present time, yes, that is a correct statement.

But as I've stated in our testimony, the Department's commitment is to make all of these users whole at the completion of our activities.

MR. O'BRIEN: If you don't know the specifics about these users' farming operations, how do you know you can make them whole?

WITNESS BEDNARSKI: We are committed to investigate them and to take the appropriate measures to bring them back to the conditions that they're at now as far as water quantity and quality.

MR. O'BRIEN: But as you sit here today, you

really have no idea how you're going to go about doing that; is that correct?

WITNESS BEDNARSKI: We do not have specific methodologies, no, but we have a number of potential activities. Those were listed in my testimony.

MR. O'BRIEN: Have you done any analysis of the -- the feasibility of farming by these water users after these unidentified mitigation measures are implemented?

WITNESS BEDNARSKI: Not to my knowledge.

MR. O'BRIEN: In your testimony this morning, you stated that several of these diversions are not in the State Water Resources Control Board database.

Do you recall that?

WITNESS BEDNARSKI: Yes, I do.

MR. O'BRIEN: Did you personally perform a search of the State Board database?

WITNESS BEDNARSKI: I did not personally.

MR. O'BRIEN: Have you reviewed the search?

WITNESS BEDNARSKI: I have reviewed that table that was prepared by people that did the search.

MR. O'BRIEN: But you don't have any personal knowledge of the actual search. You were not personally involved in any way in that search.

WITNESS BEDNARSKI: No, I was not.

MR. O'BRIEN: Did you supervise that search?

WITNESS BEDNARSKI: No, I did not.

MR. O'BRIEN: So you don't have any personal knowledge about these water users that apparently did not show up in the search of the databases.

WITNESS BEDNARSKI: I -- I do not.

MR. O'BRIEN: Hearing Officer Doduc, I'm going to move to strike from the record the testimony about lack of information in the State Board database regarding certain water users -- and this goes both to the oral testimony this morning, also DWR-2, Pages 21, 22 and 23 -- on the grounds of lack of foundation and hearsay.

CO-HEARING OFFICER DODUC: Mr. Mizell or Mr. Berliner, your response?

MR. BERLINER: Yeah. As an expert witness, he's entitled to rely on the work of others, which is what he indicated that he's done.

I think if Mr. O'Brien's concerned about foundation, then we should direct it to the people that have done that work and explore the foundation for those conclusions.

So I suggest we hold the question open for the time being.

MR. O'BRIEN: May I respond briefly?

CO-HEARING OFFICER DODUC: Mr. O'Brien.

MR. O'BRIEN: First of all, it's an old trick of litigators to get information in under the guise of evidence relied on by an expert. I'm not accusing of Mr. Berliner of pulling tricks, but it happens.

There's recent case law, including a recent California Supreme Court case, directly on point on this.

And the rules are tightening up. You can't put an expert witness on the stand and have evidence that's objectionable based on hearsay or other grounds come in simply because that witness purportedly relied on it.

This is a very important issue in this proceeding. This goes to the very heart of the question of whether there will be injury to other legal users of water as a result of this Project.

It seems to me not unreasonable to require the projects to come forward with witnesses who have personal information about the water right searches and to basically give us the opportunity to examine those witnesses.

So I will leave it at that. If you want to -- If the Hearing Officer wants to defer ruling on this, I understand, but I just wanted to make that.

CO-HEARING OFFICER DODUC: Mr. Bednarski, or Mr. Berliner, who on your team did that research in order to provide you with that information which you included

in your testimony?

WITNESS BEDNARSKI: Yes. One of our panelists, Prada Pirabarooban, was to be on our panel, but he is not available. He conducted that survey and prepared that information.

CO-HEARING OFFICER DODUC: Okay. We will flag that for when Mr. Rubin . . .

WITNESS BEDNARSKI: Prada Pirabarooban.

CO-HEARING OFFICER DODUC: . . . is able to join us.

Mr. O'Brien, we will flag that question.

MR. O'BRIEN: Thank you.

Switching gears a bit here, Mr. Bednarski.

When you set about the process of developing the conceptional design for the Project, did you consider constraints on the way the Project could be operated? And when I use the word "constraints," I'm talking about regulatory legal constraints.

WITNESS BEDNARSKI: No, we did not.

MR. O'BRIEN: So you just basically designed the Project the way you as an engineer would like to see it designed and you didn't concern yourself with any existing legal or regulatory constraints.

WITNESS BEDNARSKI: No, that is not correct.

MR. O'BRIEN: Okay. Why don't you explain what

you did.

WITNESS BEDNARSKI: Which portion of the Project do you want me to describe?

MR. O'BRIEN: Well, I don't want to limit it to a portion of the Project. I'm talking about as a matter of process.

When you and the Design Team sat down to start the process of conceptional design, did you have a process or take into consideration existing legal and regulatory constraints that might constrain the way this Project could be operated?

MR. MIZELL: And I'm going to object to the questions on operation.

This is engineering and they have design constraints and design specifications, but operations is for the Operational Panel.

CO-HEARING OFFICER DODUC: I believe Mr. O'Brien's question was whether or not those were taken into consideration.

And, Mr. Bednarski, please answer.

WITNESS BEDNARSKI: I can only assume that those types of considerations were taken into account prior to specific design criteria being given to the Design Team to prepare the conceptual design around --

MR. O'BRIEN: Okay. So --

WITNESS BEDNARSKI: -- those legal and regulatory areas that you mentioned.

MR. O'BRIEN: Okay. That's helpful.

So, the Design Team itself didn't consider those sorts of legal and regulatory constraints, but you believe that that may have occurred in some other process, the outcome of which was to essentially give you direction on what type of Project to design.

WITNESS BEDNARSKI: That's correct.

MR. O'BRIEN: Okay. And this direction that you received in terms of the way the Project should be designed, what form did that take?

WITNESS BEDNARSKI: There were other earlier documents that were relied upon that had multiple alternatives identified in those. We built upon those.

The -- You know, the capacity of the program was identified to us as far as, you know, 9,000 cfs, the number of intakes. Their capacities were identified to us. The ability to divert certain amounts of water at certain river staging criteria was identified to us.

We utilized that information.

MR. O'BRIEN: In this information that you were provided, was there any discussion about constraints that would be placed on the Project operations by the 1981 contract between the North Delta Water Agency and the

Department of Water Resources?

WITNESS BEDNARSKI: I am not aware of that.

MR. O'BRIEN: Have you ever reviewed that contract?

WITNESS BEDNARSKI: No, I have not.

MR. O'BRIEN: So you're not aware of the terms and conditions of that contract.

WITNESS BEDNARSKI: No.

MR. O'BRIEN: So, as far as you were concerned as a member of the Design Team, you're not -- you're not aware of any specific direction that was given to take into consideration requirements of that 1981 North Delta Water Agency contract when you set about to prepare that conceptual design; right?

WITNESS BEDNARSKI: To the best of my knowledge, no.

MR. O'BRIEN: And there was no discussion in the design process about the 1981 North Delta Water Agency contract or any of the provisions that might be relevant to design.

WITNESS BEDNARSKI: In the time that I've been on the Project, I'm not aware of any.

MR. O'BRIEN: Okay. You showed a video during your testimony -- Actually, I think there were a couple of them. And we can pull it up if we need to but I'm not

sure we will.

This was the first video that showed basically the construction. I think it focused on Intake No. 2.

And there was -- In and around that proposed intake, there were some areas that had been essentially cleared.

Do you recall that?

WITNESS BEDNARSKI: Yes, I do.

MR. O'BRIEN: In that video, are you aware of any effort that was made to make sure that -- that those cleared areas of land as shown in the video are accurate in terms of the amount of land that will actually have to be cleared in connection with the construction?

WITNESS BEDNARSKI: As far as that specific area, when we developed the video, I would not be able to say that that fits exactly with the dimensions that are shown on documents in the Environmental Impact Report or the CER. I believe it was for illustrative purposes only.

MR. O'BRIEN: Okay. So it shouldn't be taken as necessarily an accurate depiction of exactly how much land will have to be cleared as part of the construction process.

WITNESS BEDNARSKI: I will -- No, it was not.

MR. O'BRIEN: Okay. Thank you.

I have no further questions.

CO-HEARING OFFICER DODUC: Thank you, Mr. O'Brien.

Does Group Number 10 wish to conduct cross? And, if so, Mr. Aladjem, will it take more than five minutes?

MR. ALADJEM: I don't believe so, Chair Doduc.

CO-HEARING OFFICER DODUC: All right. Please come up, then.

We will then take a lunch break after Mr. Aladjem finishes.

CROSS-EXAMINATION BY

MR. ALADJEM: Good morning, Chair Doduc, Members of the Board.

Mr. Bednarski, good morning again.

WITNESS BEDNARSKI: Hello.

MR. ALADJEM: Mr. Bednarski, I'm here in this iteration on behalf of the City of Brentwood.

Do you know where the City of Brentwood is?

WITNESS BEDNARSKI: No, I do not.

MR. ALADJEM: For your information, it's in the Western Delta.

Mr. O'Brien just concluded a series of questions or colloquy with you on the North Delta Water Agency contract.

Do you recall that discussion?

WITNESS BEDNARSKI: Yes.

MR. ALADJEM: Are you familiar, sir, with DWR Exhibit 305, which is a contract between the State of California Department of Water Resources and the East Contra Costa Irrigation District for the assurance of a dependable water supply of suitable quality?

WITNESS BEDNARSKI: No, I'm not.

MR. ALADJEM: During your colloquy with Mr. O'Brien, you indicated that provisions of the North Delta contract were not included in the design criteria for the California WaterFix Project; is that correct?

WITNESS BEDNARSKI: Not to my knowledge, I have never discussed those in my tenure on the Project, so if they are incorporated, it's unbeknownst to me.

MR. ALADJEM: And would it be fair to say, since you've never seen DWR-305, that the same could be said about the East Contra Costa Irrigation District Contract?

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: If staff could put back up the exhibits I was using, Department of Water Resources 212, that page -- Table 4-6.

(Document displayed on screen.)

MR. ALADJEM: The next page.

Mr. Bednarski, under the System Mode of Operation, would it be fair to say that there is no mention of the East Contra Costa Irrigation District contract or other legal obligations of the Department?

WITNESS BEDNARSKI: That's correct.

MR. ALADJEM: No further questions.

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

With that, we will take our lunch break and we will resume at 1 o'clock.

(Luncheon recess was taken at 11:55 a.m.)

Friday, August 5, 2016 1:00 p.m.

PROCEEDINGS

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CO-HEARING OFFICER DODUC: All right. It is 1 o'clock and we are back in session.

We will now resume cross-examination of Panel 2.

And next up is Group Number 11, The Water Forum.

The Water Forum is not here.

Group Number 12, County of Colusa . . . is not here.

13, Sacramento Regional . . . is not here.

14, Yolo County . . . is not here.

15, East Bay Municipal Utility District.

MR. ETHERIDGE: We are here.

CO-HEARING OFFICER DODUC: Good afternoon. Are you Mr. Etheridge or Mr. Salmon?

MR. ETHERIDGE: I am Mr. Etheridge.

CO-HEARING OFFICER DODUC: All right. Good afternoon, Mr. Ethridge.

MR. ETHERIDGE: Good afternoon.

CROSS-EXAMINATION BY

MR. ETHERIDGE: Good afternoon, Mr. Bednarski.

My name is Fred Ethridge. I'm an attorney in the Office of General Counsel at the East Bay Municipal Utility District.

For the court reporter's benefit, during my questioning, I may refer to EBMUD or East Bay MUD. That, of course, is short for the East Bay Municipal Utility District.

Your testimony provided a stage engineering Project description for the California WaterFix Project; is that correct?

WITNESS BEDNARSKI: Yes, it is.

MR. ETHERIDGE: It is based, in part, on the Conceptual Engineering Report that is designated as DWR-212; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. ETHERIDGE: And this morning in testimony -- or your responses to questioning, I believe, from Mr. Aladjem, you testified that that document, the Conceptual Engineering Report, was prepared under your direction; is that correct?

WITNESS BEDNARSKI: Yes, it was.

MR. ETHERIDGE: Okay. So, at this point, the Project has been developed to a conceptual level; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. ETHERIDGE: Will design continue to be refined in future engineering phases?

WITNESS BEDNARSKI: Yes.

MR. ETHERIDGE: What are those future engineering phases?

WITNESS BEDNARSKI: Preliminary and Final Design.

MR. ETHERIDGE: When will they be completed?

WITNESS BEDNARSKI: It depends on when the Team is authorized to commence Preliminary Design. Then we'll, you know, continue on into Final Design after that.

MR. ETHERIDGE: Okay. But it's sometime in the future.

WITNESS BEDNARSKI: Sometime in the future, that's right.

MR. ETHERIDGE: As to the dual Main Tunnels that you testified about this morning in your presentation, does your written testimony state that (reading):

"Tunnel details, including tunnel (sic) alignment, length, depth, and lining requirements, will be refined as geotechnical data becomes available during the next stages of project design."

WITNESS BEDNARSKI: Yes, they will.

MR. ETHERIDGE: And are those next stages of Project design the same thing as the next stages of engineering in the Preliminary and Final engineering?

WITNESS BEDNARSKI: Yes, they are.

MR. ETHERIDGE: How will Petitioners address impacts discovered later in the process during the next stages of design and engineering?

MR. BERLINER: Objection: Vague.

That's an awfully broad subject. If you could be more specific.

CO-HEARING OFFICER DODUC: Mr. Ethridge, could you be more specific?

MR. ETHERIDGE: Well, we can get more specific later on issues, but the point is, this Project to this point has been designed only to a conceptual level. It has not been designed to a Preliminary or Final Design level.

During the design of the Project as it proceeds through Preliminary and Final, new impacts need to be discovered. How will those new impacts be mitigated?

CO-HEARING OFFICER DODUC: Answer to the best of your ability, Mr. Bednarski.

WITNESS BEDNARSKI: To the best of my knowledge, they'll be -- the mitigation measures would be implemented in a manner that's consistent with what's in

the Final EIR.

MR. ETHERIDGE: Okay. So the Final EIR would drive the --

WITNESS BEDNARSKI: As far as mitigation measures, yes.

MR. ETHERIDGE: Okay. Thank you.

Your testimony describes construction activities with a potential to effect legal users of water; is that correct?

WITNESS BEDNARSKI: Yes.

MR. ETHERIDGE: Did that analysis of construction activities include EBMUD as one of the legal users of water?

WITNESS BEDNARSKI: Not to my knowledge.

MR. ETHERIDGE: Okay. Thank you.

The project's Main Tunnels are designated in Reaches; is that true?

WITNESS BEDNARSKI: That's correct.

MR. ETHERIDGE: Which tunnel Reach crosses underneath EBMUD's existing Mokelumne Aqueducts?

WITNESS BEDNARSKI: I believe that -- It's the southernmost Reach. Is that 7?

MR. ETHERIDGE: Yeah. Would that be Reach 7?

WITNESS BEDNARSKI: Yeah.

MR. ETHERIDGE: If I could ask staff to pull up

Figure -- well, DWR Exhibit 212, Figure 3-1 that's on Page 40. And that should be on the flash drive I provided. It has just a few excerpts from Exhibit 212.

(Document displayed on screen.)

MR. ETHERIDGE: Thank you.

Are the Mokelumne Aqueducts depicted on Figure 3-1?

WITNESS BEDNARSKI: I don't believe they specifically are.

MR. ETHERIDGE: Do you see the dotted line running from east to west above that red type that says "Reach 7"?

WITNESS BEDNARSKI: Yes, I do.

MR. ETHERIDGE: Do you know what that represents?

WITNESS BEDNARSKI: Yeah. I believe that's a railroad right-of-way that goes through there. But, yeah, I'm aware your aqueduct is near there.

MR. ETHERIDGE: Do you know where the aqueducts are in relation to that Santa Fe Railroad?

WITNESS BEDNARSKI: I believe they're generally south of it.

MR. ETHERIDGE: Do you know on which island the proposed dual main tunnels cross underneath the existing Mokelumne Aqueducts?

WITNESS BEDNARSKI: I believe that's . . . Looks like Bacon, South Bacon, Woodward.

MR. ETHERIDGE: Might it be Woodward Island just to the south of Bacon?

WITNESS BEDNARSKI: Yeah.

MR. ETHERIDGE: Are you aware that the Mokelumne Aqueducts convey primary water supply to over 1.4 million people in EBMUD's East San Francisco Bay service area?

WITNESS BEDNARSKI: Yes.

MR. ETHERIDGE: Could I ask staff to please pull from the flash Exhibit 212, Page 156.

(Document displayed on screen.)

MR. ETHERIDGE: In Section 13.2.5, entitled "Mokelumne Aqueducts," this states that (reading):

"The Main Tunnels" will go "under the Mokelumne Aqueducts at the north end of Woodward Island."

Is that correct? Do you see that?

WITNESS BEDNARSKI: Yes, I do.

MR. ETHERIDGE: Can you read that next sentence to me, "These crossings."

THE WITNESS: Yes (reading):

"These crossings will be evaluated at the preliminary design Level in conjunction with East Bay MUD."

MR. ETHERIDGE: Why didn't DWR analyze the impacts on the Mokelumne Aqueducts caused by the proposed dual main tunnels now instead of deferring such analysis for later?

WITNESS BEDNARSKI: That -- That would have been a more detailed part of the engineering as opposed to the conceptual level that we're at.

We have a number of crossings in various areas through the Delta and those will all be developed in more detail in the next stage of design.

MR. ETHERIDGE: Okay. Thank you.

In the conclusion of your written testimony, DWR Exhibit 57, you conclude, quote (reading):

". . . I believe that the CWF construction will not result in any impairment of water quality or significantly affect other legal users of water."

Is that correct?

WITNESS BEDNARSKI: Yes.

MR. ETHERIDGE: How can you conclude that the Project can be constructed without significantly affecting other legal users of water if the impacts of the dual Main Tunnels cause by their crossing underneath the Mokelumne Aqueducts have not been evaluated yet?

WITNESS BEDNARSKI: I guess I'm not necessarily in agreement that there will be impacts from the tunnels

crossing underneath Mokelumne Aqueducts.

MR. ETHERIDGE: But do you know if there won't be?

WITNESS BEDNARSKI: I do not know that there will not be, but I do know that, through further engineering investigations, I'm quite confident that we'll be able to design a system that will not impact the aqueduct.

MR. ETHERIDGE: But as we sit here today in this hearing, you don't have the information yet at your disposal to make that conclusion as to the dual main tunnels' impacts on the Mokelumne Aqueducts.

WITNESS BEDNARSKI: I do not have specific information on that, no.

MR. ETHERIDGE: Okay. Thank you.

Will the dual Main Tunnels be placed at a sufficiently deep level to avoid directly interfering with the existing Mokelumne Aqueduct pile supports?

WITNESS BEDNARSKI: I believe they will, but I do not have specific information from East Bay MUD as to the depth of their pile supports.

MR. ETHERIDGE: You know that those pile supports are from 60 to 80 feet below MSL?

WITNESS BEDNARSKI: I believe I do know that.

MR. ETHERIDGE: Okay. Has DWR analyzed the

impacts of the dual Main Tunnels on EBMUD's own proposed Delta tunnel?

WITNESS BEDNARSKI: We have not been asked to do that in any detail.

MR. ETHERIDGE: Okay. Are you aware that EBMUD's proposed Delta tunnel has been evaluated to a conceptual level of design?

WITNESS BEDNARSKI: No, I'm not aware of that.

MR. ETHERIDGE: As you earlier testified, DWR has completed the design of the dual Main Tunnels to the conceptual level; is that right?

WITNESS BEDNARSKI: That's correct.

MR. ETHERIDGE: Is it true that during the future Preliminary and Final Design of the dual Main Tunnels, tunnel elements may change?

WITNESS BEDNARSKI: Yes.

MR. ETHERIDGE: Might these changes include changes to the tunnel depth, the location, size and number of shafts, tunnel diameter, tunnel slope, tunnel lining design and spacing between tunnels?

WITNESS BEDNARSKI: It's conceivable.

MR. ETHERIDGE: If such future changes to the dual Main Tunnels occur, what changes to the tunnels' impacts on the existing Mokelumne Aqueducts do you see?

WITNESS BEDNARSKI: On the existing aqueducts?

MR. ETHERIDGE: Right.

WITNESS BEDNARSKI: I don't foresee any impacts on the existing aqueducts.

I'm not aware of what our -- what these potential future changes would be so I wouldn't -- I'm not in a position to really answer what those potential future impacts would be.

MR. ETHERIDGE: Okay. Thank you.

If such future changes to the dual main tunnels occur, what changes to the tunnels' impacts on EBMUD's proposed Delta tunnels do you foresee?

WITNESS BEDNARSKI: I cannot respond to that question. I have not seen what you characterize as a conceptual design of your tunnels, so I really cannot respond to that question.

MR. ETHERIDGE: Okay. Moving on to the type of tunnel that will be constructed with the dual main tunnel.

If we can pull Exhibit 212 from the flash drive at Page 429.

(Document displayed on screen.)

MR. ETHERIDGE: Will the lining of the dual Main Tunnels be constructed of a single layer or single pass of bolted and gasketed precast reinforced concrete segments?

WITNESS BEDNARSKI: Yes, it will be.

MR. ETHERIDGE: Okay. This secondary liner is not proposed for the dual Main Tunnels; is that right?

WITNESS BEDNARSKI: That's correct.

MR. ETHERIDGE: If I can please ask staff to pull from the flash drive from DWR Exhibit 212, Page 432.

(Document displayed on screen.)

MR. ETHERIDGE: In Section 4.1, there's a sentence highlighted, so I'll read for the record. It says (reading):

"As the pressure-induced tensile strain develops, radial (longitudinal) cracking of the lining will take place, causing permeability of the lining the increase. Because of the cracks, pressure tunnels lined with reinforced concrete are classified as semipermeable linings."

Does this mean that tunnel leakage will occur in such a tunnel?

WITNESS BEDNARSKI: There is the potential under certain pressure conditions that that situation could occur.

MR. ETHERIDGE: So would it be fair to say that single-pass concrete tunnels are not watertight tunnels?

WITNESS BEDNARSKI: I don't -- Under certain conditions, with a high enough internal pressure, that

could be the case.

MR. ETHERIDGE: Okay. Thank you.

If the dual Main Tunnels are constructed using a single precast concrete-cemented lining, would you expect the permeability of the tunnel lining to increase with time?

WITNESS BEDNARSKI: Not necessarily. Some of the leakage could -- could be abated by self-healing or calcification of the cracks, and it could -- could reduce over time.

MR. ETHERIDGE: Are watertight secondary linings used on tunnels in soft ground to avoid risk imposed by single-layer linings?

WITNESS BEDNARSKI: I'm not sure that that is the only reason that steel liners would be put inside a concrete segmental line tunnel.

MR. ETHERIDGE: But would a secondary lining such as a steel liner, installed, avoid some risk posed by single-layer linings?

WITNESS BEDNARSKI: I would not necessarily characterize it as a risk, but a steel liner would certainly eliminate any potential for leakage.

MR. ETHERIDGE: Okay. Thank you.

Can you please indicate the supporting evidence, such as ground investigations and

characterization, that demonstrates DWR's approach of using a single-pass segmental lining system only without steel lining or secondary and permeable liner to avoid impacts of the dual Main Tunnels?

CO-HEARING OFFICER DODUC: As Mr. Bednarski's thinking about this, let me give some direction to the panel members.

Mr. Valles, Miss Buchholz, when you have an answer to a question that's being asked, please provide that answer yourself instead of trying to give it to Mr. Bednarski.

WITNESS BEDNARSKI: I'm sorry. Could you repeat the question.

MR. ETHERIDGE: Sure, and for the full panel.

Please indicate the supporting evidence, such as ground investigations and characterization, that demonstrates DWR's approach of using a single-pass segmental lining system only without a steel lining or secondary impermeable liner to avoid impacts of the dual Main Tunnels.

WITNESS VALLES: We've had over 209 geotechnical investigations along the alignment. And we also passed this proposal for the single-pass lining system through expert panels. And that was the recommendation of those panels, to stick with a

single-pass lining system.

MR. ETHERIDGE: And do you know who selected those panels?

WITNESS VALLES: DWR.

MR. ETHERIDGE: Okay. Thank you.

What is the design life of the dual Main Tunnels?

WITNESS BEDNARSKI: The anticipated design life of the tunnels will be designed for a 100-year life.

MR. ETHERIDGE: Okay. What evidence do you have to demonstrate the long-term performance of the gaskets and bolts required for the precast concrete tunnel segments?

WITNESS VALLES: During Preliminary Design, we're going to go through some extensive age -- aging testing of the bolted, gasketed -- gasket segments, and that would include the neoprene rubber gaskets around the lining system.

This is a pre-industry standard design, and it's used throughout the world for -- for lining systems that are geared for a hundred-year life expectancy. We're using pre-industry standard designs.

MR. ETHERIDGE: Are you aware of each types of gaskets being installed in soft ground such as you're likely to encounter in the Delta?

WITNESS VALLES: There are other areas in the world that they are using this: Thames Tideway, D.C. Water, other facilities. They're building one in Hong Kong right now, the world's largest tunnel, 57, almost 58 feet in diameter using the same process.

MR. ETHERIDGE: Can you cite any examples of pre-cast concrete segment gaskets that have lasted for a 100-year design life?

WITNESS VALLES: No.

MR. ETHERIDGE: Do you know how long the current technology has been in existence for these gaskets?

WITNESS VALLES: At least 20 years.

MR. ETHERIDGE: With factors such as age-related material degradation, creep, cyclic loading, compression, offset and fabrication tolerances, can you reasonably expect the gaskets to remain watertight over a 100-year design life?

WITNESS VALLES: Those dual Main Tunnels, you know, fortunately, they're under compressive loads, so the external pressure, you know, from the ground and from water is greater than the net pressure inside the tunnels.

So these segments will always be under compression. So it'll tend to push the segments together

and, in essence, kind of improve the leakage protection because they are being pressed together.

MR. ETHERIDGE: Let me jump to DWR Exhibit 212, Page 427, and that should be on the flash drive as well.

(Document displayed on screen.)

MR. ETHERIDGE: There we go.

There's a paragraph that begins, "One of the critical design."

I'll read the first sentence of that. It states (reading):

"One of the critical design issues for the project is determining a feasible and cost-effective lining system for the tunnel that can withstand the external loads acting on the tunnel, but also the internal water pressure."

So does this mean the tunnel lining must withstand both the ground overburden on top of the tunnel and the internal pressure within the tunnel?

WITNESS VALLES: That's correct. And it's designed for not only in-place loads but also transportation loads, erection loads -- meaning loads from the tunnel-boring machine as it pressurizes the edges of the segments -- and any internal pressure from the water -- internal water pressure.

MR. ETHERIDGE: Can the net internal pressure

be reliably balanced by the soil overburden load in the long term?

WITNESS VALLES: We believe so.

MR. ETHERIDGE: And upon what evidence do you base that conclusion?

WITNESS VALLES: The soil tends to creep. It means it wants to move and grab the tunnel. So it would creep around the tunnel segments and actually compress them. That's just the tendency of soft ground.

MR. ETHERIDGE: Will you please pull up DWR Exhibit 212, Page 143.

(Document displayed on screen.)

MR. ETHERIDGE: There's -- In the middle of that page, there's a series of five bullets. I've highlighted a sentence in the second bullet which I'll read for the record. It says (reading):

"Ground overburden to counteract the internal pressure is ignored at this conceptual phase but will be considered during preliminary and final design once detailed geotechnical data is available."

So is this another example of, this conceptual level, you haven't looked at this yet, but ignore it now but we'll pick it up later in our later stages of project design?

WITNESS VALLES: It's not necessarily ignored. It is taken somewhat in consideration.

At this point in time, we ignore -- we ignored the overall ground loads because we knew we had sufficient water -- external water pressure to balance the internal water pressure.

And it's a very, very conservative design at this point. Once you actually apply the external ground loads, it's an even better situation than it's currently designed to.

MR. ETHERIDGE: Okay. Thank you.

What analysis or numerical modeling will be performed to confirm that a single-pass system is feasible considering that the proposed dual Main Tunnels will be pressure-lined tunnels in soft ground?

WITNESS VALLES: They'll use many different types of finite element analysis, 2D, 3D, including the connections to the -- to the shafts where there's earthquake loading that gets applied.

And they'll make sure that the tunnels are appropriately designed, both from a thickness standpoint, reinforcing standpoint, and overall weight of the individual segments, and how they're being transported.

MR. ETHERIDGE: Okay. Thank you.

If you could pull DWR Exhibit 212, Page 432.

That should be on the flash drive.

(Document displayed on screen.)

MR. ETHERIDGE: At the bottom of this page, there's a Table 3.

Do you see that?

It could be any witness on the panel.

You see the Table 3 entitle (reading):

"Summary of Leakage Estimate for Lining Alternative A1."

WITNESS VALLES: Yes.

MR. ETHERIDGE: And that table states that estimated leakage rates for Reaches 1 through 5 of the dual main tunnels range from 6.3 to 11.3 cfs per thousand liter foot of tunnel; is that correct?

WITNESS VALLES: Yes. This looks like it was taken from an old CER. The 2012, that's when we had a completely pressurized system with a pumping plant at the north, and it was literally pushing the water through the tunnels.

The actual heads that are being shown there in the table above are actually much higher heads than what were currently identified under the California WaterFix.

MR. ETHERIDGE: But this table is from DWR Exhibit 212, is that correct, at Page 432?

WITNESS VALLES: It looks like that's correct.

MR. ETHERIDGE: And that is the July 2015 Conceptual Engineering Report; is that correct?

WITNESS VALLES: I believe so.

MR. ETHERIDGE: So is what you're saying is that the Project, as it's currently configured, is different than what's displayed in this Conceptual Engineering Report?

WITNESS VALLES: Yeah. This is identifying Alternative 1A.

MR. ETHERIDGE: Does this table include Reaches 6 and 7?

WITNESS VALLES: I do not see that.

WITNESS BEDNARSKI: Can we scroll down to see the next page? I'm not sure that it was carried over or not.

MR. ETHERIDGE: We did if you pull up the full Exhibit 212. I'm sure it's not.

We can do that if the staff would pull up the complete Exhibit DWR-212, Pages 432 and 433.

(Document displayed on screen.)

MR. ETHERIDGE: So you see there at the bottom of Page 432, it has Table 3, and in Column 1, it speaks to Reaches 1 through 5, and then on the continuation on the next page, 433, there is no table; is that correct?

WITNESS BEDNARSKI: That's correct.

Do we have the section numbers so we can refer to it in the smart copy that we have of that document? The section number that that memo would have been placed into?

MR. BERLINER: Is it possible to go to the cover page of that section?

WITNESS BEDNARSKI: Yeah.

MR. MIZELL: It's Appendix J.

(Document displayed on screen.)

MR. ETHERIDGE: So it looks like it's Appendix J. That should be on Page 212. That's the title page for this section.

I'm sorry. Page 425. If you'd scroll up.

(Document displayed on screen.)

MR. ETHERIDGE: Yeah, there you go.

That's the section that these pages are in.

WITNESS BEDNARSKI: Yeah. So this document and memorandum was written in 2012 by one of our Consulting Engineers that we asked to analyze specifically the tunnel lining system.

MR. ETHERIDGE: Okay. And I think you testified a couple minutes ago that that Project design has since changed from that evaluated here?

WITNESS BEDNARSKI: Yes, it has. It's been described otherwise in the main body of the CER.

MR. ETHERIDGE: Good.

Do you know the estimated leakage of the dual Main Tunnels underneath Mokelumne Aqueducts, the Project as it's currently --

WITNESS BEDNARSKI: I do not recall that.

MR. ETHERIDGE: Might effects of leakage from the dual Main Tunnels include loss of soil strength or loss of soil mass?

WITNESS BEDNARSKI: Yes, it could.

MR. ETHERIDGE: Thank you.

What analyses have been performed to assess potential impacts on the Mokelumne Aqueducts in changed ground conditions resulting from construction and operation of the dual Main Tunnels?

WITNESS BEDNARSKI: We have not conducted those analyses at this point in time.

MR. ETHERIDGE: So that would be another category that would be conducted later in the Preliminary and Final Design stages?

WITNESS BEDNARSKI: That's correct.

MR. ETHERIDGE: Okay. Thank you.

What geotechnical subsurface investigations and testing and analysis are planned for the future design of the dual Main Tunnels?

WITNESS VALLES: Our current June Technical

Plan calls for 1500 borings and CPTs. Essentially, we're planning a boring every 500 feet on the length of the alignment.

MR. ETHERIDGE: And then what will you do with the results of those borings?

WITNESS VALLES: We send them to a lab to actually analyze the information and give us -- Then, from there, we send it to geotechnical experts that will interpret the data and give us recommendations in terms of capacities for sheer, soil-bearing capacities, loads that could be applied to the -- to the ground, and also any abrasive tests that need to be performed so that we can actually size the tunnel-boring machine appropriately.

MR. ETHERIDGE: Why have the results of those investigations changed the tunnel elevation of the dual Main Tunnels?

WITNESS VALLES: Not necessarily the investigations. We can design for the depth that we have.

Other factors may. We want to make sure that we stay in as safe a zone as possible, so we would consider other factors.

MR. ETHERIDGE: Okay. Thank you.

During construction of the dual Main Tunnels,

could factors such as ground loss at the tunnel base and insufficient grouting of the voids between the excavation and the lining result in foundation settlement of the existing Mokelumne Aqueduct?

WITNESS BEDNARSKI: Yes, it could.

MR. ETHERIDGE: Could such factors also result in foundation settlement of EBMUD's proposed Delta Tunnel and the surrounding levee system in the area?

WITNESS BEDNARSKI: Yes, if not monitored and prevented.

MR. ETHERIDGE: Will DWR conduct an advanced ground improvement program such as jet grouting or alternative methods to stabilize the ground as part of the Project to reduce the risk of settlement on critical infrastructures such as the Mokelumne Aqueducts?

WITNESS BEDNARSKI: Yes. The need for those methods that you described would be identified in Preliminary and Final Design.

MR. ETHERIDGE: They're not defined at this time; correct?

WITNESS BEDNARSKI: That's correct.

MR. ETHERIDGE: Will DWR implement a Monitoring Program to assess groundwater levels, settlement, and structural deformations of the Mokelumne Aqueducts to determine impacts of the construction and operation of

the dual Main Tunnels?

WITNESS BEDNARSKI: Yes, we will.

MR. ETHERIDGE: When will such a Monitoring Program begin?

WITNESS BEDNARSKI: While no start date for that has been identified yet, I would anticipate that it would be well in advance of construction in order to assist us in collecting information for the Preliminary and Final Design. That Monitoring Program may be started in that phase of the Project.

MR. ETHERIDGE: Okay. So, in other words, if the Monitoring Program began prior to construction, would that give you a type of baseline to assess Project impacts against?

WITNESS BEDNARSKI: Yes, it would.

MR. ETHERIDGE: Thank you.

And how long would the Monitoring Program continue? Would it just be during destruction or would it go forward with the Project operation as well?

WITNESS BEDNARSKI: That has not been determined yet.

MR. ETHERIDGE: Would the Monitoring Program also include the surrounding levee system?

WITNESS BEDNARSKI: Yes, it would.

But if you could be more specific about which

levee you're referring to.

MR. ETHERIDGE: Well, the levees around Woodward Island, for example. East Bay MUD would be interested in those levees that protect the islands over which our aqueducts pass.

WITNESS BEDNARSKI: Yes, it would.

MR. ETHERIDGE: Thank you.

I want to ask a few questions on vertical alignment.

I believe your testimony states that the invert of the project's dual Main Tunnels ranges from minus 147 to minus 163 feet below MSL; is that correct?

THE WITNESS: That's correct.

MR. ETHERIDGE: Do you recall what the tunnel invert was described in the 2013 BDCP EIR as the Project was construed at that time?

WITNESS BEDNARSKI: No, I do not.

MR. ETHERIDGE: May I ask staff if you wouldn't mind pulling this up, to pull up the BDCP EIR/EIS. I believe it's State Board Exhibit 4 and there's a Figure 3-20.

(Document displayed on screen.)

MR. ETHERIDGE: Excellent. Thank you.

What's displayed on the screen here is Figure 3-20 entitled "Tunnel Configuration." And this is

from the 2013 BDCP EIR/EIS.

Do you see that?

WITNESS BEDNARSKI: Yes, I do.

MR. ETHERIDGE: It may be very difficult to read, but in the lower left corner of this Figure 3-20, there's --

CO-HEARING OFFICER DODUC: I'm sorry. 3-21?

MR. ETHERIDGE: Huh?

CO-HEARING OFFICER DODUC: Which one are you referring to?

MR. ETHERIDGE: Well, 3-21 will work.

CO-HEARING OFFICER DODUC: Okay.

MR. ETHERIDGE: The lower left corner of that, there's some very small print, but the last line of that reads (reading):

"Adapted from DWR 2010 Conceptual Engineering Report: All tunnel option, Figure 11-6."

So, from this, I gather that DWR has done a series of Conceptual Engineering Reports; is that true?

WITNESS BEDNARSKI: Yes. We -- Yes, it has been done that way.

MR. ETHERIDGE: And is the most recent Conceptual Engineering Report what you have identified as DWR Exhibit 212?

WITNESS BEDNARSKI: Yes, it is.

MR. ETHERIDGE: And that's the 2015 CER; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. ETHERIDGE: Okay. Back in 2010, was it expected that the typical depth of the dual Main Tunnels would be 100 feet MSL?

MR. BERLINER: Objection: Relevance.

MR. ETHERIDGE: I think it's very relevant.

CO-HEARING OFFICER DODUC: I'm sorry?

MR. ETHERIDGE: This -- The Project has evolved over time and keeps evolving and is not yet set because we'll have Preliminary and Final Design.

What I'm simply trying to draw here is that in the 2013 EIR/EIS, the tunnel depth was expected to be 100 feet and now it's 147 and 163, so it's changed substantially in that short period of time.

CO-HEARING OFFICER DODUC: Please answer.

WITNESS BUCHHOLZ: If I may, I'd like to answer that.

In the 2013 Draft EIR/Draft EIS, one of the things, too, in that process was that we were trying to see if we could hold the head with pumping plants at the intakes before we moved the pumping plants to Clifton Court.

So, with that as a pressure line, it could be

at a higher elevation than trying to do gravity flow.

MR. ETHERIDGE: Okay. Thank you.

Might the tunnel invert change again from what's described in your testimony today as being ranging from minus 147 to minus 163 feet below MSL?

WITNESS BEDNARSKI: Depending on our findings from the geotechnical investigations, that could have some effect on the final tunnel vertical alignment.

And then, also, through our discussions with agencies like yours and others that we will be engaging in Preliminary Design, there could be some slight adjustments to the tunnel depth.

MR. ETHERIDGE: Okay. Would you expect those adjustments to tunnel depth to be, as you just said, slight rather than on the order of magnitude from 100 to minus 147 and 163?

WITNESS BEDNARSKI: Somewhere -- Somewhere in that range, like --

MR. ETHERIDGE: I probably didn't ask that question very well.

But would you expect future changes in the tunnel invert to be, as you said, slight rather than significant?

WITNESS BEDNARSKI: Well, I guess "slight" is a vague term.

MR. ETHERIDGE: It is.
WITNESS BEDNARSKI: Yes.
MR. ETHERIDGE: Well, would you expect them to be changed to the same degree that they did from 2013, when it was expected that the typical depth would be 100 feet, to where they are today, 147, 163?
WITNESS BEDNARSKI: No, I do not expect any change of that magnitude.
MR. ETHERIDGE: Okay. Thank you.
If I could ask staff to pull from the flash drive excerpts from Exhibit 212, Page 133.
(Document displayed on screen.)
MR. ETHERIDGE: The highlighted sentence there, Mr. Bednarski, if you'd please read that.
THE WITNESS: Yes (reading):
"All tunnels slope continuously from north to south without siphons."
MR. ETHERIDGE: Okay. Thank you.
Do you know what the proposed slope of the dual Main Tunnels is?
WITNESS VALLES: Essentially -- Because we were talking -- Because we were talking about, you know, 30 miles, that 13-foot difference there is basically flat.
MR. ETHERIDGE: Right.

And as you testified this morning, the water under certain conditions will move through the dual Main Tunnels under gravity flow; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. ETHERIDGE: So would you expect that slope to be able to convey the water from that northern end to the southern end of the dual Main Tunnels?

WITNESS BEDNARSKI: Yes, I would, under those conditions that we've identified where the gravity flow could be effective in moving that water that way.

MR. ETHERIDGE: Okay. Thank you.

If I could ask staff to pull another excerpt from DWR-212 -- this is Page 138 -- on the flash drive.

(Document displayed on screen.)

MR. ETHERIDGE: And this states that (reading):

"The Main Tunnels and the North Tunnels (Tunnel Reaches 2 and 3) are assumed to be spaced at 150 feet centerline to centerline."

Is that correct?

WITNESS BEDNARSKI: Yes, it is.

MR. ETHERIDGE: Why do the tunnels need to be separated?

WITNESS BEDNARSKI: It's primarily an issue with construction of the tunnels. They need to be separated so that the tunnel-boring machines can mine the

tunnels running parallel to each other without impacting the tunnel construction of an adjacent tunnel-boring machine.

MR. ETHERIDGE: And construction aside, do tunnels influence on one another in the ground?

WITNESS BEDNARSKI: Once they're constructed -- I'm not sure of your question.

MR. ETHERIDGE: Well, do tunnels influence the surrounding soil for a substantial distance around the tunnel bore after they're constructed?

WITNESS BEDNARSKI: I guess you'd have to define "substantial," for there is some zone where that would be in effect, yes.

MR. ETHERIDGE: Okay. Is there a name for that zone?

WITNESS BEDNARSKI: I -- I don't recall what that term is.

MR. ETHERIDGE: Okay. Thank you.

You testified earlier this morning that the Project includes construction and access shafts for the dual Main Tunnels; is that correct?

WITNESS BEDNARSKI: Yes.

MR. ETHERIDGE: If the locations of the dual Main Tunnels' access shafts change during the Preliminary and Final Design in the future, will DWR restrict

construction of the access shafts so that they are not close to the EBMUD Mokelumne Aqueducts right-of-way?

WITNESS BEDNARSKI: "Close" is a vague term, but we would coordinate with your agency to make sure there are no impacts to your operations, present or future.

MR. ETHERIDGE: Do you know the minimum distance to the Mokelumne Aqueducts' right-of-way that the access shafts could be placed by DWR?

WITNESS BEDNARSKI: I do not know.

MR. ETHERIDGE: Okay. Thank you.

Will DWR restrict the siting of the dual Main Tunnels' safe havens and intermediate shafts to avoid being in proximity to the EBMUD aqueducts' right-of-way?

WITNESS BEDNARSKI: The -- Yes, we would, with the clarification that the normal safe havens would be situated to avoid your facilities.

However, if there was a situation where, let's say, call it unscheduled maintenance of the tunnel-boring machine was required under or near your aqueduct, then we would need to create a safe haven underneath your aqueduct, but that would not be a planned situation.

MR. ETHERIDGE: Okay. Thank you.

In your written testimony, you discuss the earth pressure balance in tunnel-boring machines; is that

correct?

WITNESS BEDNARSKI: Yes, I did.

MR. ETHERIDGE: Are you aware that, in other soft ground tunneling by closed-faced earth pressure balance tunnel-boring machines, sink holes have developed?

WITNESS BEDNARSKI: Yes, I am.

MR. ETHERIDGE: For example, are you aware of tunnel-boring machine projects where sinkholes have occurred, such as the Beacon Hill Transit Tunnel?

WITNESS BEDNARSKI: Yes, I am.

MR. ETHERIDGE: And, similarly, the L.A. Metro Line Tunnel.

WITNESS BEDNARSKI: Yes.

MR. ETHERIDGE: How do you distinguish the proposed dual Main Tunnels from those other projects where sinkholes developed?

WITNESS BEDNARSKI: I believe that the understanding of the design construction and operation of earth pressure balance machines has evolved greatly since those two examples that you gave me.

I believe that designers of tunnels and contractors and operators of tunnel-boring machines have a greater appreciation for the risks related to tunneling in soft ground with pressure face tunnel-boring machines,

and that there are adequate measures now onboard these tunnel-boring machines to -- to mitigate those types of events.

MR. ETHERIDGE: Does the potential still exist for major ground loss associated with tunneling for the dual Main Tunnels, thereby resulting in sinkholes?

WITNESS BEDNARSKI: I'm sorry. Could you . . .

MR. ETHERIDGE: Does the potential exist with this dual Main Tunnels Project for major ground loss associated with the tunnel, resulting in sinkholes?

WITNESS BEDNARSKI: I believe there's always potential if the equipment is not operated properly, if the system is not designed properly, for those kinds of conditions to occur.

That is not our intent with when we proceed with Preliminary and Final Design, and also with construction management of the future construction contracts related to those tunnel Reaches.

MR. ETHERIDGE: Okay. Thank you.

Let me just take a minute to check my notes.

Okay. Thank you. Those are my questions.

Thank you.

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

Group Number 16.

MR. ADAMS: Greg Adams on behalf of Friant Water Authority.

We have no questions.

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

Group Number 17 is not here.

Group Number 18 is not here.

Group Number 19. Miss Meserve is coming down, I believe.

Miss Meserve, one question before you begin:

Are you also representing Group 20 or will Group 20 have cross-exam separately?

MS. MESERVE: Good afternoon.

I did have a point of clarification which I think will answer your question.

I did want to point out that I've been grouped with quite a few parties, which I'm really the secondary authorized representative, and so I just wanted to point out that those other authorized representatives may show up at any time.

And I believe they're aware of the schedule, but I just -- I don't want to make any representations with respect to their appearing here when it's actually been me as a secondary person who was authorized in order to make sure that they could be covered when they

couldn't be here and asked me to do specific things.

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

MS. MESERVE: So -- But with respect to your question regarding Mr. Daniel Wilson, I do not believe he will be here today.

CO-HEARING OFFICER DODUC: Thank you.

MS. MESERVE: Okay.

And just to clarify for the record, the questions that I'll be asking today are primarily on behalf of local agencies of the North Delta, Bogle Vineyards, Diablo Vineyards, Stillwater Orchards and Islands, Inc., as well as I have one thing for Daniel Wilson.

And the representative from Antioch has asked me to ask one question, which I said I would do, which relates to some of my concerns as well.

CO-HEARING OFFICER DODUC: I'm sorry. So you're also covering Group Number 27?

MS. MESERVE: Just for your information, I don't believe he will be here today.

CO-HEARING OFFICER DODUC: Thank you.

MS. MESERVE: Just if that helps in your planning.

So, let's see.

CROSS-EXAMINATION BY

MS. MESERVE: So, Mr. Bednarski to begin with, but if there's others on the panel who have answers, I know Miss Buchholz has quite a bit of information regarding this Project, so I'm open to that.

But -- So you're providing, Mr. Bednarski, expertise regarding the Project Description, status of the engineering completed to date, potential flooding, seepage impacts from construction, and impacts at least to some extent from construction of the Project, although I understand you've deferred certain questions to other panels that will be coming later; correct?

WITNESS BEDNARSKI: Yes, I have made that reference.

MS. MESERVE: Okay. And also just to clarify, you're an employee of Metropolitan Water District of Southern California; correct?

WITNESS BEDNARSKI: That's correct.

MS. MESERVE: Where do you work physically?

WITNESS BEDNARSKI: A portion of my time, I work in Los Angeles, and a portion of my time, I work here in Sacramento.

MS. MESERVE: Uh-huh. Do you have an office here in Sacramento, then?

WITNESS BEDNARSKI: Yes, I do.

MS. MESERVE: Is that within the Department of Water Resources?

WITNESS BEDNARSKI: Yes, it is.

MS. MESERVE: Is that within the entity called the Design and Construction Enterprise, just for clarification?

WITNESS BEDNARSKI: Yes, it is.

MS. MESERVE: And do you know how -- I assume your salary is paid by met; correct?

WITNESS BEDNARSKI: That's correct.

MS. MESERVE: So do you know how the cost of your work with respect to this Project, which has many parties wanting to construct it, how that's accounted for?

MR. BERLINER: Objection: Relevance.

CO-HEARING OFFICER DODUC: Miss Meserve.

MS. MESERVE: I'm just trying to establish who -- you know, what his position is, what his background is, and who he works for.

MR. BERLINER: I don't see how salary plays into that.

CO-HEARING OFFICER DODUC: Miss Meserve.

MS. MESERVE: It's my understanding that there's some kind of reimbursement scenario with respect to the State Water Project for -- because this is not

supposed to be something that falls on taxpayers, so I'm just asking about how it works if -- I don't need to go further if there's a huge problem with it.

Okay.

CO-HEARING OFFICER DODUC: Thank you, Miss Meserve.

MS. MESERVE: Okay.

Let's see.

Okay. So with respect to the Design and Construction Enterprise, that's the entity that was formed to actually undertake construction should this Project proceed; correct?

WITNESS BEDNARSKI: Yes, design and construction, and management of the program.

MS. MESERVE: So it's my understanding -- correct me if I'm wrong -- that DWR doesn't intend as an entity to carry out the construction of the Project; correct?

WITNESS BEDNARSKI: I believe that the Design and Construction Enterprise is part of DWR, so as much as the Design and Construction Enterprise will be implementing the Project, I believe it would then fall under the auspices of DWR.

MS. MESERVE: In some of the testimony in the past, today -- and then I may come back on it further --

there's been a lot of references to mitigation measures and things that would happen in order to prevent effects on other people and water users within the Delta.

Who would be responsible for those?

WITNESS BUCHHOLZ: The E -- The draft EIR/EIS and the Draft -- and the Recirculated Draft EIR/Supplemental Draft EIS indicate that DWR would be the responsible lead agency for the construction, would be responsible for the final adoption of mitigation measures with respect to construction.

MS. MESERVE: So if a person's water supply was cut off due to construction, who would they call?

WITNESS BUCHHOLZ: At that time, there would be a program already set up, as we've pointed out in the mitigation measures, in the environmental documents, that there would be a Monitoring Program that would have outreach to the landowners, and the specific person that would be identified by DWR would be the owner of the construction project would be identified in those -- in that process at that time.

MS. MESERVE: So it may be -- Would it be fair to say, it may be an employee of DWR, or it may be someone else who works for one of the Water Contractors, or somebody else altogether?

WITNESS BUCHHOLZ: I don't want to speculate

how DWR's going to put that in the future documentation.

MS. MESERVE: Ms. Buchholz, you've referred to mitigation measures. I know you're aware that, in Appendix 3B of the 2015 RDEIR, that there's such a thing called environmental commitments.

WITNESS BUCHHOLZ: Yes.

MS. MESERVE: Many of the things we've been discussing today are, in fact, within the list of environmental commitments, not mitigation measures; correct?

WITNESS BUCHHOLZ: That's true.

MS. MESERVE: Can you explain to me what the difference is, please?

WITNESS BUCHHOLZ: Environmental commitments are part of the Project Description, and -- versus the mitigation measures, which are identified.

So we take the Project Description and run it through the impact analysis under the different resources in the environmental documentation. If we've identified potentially significant adverse impacts under CEQA, we've then identified mitigation measures to reduce those impacts, hopefully to the letter of less than significant.

MS. MESERVE: And what about the environmental commitments, then?

WITNESS BUCHHOLZ: Environmental commitments are part of Project Description, so they are the definition of the Project and have already -- would be -- Whatever the environmental commitments are for the proposed Project, it's adopted in the Notice of Determination by DWR and the Record of Decision by -- Well, in the sense of construction, it would be the Notice of Determination by Department of Water Resources. Then those would be part of the Project Description and committed to.

MS. MESERVE: How would they be enforced if not through the mitigation and reporting plans?

WITNESS BUCHHOLZ: The Mitigation Monitoring Reporting Plans generally also include the Project Description as defined in the part of the Environmental Impact Report, and then as well as the mitigation measures, and they're all a part of the commitments.

Generally in the Mitigation Monitoring Reporting Plans, they'll also include a map of -- a sort of roadmap of which ones which would be connected with which Permits, so there would be many ways to look at that plan.

That's always prepared as part of the -- subsequent to the Final Environmental Impact Report.

MS. MESERVE: And then today, we've -- there's

been a lot of reference back mostly to the mitigation measures, and I just want to be clear that a lot of these things are a different thing called environmental commitments.

WITNESS BUCHHOLZ: Um-hmm.

MS. MESERVE: Are there additional mitigation measures or environmental commitments that have been discussed today that are not contained within the 2015 EIR/EIS?

WITNESS BUCHHOLZ: There are -- There could be, because we are currently preparing the Final Environmental Impact Report, Final Environmental Impact Statement, following review of the comments on the Recirculated Draft EIR/Supplemental Draft EIS.

MS. MESERVE: And when do you expect the final EIR/EIS would be available?

WITNESS BUCHHOLZ: I don't have a date at this point in time.

MS. MESERVE: Do you expect that will be prior to the close of this part of the DWR's presenting of its Petition?

WITNESS BUCHHOLZ: I actually do not know that answer.

MS. MESERVE: The reason I'm asking is, I guess I'm wondering what the Petition is for. And if there's

important parts of it, perhaps such as -- I would bring up as an example the cutoff walls that are described in your groundwater memos and reports, how is it that we know what the Project is right now?

Because I don't know what else there is besides that groundwater memo.

WITNESS BUCHHOLZ: That's -- In response to DWR Exhibit 218, which I prepared, we felt, in response to documents -- Well, there was two things on that. One was certainly response to comments.

But also there was a disconnect between the Recirculated Draft EIR/EIS Project Description, which included the slurry walls, and Chapter 7's Groundwater Impact Analysis, which didn't. I didn't take that into account in the impact analysis.

So we realized that as we were preparing the Final EIR/EIS and, therefore, we have prepared that memo from the Groundwater Team that I manage to submit that back to Department of Water Resources that this will be a change in the Final EIR/EIS.

MS. MESERVE: And just -- There probably are other changes to both the Project and also to the mitigation measures and environmental commitments, all three of those things, that we should expect to see; correct?

WITNESS BUCHHOLZ: On the -- the portions of the -- from the -- for the -- With respect to Chapters 5, 6 and 7 on the water supplies and surface water, I'm not aware of anything else of that -- of any other changes like that.

MS. MESERVE: But those are the chapters you've worked on.

WITNESS BUCHHOLZ: Those are the chapters that I managed, yes.

MS. MESERVE: Okay. I may come back to groundwater in a bit, but I want to go back to just some basic what this Project is.

I have, let's see, DWR-212, Figure 19-2, I've put on my thumb drive as a separate file.

And I wanted to touch on -- Well, we'll take one second.

And I'm sorry, I don't have them in a particular order. I'm sorry. It's DWR-212, Figure 19-2 I have a separate file.

(Document displayed on screen.)

MS. MESERVE: Yes, thank you.

And I don't think I've done as well as Miss Suard. I'm sorry.

(Laughter.)

CO-HEARING OFFICER MARCUS: Always somebody is

prior to.

MS. MESERVE: Yeah, I know.

Okay. So I want to talk about the powered amounts for the Project, if you would. This isn't something that I don't think is covered in either the PowerPoint DWR-2 or DWR-57 to any extent; correct?

Mr. Bednarski?

WITNESS BEDNARSKI: I don't believe so. I don't think we outlined the power demands.

MS. MESERVE: Don't the power demands impact -- I mean, isn't that part of the Project, the fact that it requires power both for construction and operation?

WITNESS BEDNARSKI: Yes, it does.

MS. MESERVE: Why wasn't it included in your testimony?

MR. BERLINER: Objection: Relevance as to what this has to do to -- I'm sorry.

Objection: Relevance as to what this has to do to injury to legal users of water.

MS. MESERVE: This is the Engineering Panel. The project's being described. There's a huge component of the Project which has not been described.

I believe there is a connection to legal users of water. However, I think we're just at the point of trying to understand what this Project is, which I

believe this panel is here to tell us.

CO-HEARING OFFICER DODUC: Agreed.

Please answer.

WITNESS BEDNARSKI: Those aspects that you refer to were not included because the instructions that were given in preparing our testimony was to take a narrow view of the Project in relation to legal users of water.

And the nexus between the power supply to the Project and the legal users of water was not identified as being needed to be included in my testimony.

MS. MESERVE: Okay. This figure from the DWR-212, the 2015 Conceptual Engineering Report, to your knowledge, does this reflect the current power plan for the Project, or is this outdated?

Do you want me to ask separately?

WITNESS VALLES: Can you scroll up more?

MS. MESERVE: Yeah. Maybe it could go smaller just so he can see the . . .

I took this from -- directly from there. I didn't do anything to it.

WITNESS BEDNARSKI: I believe it does, yes.

MS. MESERVE: However, isn't -- Is it true that the location of these exact facilities is -- is in negotiation with a potential power provider, Still Harbor

(phonetic)?

WITNESS BEDNARSKI: I'm sorry. Which locations were you referring to?

MS. MESERVE: The area I'm looking at mostly is in the northern area where you would see the green line, and then the lines headed up to the three proposed intakes. So we could just limit it to that.

WITNESS BEDNARSKI: So you're ask -- Well, can you --

MS. MESERVE: I'm asking whether this is the set route of the -- of it or if there is a conceptual plan also?

WITNESS BEDNARSKI: I believe that a conceptual route was identified for the purpose of the EIR, and that reflects -- What you're showing there reflects that conceptual route.

A final route has not yet been determined.

MS. MESERVE: In your testimony, you discuss how the Project is gravity-based. In fact, doesn't the Project require significant power to operate?

WITNESS BEDNARSKI: If my testimony indicated that the water was -- would always flow by gravity, that was not the case to North Clifton Court.

The water will flow by gravity at all times to the pump stations in the south. And at that point, under

some river conditions, the water can continue to flow by gravity into North Clifton Court. Under other river conditions, the water will need to be lifted at the pump stations and put into -- placed into North Clifton Court.

MS. MESERVE: But just to clarify: We're looking at 230-kilovolt transmission lines. And whether you're looking at the norther ones or the southern ones, there's a -- I believe the chance -- Let me just clarify:

The change to the Project that you had discussed as a refinement earlier was to center the pumping plants in the south rather than the north, and that's where the major power supply would be needed at this time.

WITNESS BEDNARSKI: That's correct. We do have tunnel-boring equipment that we need to operate, which take quite large loads. And my recollection is that the green line at that high voltage was necessary to come over from a substation and then would be stepped down to -- I believe it's the 69-kV power that we would use to run our tunnel-boring machines, and any of the other site equipment necessary for construction.

MS. MESERVE: On that green line, the RDEIR suggests that this transmission line is temporary.

Would you --

WITNESS BEDNARSKI: The green line?

MS. MESERVE: Yes.

WITNESS BEDNARSKI: That's correct.

MS. MESERVE: Is there a funding source provided to remove the line afterward? Like an endowment?

WITNESS BEDNARSKI: That -- The funds to remove temporary lines, not just that one but any other temporary works that would be constructed as part of our budget for the overall program.

MS. MESERVE: Where could the budget for the overall program be found? I didn't see that in the RDEIR.

WITNESS BUCHHOLZ: That is not -- The cost estimate is not included in the environmental documentation. It . . .

(Witnesses confer.)

WITNESS VALLES: If you want to see a detailed budget breakdown, it's one of the public documents. I think it's Budget and Schedule for the DCE.

MS. MESERVE: Is that part of the evidence here before the Water Board yet, or is that something on your website?

WITNESS VALLES: I think that's something on the website.

MS. MESERVE: Okay. Okay. But -- So,

Ms. Buchholz and others on the panel, correct me if I'm wrong:

You're saying you are budgeting for removal of the power lines shown in green.

WITNESS BEDNARSKI: Yes, that is correct.

MS. MESERVE: Okay. Let's see.

Now, back to the tie-in to legal users of water.

This is a pretty large construction Project to -- whatever it is, whether it's on the green line or somewhere else.

Isn't it possible that there could be impacts on legal users of water within that -- I believe it's an 8-mile length?

MR. BERLINER: Objection: Calls for speculation.

MS. MESERVE: Let me ask it this way:

Have you -- Has anyone on the Engineering Team investigated -- or elsewhere, other teams -- whether there's impacts to legal users of water from construction of the transmission lines?

WITNESS BEDNARSKI: Not to my knowledge.

WITNESS BUCHHOLZ: If I may add to that.

The mitigation measures in Chapters 14 and 20 are for mitigation measures to users of water, are

inclusive of all facilities associated with the conveyance and that would include the transmission lines as part of the conveyance facilities.

MS. MESERVE: Okay. Could you put up, please, the one I have labeled "Intakes Overview Figure."

(Document displayed on screen.)

MS. MESERVE: And scroll it down.

This is a map that we've prepared. I'm just providing it for -- just to -- for explanatory purposes right now of what I'm talking about. I may submit it later as evidence as part of my case in chief.

And just to explain: The green line that you saw on the previous slide from the CER is shown now in black going across.

Are you aware, Mr. Bednarski, of the Stone Lakes Wildlife Refuge boundary that's shown in green here?

WITNESS BEDNARSKI: Yes, generally I'm aware of that.

MS. MESERVE: In your design scenarios -- Or in your design work for the Project, have you considered undergrounding these power lines?

WITNESS BEDNARSKI: We have discussed undergrounding as a -- as a potential mitigation measure, yes.

MS. MESERVE: That isn't part of what's being proposed thus far, though; correct?

WITNESS BEDNARSKI: I do not believe so.

MS. MESERVE: Let's see.

Well, since we have the Refuge Map up, I'm going to move into a groundwater question that pertains to the Refuge.

Are you aware, Mr. Bednarski, I think -- Or maybe this is better for Miss Buchholz. I'll let you guys decide.

Are you aware of the Refuge's groundwater wells within the green area? I don't have them marked there. I'm sorry.

WITNESS BUCHHOLZ: We don't have the locations of any of the individual wells specifically at this point in time. Identification of those locations and monitoring of those or testing those will be done during the Predesign portion of the Project.

MS. MESERVE: Are you -- Miss Buchholz, do you recall from the RDEIR, at least Figure 7-27, that it showed groundwater levels sinking maybe about 4 feet during construction; correct?

WITNESS BUCHHOLZ: That was -- That is true, and that's what was in both the Draft EIR/EIS and the Recirculated Draft/Supplemental Draft EIS, and that was

the purpose of the memo that's shown up as DWR Exhibit 218.

The change in Project Description between the Draft EIR/EIS and the Recirculated Draft EIR/EIS associated with the intakes and tunnel shafts in which slurry walls would be constructed around their entire construction area instead of just adjacent to the river as it was in the Draft EIR/EIS was not accounted for in our impact analysis.

That was a change between Draft and Recirculated Draft environmental documents. That change in the Project Description in Chapter 3 of those documents was not accounted for in our impact analysis in Chapter 7 of those -- the Recirculated Draft EIR/EIS; therefore, prepared the memo to DWR indicating what the changes would be in the impact analysis associated -- that should have been included in Recirculated Draft and will be in the Final EIR/EIS.

And with the impact of the slurry walls around the entire intake and the dewatering mechanisms within the slurry walls, we do not anticipate any groundwater reductions outside of the slurry walls, especially to Stone Lakes.

MS. MESERVE: Right. Just to point out, the reason I'm asking about the Intermediate Forebay is the

small rectangle shown to the bottom of the screen within the boundaries of the Stone Lake Wildlife Refuge, although it is not on land owned by the Refuge, it's part of the overall planning area.

WITNESS BUCHHOLZ: And, if I may, to the Chair, the Intermediate Forebay Project Description will be modified in the Final EIR/EIS, and that was also included in my memo to -- It was a suggestion in the mitigation measures in both the Draft and Recirculated for the forebays to also have slurry walls around their entire construction site.

And those will be included in the Final EIR/EIS to have a slurry wall around the entire Intermediate Forebay, therefore, protecting the groundwater on the adjacent properties.

MS. MESERVE: As was discussed previously, however, it involved whether you could key into the clay layer. So -- And then you've also said that you didn't have very much geotechnical data.

So isn't it still somewhat of a question whether these things will be effective?

WITNESS BUCHHOLZ: There were some geotechnical data in there that -- And I could pull those up if we wanted to take the time. They're in my binders adjacent to me, where I had exactly one.

But I actually personally looked at the boring logs at the intakes and at the two forebays areas -- the areas of forebays to confirm that we had adequate clay lenses, we could probably get down into those areas.

If not, we could use grouting. That's a really typical way of doing it. I've been on construction sites in the past in which we've actually done that when we could not get down to clay lenses. One, in particular, was along Monterey Bay where it's nothing but sand.

MS. MESERVE: Okay. So just coming back to the questions.

Let's see.

So, under mitigation measure -- Well, the Refuge uses the water supply from the groundwater for both -- for maintaining some of the water features on the -- within the Refuge for wildlife.

Mitigation Measure Groundwater 1 currently doesn't include replacement water supplies for that wildlife, however; correct?

WITNESS BUCHHOLZ: I'm not sure I agree with that, but I'd have to check to see how you're reading that --

MS. MESERVE: Okay.

WITNESS BUCHHOLZ: -- because I think it would affect any -- any of the Wells.

MS. MESERVE: Okay.

WITNESS BUCHHOLZ: I can't remember that we -- In groundwater, we didn't differentiate between the use of the water when we talked about the wells potentially being affected.

MS. MESERVE: Okay. Yeah. That's all I'm trying to clarify, because that certainly would be a beneficial use.

WITNESS BUCHHOLZ: No, we didn't do that in Chapter 7.

MS. MESERVE: Okay. In developing your approach to protection of groundwater, did you consider compliance with a Sustainable Groundwater Management Act?

WITNESS BUCHHOLZ: At the time that we did, certainly in the Draft EIR/EIS, that Act had not been even prepared.

By the time we went to the May 2015, we did not -- we -- we looked at the Sustainable Groundwater Management Act as a cumulative Project because we weren't sure how the implementation of that Act Was going to occur.

We are -- recognize that, by early 2020s, the Act will be -- the plans need to be completed, and they need to be implemented over the next 20 years.

The end of the study period here that we're

looking at immediately during construction is around 2030.

We will have to work with the landowners and the agency that is implementing the Groundwater Management Plans along the entire conveyance to -- to see how those are being established along that area, because it would be another process that we need to integrate with during the design and during construction.

But it was handled as a Cumulative Project in the Environmental Impact Report because we don't have enough details because the plans haven't been developed yet.

MS. MESERVE: And also the -- the lack of closure on your own -- what your own plan is for this area would also be another factor in not being able to know how you would impact future Groundwater Plans; right?

WITNESS BUCHHOLZ: If I may, I'm not sure I'd say "lack of closure."

I'd say the fact that we recognize we need additional geotechnical and well information, both in location well logs and production rates of nearby wells, and that was always planned to be obtained during the -- as usual in these projects, during Predesign and Design.

MS. MESERVE: So there would be the potential,

would you agree, to impact compliance with basin plans developed pursuant to SGMA?

WITNESS BUCHHOLZ: I don't know if I would say that, because I think if we -- it would depend on what the Groundwater Management Plan is and how we'd work with it, like we would any other plan that was already adopted in place at the time.

MS. MESERVE: Okay. I'm going to switch out of groundwater.

And I want to just follow up on some questioning that you heard from counsel for North Delta Water Agency, just to clarify where the Project is at in terms of its understanding of impacts on other legal users of water.

I'd like to look at the file called Exhibit B, Bogle Diversions.

(Document displayed on screen.)

MS. MESERVE: That one, yeah.

As part of my protests, which is already before the Board now, I've prepared maps that show where the diversions at the different groups are located.

And this first one is diversions that serve the Bogle Vineyards, which you may be familiar from drinking their wine.

And I want to know from, I guess, primarily

Mr. Bednarski --

And maybe you can zoom out just so it's more of an overview, if you don't mind. Thanks.

Were these diversions considered in your design criteria -- or, I'm sorry -- your engineering criteria in terms of reducing impacts on users of water?

WITNESS BEDNARSKI: If you're -- If you're asking if we looked at them from the same standpoint as the information I presented today with diversions that fall within the footprint, either temporary impacts or permanent impacts at the three intake structures, without knowing specifically about where one or two of those lay near the intakes, we did not do that detailed review on any of the remaining ones that are there.

So if there's a way to zoom in and tell whether those one or two others near Intake 3 fall within the footprint and match up with the information I presented earlier this morning, then we would -- we would know whether those diverters were covered in our review.

MS. MESERVE: So this particular map actually doesn't show any -- These diversions are actually across the river. So they -- You know, they --

WITNESS BEDNARSKI: Okay.

MS. MESERVE: The issue would be water levels and water quality and reverse flows, those kinds of

things.

So, is it fair to say that these diversions weren't considered in any way in your design, specifically these ones?

WITNESS BUCHHOLZ: This part of the analysis was being done as part of the model that will be discussed in the Modeling Panel that will appear two panels from now.

MS. MESERVE: Certainly. So there wouldn't be any information within the purview of the Engineering Panel with respect to how much water is needed, what kind of crops or anything like that; correct?

WITNESS BUCHHOLZ: No.

MS. MESERVE: And what about, would there be any information about the timing of water use and when these intakes require water for -- to irrigate their crops?

WITNESS BUCHHOLZ: That wasn't considered by the Engineering Panel team.

MS. MESERVE: Okay. I'll just quickly go through a couple other exhibits to get past this point.

So, if you could bring up Exhibit B, Elliot Diversions.

(Document displayed on screen.)

MS. MESERVE: And zoom out, please.

This -- This map shows one diversion called Rose, which is under the footprint and is listed as a temporary impact.

But with respect to the other diversions, I would just ask the same question. And I'll just ask it as one thing:

Would the -- Were any of these other diversions besides Rose considered in the engineering of the Project?

WITNESS BUCHHOLZ: No.

MS. MESERVE: Okay. Then I have one more map called Diablo, or Languishments it says.

(Document displayed on screen.)

MS. MESERVE: And it would be the same answer here, whether any of these were considered in the engineering of the Project to reduce impacts.

WITNESS BUCHHOLZ: No.

MS. MESERVE: And then I have the -- one other exhibit would be the -- sorry -- one called Islands, Inc.

(Document displayed on screen.)

MS. MESERVE: If you could scroll to the last page of this, please.

See, I didn't do as well as Nicky.

Okay. This shows diversions on Ryer Island that belong to Islands Inc. which is a separate protest.

These also wouldn't be considered in your specific engineering exercises that we've been discussing today; correct?

MR. MIZELL: Objection: There's a lot of writing on this.

Are you asking for every piece of writing to be confirmed, or just the highlighted portions, just the green, just the yellow? Could you specify?

MS. MESERVE: Sure, yeah. I'm just referring to the siphons which are labeled with an "S."

Sorry, there's some extra highlighting, but it's just really the intakes around the island that I'm referring to.

WITNESS BUCHHOLZ: The Engineering Panel did not analyze these -- these. These are considerations that will be discussed in the Modeling Panel.

MS. MESERVE: Okay. Well, I will follow up with them later. Thank you for clarifying.

I have another engineering question back on the forebay, which I think the DWR-2 slide -- I think it's Slide 8. It's the one that shows the . . .

(Document displayed on screen.)

MS. MESERVE: Actually, can you go to the slide 10, please.

(Document displayed on screen.)

MS. MESERVE: I'm wondering if you can clarify with the -- It's Not really shown very well here, I think.

But with respect to route from the intake itself during construction to the Intermediate Forebay, is that above ground or below ground? The individual -- It appeared that there was some writing that showed some of that would be above-ground disturbance and I'm just trying to clarify that.

WITNESS BEDNARSKI: All of the three intakes are connected to the Intermediate Forebay by tunnels.

MS. MESERVE: During construction, will there be any above-ground disturbance?

WITNESS BEDNARSKI: Yes, there would be. I believe those have all been indicated either in DWR-212 or in the accompanying documents for the Recirculated EIR/EIS.

MS. MESERVE: Would -- To your knowledge, would any of that disturbance be above ground and across either irrigation or drainage ditches that are serving the farms in between the intakes and the Intermediate Forebay?

WITNESS BEDNARSKI: I cannot respond as to specific ones, but in general, yes, there would be.

MS. MESERVE: There would be disturbance, so --

WITNESS BEDNARSKI: Yes.

MS. MESERVE: So, there's only one exhibit, is the ones -- the diversions that are under the footprint.

How did your Team account for the other water uses that would be potentially disturbed by the above-ground activity we're discussing right now?

WITNESS BUCHHOLZ: In Chapter 14, the mitigation measures that were concerned about effects on agriculture as a result to disruptions of agriculture infrastructure on Page 14-49 in the 2013 Draft EIR/EIS and the associated mitigation measures. It would be there.

And it was also repeated in the Recirculated Draft on Page -- Pages 14-19 of the Recirculated Draft EIR/EIS. And the mitigation measures there were to do a series of combining the implementation measures AG-1, GW-1, GW-5, GW-11, to reduce the severity of these impacts on the -- on the agricultural users.

And that could mean relocating them. It could be working around this disruption if it's temporary. There could be many things that are outlined in this mitigation measure.

MS. MESERVE: Just to clarify, however.

I mean, an irrigation ditch or water works, that's -- that's part of the legal use of water; correct?

WITNESS BUCHHOLZ: Yes.

MS. MESERVE: And are you saying the mitigation measures you pointed to will completely eliminate any and all impact whatsoever?

I'm a little confused what you're saying.

WITNESS BUCHHOLZ: The focus of these mitigation measures are to reduce these impacts. And there's a stepwise series that are associated with mitigation measure AG-1 that proceeds in a stepwise manner of -- to minimize these -- the impacts of these -- of these potential changes to -- or potential effects on agricultural infrastructure.

MS. MESERVE: However, the standard for significance to agricultural impacts under CEQA would be different than the standard which is injury to legal users of water; wouldn't it?

MR. MIZELL: Objection: Calls for a legal conclusion.

WITNESS BUCHHOLZ: I'm not sure.

MS. MESERVE: Ms. Buchholz's testimony appears to be that the mitigation measure provided for CEQA is going to be sufficient to prevent all legal injury. Is that what she's saying?

It's a menu of options, I guess, is the problem I'm having.

WITNESS BUCHHOLZ: It's a commitment to -- to

avoid interruption of the drainage and irrigation facilities, and there are methods that will have to be developed on a site-specific basis. Those will be done during Predesign on -- on an individual basis.

This is consistent with -- with measures that I've seen done -- personally seen done before in agricultural areas, that there are ways to -- to mitigate those to prevent or to eliminate the adverse impacts to agricultural infrastructure.

MS. MESERVE: So, is it the -- the commitment of the Project to eliminate all impacts to these water uses whatsoever?

WITNESS BUCHHOLZ: There are methods that are described in here to do that and that -- that there are -- to work to minimize those in that process through these implementations of AG-1, GW-1, GW-5 and GW-11.

MS. MESERVE: Going back to some testimony we heard earlier, there's been no assessment of what these water works, and drainage, and other facilities are, either.

WITNESS BUCHHOLZ: Right. So you'd have to come up with individual processes for each location of the potentially affected infrastructure.

MS. MESERVE: And that --

WITNESS BUCHHOLZ: That would be part of

Predesign, as it usually is.

MS. MESERVE: And that would be carried out in the future by an un -- by an entity or person we're not sure who that was; correct?

WITNESS BUCHHOLZ: That would be the commitment of the DWR, who is the overall owner of the Project.

MS. MESERVE: Is -- Is the -- Is the Petition committing right now to carry out all proposed mitigation measures in the Draft EIR as conditions of approval?

WITNESS BUCHHOLZ: There were changes in the mitigation measures between the Draft EIR/Draft EIS and Recirculated Draft EIR and Supplemental EIS. And I anticipate there will be future changes in wording of the mitigation measures in the Final EIR/EIS.

As CEQA lead agency, DWR would be committing to the final set of mitigation measures in the Notice of Determination.

MS. MESERVE: So we don't know today what that list is.

WITNESS BUCHHOLZ: That Notice of Determination will be completed after the Final EIR/EIS is completed.

MS. MESERVE: Okay. I'm just going to note:

This makes the assessment of injury -- Well, I think it means that the burden hasn't been carried here, but I'll just move on.

MR. MIZELL: Objection: There's no question there. I'd ask that that --

CO-HEARING OFFICER DODUC: Sustained.

MR. MIZELL: -- statement be --

MS. MESERVE: I'm moving on.

CO-HEARING OFFICER DODUC: Moving on, please.

MS. MESERVE: Some of the -- There was earlier testimony regarding the directly-impacted by the footprint activities intakes and then as well as the water works we have just been discussing that could be disturbed.

Are -- Are the -- some of those changes could require petitions or changes here at the Water Board; correct?

WITNESS BEDNARSKI: That's correct.

MS. MESERVE: Are those proposed changes part of the Petition being presented and discussed today?

WITNESS BEDNARSKI: I don't believe they are.

We do not have specific knowledge as to what those changes are, so it would be premature to bring those to this -- to this Board.

MS. MESERVE: Would that be part of some later proceeding?

WITNESS BEDNARSKI: That is my understanding, that that would be part of a later process.

MS. MESERVE: With respect to relocating intakes that requires Flood Levee Encroachment Permits, would that also be a future application?

Well, let me back up.

You're aware that in order to move an intake, in addition to Water Board, there's also the jurisdiction of various Flood Control Agencies.

WITNESS BEDNARSKI: Yes.

MS. MESERVE: So I guess there may be future applications, then, for those changes as well?

WITNESS BEDNARSKI: Yes, that is correct.

MS. MESERVE: There -- Earlier, we heard from Mr. Bednarski -- Sorry. I'm not pronouncing your name correct. Please say it. Bedarski?

WITNESS BEDNARSKI: Bednarski.

MS. MESERVE: Bednarski. Thank you.

We discussed how -- Quite a bit we've discussed how the engineering designs aren't complete. And you testified that you would complete it when the funding was available.

Do you know when that funding would be available?

MR. BERLINER: Objection: Misstates his testimony.

CO-HEARING OFFICER DODUC: Miss Meserve, just

ask the question rather than trying to rephrase his testimony.

Thank you.

MS. MESERVE: Do you know when the funding would be available for the future phases of work?

WITNESS BEDNARSKI: No, I do not.

MS. MESERVE: Do you know where that funding would come from?

WITNESS BEDNARSKI: No, I do not.

MS. MESERVE: Are you continuing to work on engineering for the Project at this time?

WITNESS BEDNARSKI: I am currently supporting the Program Director, Program Manager, as a member of the Design and Construction Enterprise.

MS. MESERVE: But you don't have funding to do the later steps of engineering that we've been discussing.

WITNESS BEDNARSKI: No, we do not.

MS. MESERVE: Okay. I want to just clarify one other water rights.

I mentioned I was going to ask a question for Antioch. And I think I have the same question for him that I asked about the other intakes I had identified.

I wanted to clarify whether in your engineering you had considered water impacts to downstream users such

as Antioch in your engineering work?

WITNESS BEDNARSKI: We did not as part of the Engineering Team. That would have to be referred to the Modeling Group.

MS. MESERVE: Okay. I had a question also about:

On Page 23, you discuss the component of the Project Head of Old River Barrier.

Let's see.

Does -- Does this barrier have to be removed when the San -- The temporary barrier has to be removed when the cfs goes up over 7,000 cfs; is that right?

WITNESS BEDNARSKI: I am not aware of the operating requirements for that barrier.

MS. MESERVE: Are you aware of any component of the Project that would include strengthening levees if more than 7,000 cfs would be allowed to go through that area under the Project?

WITNESS BEDNARSKI: I am not aware.

MS. MESERVE: Can you characterize -- Another thing that I don't think really got covered in the testimony, and I think is part of engineering, is -- and does have impacts on legal users of water, is the construction period which we've touched on.

But what's the length of the construction

period?

WITNESS VALLES: The actual construction period's about 13 years.

MS. MESERVE: In your judgment, is -- will it be possible to do all the farm -- same farming operations and water uses that are going on right now during that construction period?

WITNESS BEDNARSKI: I think with the absence of the areas that will be affected by the construction footprints, it is our goal to ensure that the rest of the farming operations go on as they are now.

MS. MESERVE: Do you know of any projects -- Have you ever worked on a Project of this scale and magnitude before?

WITNESS BEDNARSKI: Not on a $15 billion program, no, I have not.

MS. MESERVE: Have you ever worked on a Project that was 13 years in length or more?

WITNESS BEDNARSKI: Yes, I have, with my own company, Metropolitan Water District, the Inland Feeder Program was a decades-long program.

MS. MESERVE: During that time, was -- were there issues with the affected landowners that had to be resolved that you worked on?

MR. MIZELL: Objection: What's the relevance

here?

CO-HEARING OFFICER DODUC: Miss Meserve.

MS. MESERVE: I'm just trying to understand what the plan is. I'm hearing there's a lot more stuff that needs to get done.

My clients are concerned about what's going to happen, so I'm just trying to find out what their Head Engineer knows.

MR. MIZELL: About a Project in Southern California, and it's not part of what the proposal was here.

CO-HEARING OFFICER DODUC: That's fair.

Miss Meserve.

MS. MESERVE: Okay.

CO-HEARING OFFICER DODUC: Tie your questions to the Project before us.

MS. MESERVE: Yes.

Let's see. I'm just going to check my notes.

I guess one other question just with respect to your knowledge of the Project, Mr. Bednarski, is:

Have you traveled to all the places within the Delta that this Project would have construction activities on?

WITNESS BEDNARSKI: Not every single location, no.

MS. MESERVE: Have you traveled around the North Delta, the maps I've shown you today?

WITNESS BEDNARSKI: I've traveled in the area of the intakes, the Intermediate Forebay, and some locations along the tunnel alignment.

MS. MESERVE: Okay. All right.

I think I'm going to wrap up my questions there. Thank you.

CO-HEARING OFFICER DODUC: Thank you, Miss Meserve.

Let's take a short break and then we'll try to leave a little bit early today.

So let's resume at 2:45. That's a five-minute break.

(Recess taken at 2:40 p.m.)

(Proceedings resumed at 2:45 p.m.:)

CO-HEARING OFFICER DODUC: All right. Welcome back. It's 2:45, and we'll resume with cross-examination of Panel Number 2.

MR. JACKSON: Prior to doing that, can I ask a timing question?

CO-HEARING OFFICER DODUC: Yes, Mr. Jackson.

MR. JACKSON: I thought I heard you say that we might leave a little early today?

CO-HEARING OFFICER DODUC: We'll see. Do you

have a specific request?

MR. JACKSON: Because I think there was a -- a lot more, and I was just wondering, will we go to 5:00? I mean, it's three hours home. It's Friday night.

CO-HEARING OFFICER DODUC: I hope to not go to 5 o'clock. I would like to break around 3:30.

But I want to gauge and see how the cross-examination goes.

MR. JACKSON: Thanks.

CO-HEARING OFFICER DODUC: I take it that you're not objecting to leaving at 3:30 or so.

MR. JACKSON: No.

(Laughter.)

CO-HEARING OFFICER DODUC: All right. Group Number 20, I assume Mr. Wilson is not here.

I'm not seeing Mr. Wilson.

We'll move to Group Number 21.

MR. RUIZ: Thank you.

Dean Ruiz for the Central Delta parties.

Good afternoon.

CROSS-EXAMINATION BY

MR. RUIZ: I had a lot of questions but, as happens when you wait till Group 21, a lot have been asked. So I'll ask the few that I have a little bit of confusion on.

Earlier in your testimony, Mr. Bednarski, you indicated that -- you discussed that there would be some impacts to local water right holders, that group of about 15 folks.

Do you recall that?

WITNESS BEDNARSKI: Yes, I do.

MR. RUIZ: And I believe you said that the goal was, at some point, those folks would be made whole. And because of that, you didn't consider it to be an injury to them but, rather, an effect or an impact of some sort.

Is that a fair assessment?

WITNESS BEDNARSKI: That's correct.

MR. RUIZ: Just a little while ago, you testified -- Or one of you testified that the construction period is about 13 years; is that correct?

WITNESS BEDNARSKI: That's correct, for the entire program.

MR. RUIZ: How long a period of time are -- These 15 or so water right holders, how long will it be that they're impacted or they're not whole? Or until they're whole, I should say.

WITNESS BEDNARSKI: Well, the -- Let me -- Let me back up a minute.

The construction duration for the intakes is anticipated to take three to five years, and that will be

sequenced within the overall schedule of the construction for the entire program.

The impacted diverters -- diversions will be modified prior to construction starting, or during the construction process, such that they do not see an interruption in their deliveries.

MR. RUIZ: How long would it be that they're impacted, or until they're back to where they were, so to speak, before they -- before they were interfered with?

WITNESS BEDNARSKI: Can you be more specific about what you mean when you say "back to where they were when" -- before the work started? I'm not sure what you're referring to.

MR. RUIZ: Well, I'm trying to understand how it is specifically that these 15 or so water right holders are going to -- how they're going to be impacted in terms for a lengthy period of time, and how that's going to actually work.

WITNESS BEDNARSKI: Can you specify what you mean by the "impact" to them?

MR. RUIZ: I mean, is there a period of time where they're -- They're not going to have -- They're not going to be able to have the typical diversion that they're used to, that they've had in the past, because of the Project; is that fair?

WITNESS BEDNARSKI: No, that will not be the case.

MR. RUIZ: How will that work, then? How will they not be impacted by the Project?

WITNESS BEDNARSKI: We will sequence any modifications to their existing system such that there's a transparent or smooth transition from whatever new facilities we provide to their existing facilities.

MR. RUIZ: I appreciate that.

What does that mean you'll sequence that in? I don't quite understand that. Can you explain that a little bit further.

WITNESS BEDNARSKI: Well, construction work takes place in a series of activities. I would anticipate that once we get the approvals to move into the next stage of design, that we will look at each and every one these locations and come up with a specific plan, whether it's extending existing infrastructure or modifying existing diversions in the riser and developing a plan that ensures that they are not without their either quantity or quality of supply for any time that would injure them.

MR. RUIZ: Okay. I appreciate it.

You don't have that plan developed as of yet?

WITNESS BEDNARSKI: No, we do not.

MR. RUIZ: And forgive me if you already answered this previous -- earlier today.

Do you have an estimation of when you will have that plan in place?

WITNESS BEDNARSKI: I do not. It will be developed during the Preliminary Design stage of the Project.

MR. RUIZ: Thank you.

I just want to move on quickly to your testimony with regard to groundwater and the -- we've talked about it recently in the last couple hours or so -- about the slurry walls. Miss Buchholz also has referred to that in her testimony, her memorandum, DWR-218.

My question is: When was it that -- Well, what was the purpose of preparing DWR-218?

WITNESS BUCHHOLZ: So, in the Draft EIR/EIS and in the Recirculated Draft EIR/EIS, mitigation measures were suggested to minimize or permanently avoid the impacts on adjacent parcels' groundwater wells, especially at the intake areas; that the entire construction zone be surrounded by slurry walls so we could just dewater within those slurry walls, as described in DWR-218.

In the preparation of the Recirculated Draft

EIR/EIS, that recommendation was included for the intakes in the Project Description, but the Chapter 7 Groundwater Team which I manage did not catch that change and it's -- it's shown in a -- in the Recirculated Draft as a red line strikeout change.

We did not pick up on that change and, therefore, we left that impact as being significant and unavoidable to the adjacent groundwater wells in the Recirculated Draft EIR/EIS.

So we -- The purpose of the memo was to acknowledge that we should have seen that change in the Project Description, and including that change in the Project Description would reduce that impact to adjacent wells to less than significant.

MR. RUIZ: Previous to this memorandum, DWR-218, the environmental document had considered -- as you said, considered it to be significant and unavoidable and adverse.

WITNESS BUCHHOLZ: Um-hmm.

MR. RUIZ: Having that been the case prior to the preparation of this memorandum, would you have considered that impact on local groundwater users to be injurious to them?

WITNESS BUCHHOLZ: What we did in the mitigation measure is, we talked about several

mitigations, such as drilling deeper wells, or moving the wells, and potentially even bringing in additional water supplies from other areas.

However, we did not know at the time -- Because we don't know the locations and we still don't know the locations of those wells, that we weren't sure that we could -- could reduce that adverse impact to a level of less than significance, and that's why it remained significant and unavoidable in the Recirculated Draft EIS and Draft EIR/EIS.

MR. RUIZ: In your memorandum, DWR-218, it's your estimation that change in the Project, if implemented, would result in a now less-than-significant impact?

THE WITNESS: I do. I do believe that, yes.

MR. RUIZ: And as far as these slurry walls go, in terms of how they work, you mentioned a couple times, I think, a little while ago -- and I'm not as technically versed as you are so forgive me.

But you mentioned an appropriate level of clay strata available to make these slurry walls work; is that correct?

WITNESS BUCHHOLZ: Right. So you go down to an impermeable layer. It could be clay or it could be rock, and that's what you're hoping for. If we don't hit that,

then you can grout into the bottom of that.

MR. RUIZ: If you have to -- If you have to grout, is that because there's not enough clay that you normally would like to have?

WITNESS BUCHHOLZ: Um-hmm. You may not have a deep enough or a continuous impermeable layer, yes.

And it's a standard method of construction. I've been on sites where we've done that.

MR. RUIZ: Does the use of grout because there's not enough clay, does that have an impact on the effectiveness of the slurry walls?

WITNESS BUCHHOLZ: I don't believe so, but I'll ask our Structural Engineer.

WITNESS VALLES: It should not have any effect at all on the effectiveness of the -- the walls.

MR. RUIZ: Do you know, in fact, in the areas of the intakes where these slurry walls would now be constructed around the entire intake facilities, if there -- is there an adequate clay layer -- a continuous clay layer, as you described it, do you know if that's available.

WITNESS VALLES: Don't know that yet.

MR. RUIZ: What will it take to know that?

WITNESS VALLES: We will have to get on the property and do some geotechnical investigations.

MR. RUIZ: And the use of these slurry walls, generally is there any correlation to their effecting -- effectiveness in a Delta environment like this relative to the time that they would be in place?

In other words, if they're in place for a short period of time, are they more effective, or if they're in place for a longer period of time, do they tend to have less effectiveness in an environment like this?

WITNESS VALLES: I'm not sure I understand the question.

MR. RUIZ: Well, let me ask it -- Let me ask it this way, then:

How long do you anticipate that these slurry walls now, as described in your memorandum DWR-218, how long do you expect them to be in place?

WITNESS VALLES: They're permanent structures.

MR. RUIZ: And whether or not there's enough clay layer or not, you still anticipate that they'll be fully effective?

WITNESS VALLES: Yes.

MR. RUIZ: Do you know whether or not the new Draft BA speaks to whether or not there was a continual clay layer available in the area where the slurry walls will be constructed?

WITNESS BUCHHOLZ: The Draft BA did not address

the groundwater aspects.

MR. RUIZ: Was DWR-218, was that prepared for the purposes of this proceeding?

WITNESS BUCHHOLZ: It was prepared during the period of time that DWR was preparing for these proceedings.

However, it was also prepared because, as a member of the consulting EIR/EIS Team, we needed to inform the DWR and Reclamation, as the lead agencies of the Final EIR/EIS, of a change in -- in the impact analysis.

MR. RUIZ: Who directed you to prepare that memorandum?

WITNESS BUCHHOLZ: When I realized, as the Project Manager of the -- of the Consulting Team, that -- the portion of the Consulting Teams doing this, I felt we better explain that to the two lead agencies as soon as possible.

MR. RUIZ: Mr. Bednarski, earlier in your testimony, in your direct testimony, you described, I believe, the existence of proposed state-of-the-art fish screen facilities for the new -- as part of the Project; is that correct?

WITNESS BEDNARSKI: That's correct.

MR. RUIZ: Are any such fish screen facilities

proposed to be included in any of the south -- existing South Delta facilities as part of this Project?

WITNESS BEDNARSKI: No, there's no fish screens in the south part of the Delta as part of this Project.

MR. RUIZ: Do you know why that's the case?

WITNESS BEDNARSKI: I do not know why.

WITNESS BUCHHOLZ: If I may.

In Appendix 3A of the Draft EIR/EIS, we refer to a series of studies that were conducted by DWR and Reclamation, U.S. Fish and Wildlife, National Fishery Service, and DFW shortly -- in the early 2000s attempting to see whether a fish screen could be constructed at the Weirs at Clifton Court Forebay.

And there were a number of technical reasons that that could not occur at that location to both meet the fish screening criteria established by NIPS, National Fishery Service and U.S. Fish and Wildlife Service, and also just the -- the way the flows go around the Weir openings at Clifton Court Forebay. We addressed that in Appendix 3A of the Draft EIR/EIS.

MR. RUIZ: So am I -- Is that to say that your opinion as an Engineer, that it's -- it's not feasible to construct adequate fish screens or beneficial fish screens in the South Delta?

WITNESS BUCHHOLZ: I personally reviewed those

reports when preparing that appendix, and the results and the recommendations in those reports appeared to be appropriate to me.

MR. RUIZ: Just a last couple questions that I've got here.

How will -- And forgive me if I missed this in your earlier testimony.

How will water flow from the three intakes to the Intermediate Forebay? Is that -- Is that strictly by gravity?

WITNESS BEDNARSKI: Yes, it is.

MR. RUIZ: Okay. So does that then mean that the Intermediate Forebay will be at a lower elevation than the water elevation in the river at the three intakes?

WITNESS BEDNARSKI: Yes.

MR. RUIZ: I don't have any further questions.

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

Group Number 22?

23?

24?

You must be Mr. Keeling --

MR. KEELING: I am.

CO-HEARING OFFICER DODUC: -- since you do not look like Jennifer Spaletta.

MR. KEELING: Well, I will be if you insist.

This is my first time before this tribunal and I was very pleased this morning. I'm very grateful. I learned that this is Casual Friday, and that's good for me, because this is my casual attire, so thank you.

CO-HEARING OFFICER DODUC: Well, you are wearing blue and gold Cal colors, so --

MR. KEELING: Wait a minute. I'm a Stanford man.

FROM THE AUDIENCE: (Boo!)

MR. KEELING: This is an accident.

I think we have the axe.

(Laughter.)

CO-HEARING OFFICER DODUC: Mr. Keeling, I think you just ran out of time.

(Laughter.)

MR. KEELING: Is this on?

CROSS-EXAMINATION BY

MR. KEELING: Good afternoon, Mr. Bednarski.

WITNESS BEDNARSKI: Good afternoon.

MR. KEELING: Tom Keeling. I'm here on behalf of County of San Joaquin, the San Joaquin County Flood Control and Water Conservation District, and Mokelumne River, Water and Power Authority.

A preliminary question: In DWR 57 at Page 1 --

that's your testimony -- you write (reading):

"The engineering project description is based on the engineering completed to-date for the CWF . . ." unquote.

I just want to know how much of the total engineering has been completed to date. If you can give me a percentage.

WITNESS BEDNARSKI: We estimate that about 10 percent of the engineering has been completed so far.

MR. KEELING: 20 -- 90 -- 90 percent --

WITNESS BEDNARSKI: 10.

MR. KEELING: -- has yet to be done?

WITNESS BEDNARSKI: That's correct.

MR. KEELING: Thank you.

You may recall that there was some discussion this morning based on your testimony in DWR-57, specifically with respect to the Mapbook Figure 3-4 concerning borrow sites.

Do you remember that testimony?

WITNESS BEDNARSKI: I don't recall a discussion about borrow sites in particular.

MR. KEELING: For storage use and disposal of spoil?

Maybe -- Maybe I was having a dream.

It is true that there will be borrow sites for

storage and disposals of spoil?

WITNESS BEDNARSKI: Yes, I believe there are borrow sites that are on the Project.

MR. KEELING: Okay. About how many?

WITNESS BEDNARSKI: I don't recall.

MR. KEELING: All right. What does spoil consist of?

WITNESS BEDNARSKI: I don't believe I used the term "spoil." I believe the term we're using is RTM, reusable tunnel material.

That is the material that's excavated from the tunnels and then brought out and stockpiled at locations identified in the mapbooks.

MR. KEELING: Reusable tunnel material.

WITNESS BEDNARSKI: That's correct.

MR. KEELING: Okay. Have you heard the word "spoil" used to mean the same thing?

WITNESS BEDNARSKI: I have not personally. The term that we use is reusable tunnel material.

MR. KEELING: Have you heard the word "muck" used?

WITNESS BEDNARSKI: Yeah. That's an industry term that's used quite regularly.

MR. KEELING: Right.

What does this reusable material consist of?

WITNESS BEDNARSKI: It's consists of the silt, sand and clays and other material that's excavated from the tunneling operation.

MR. KEELING: Have you done any analysis of the extent to which that reusable material will have a component of hazardous or toxic material?

WITNESS BEDNARSKI: We have done some very limited testing initially. I believe that is in one of our exhibits.

MR. KEELING: Have you -- Have you outlined mitigation measures to address that possibility?

WITNESS BEDNARSKI: We have a series of mitigation measures.

I don't recall specifically where they are in the EIR/EIS that speaks specifically about how the reusable tunnel material is to be stockpiled and treated and processed.

MR. KEELING: What is the quantity -- And I'm talking cubic feet.

What is the quantity of reusable tunnel material you anticipate?

WITNESS VALLES: We're looking at about 25 million cubic yards.

MR. KEELING: What would that be in cubic feet?

WITNESS VALLES: We need to multiple that by

27.

MR. KEELING: I'm trying to get a sense, and I am a lay person, and I apologize for that. My engineering stopped at erector sets when I was 10, so you guys are the experts.

I'm just trying to get a sense of the size.

By comparison -- You're familiar with the Great Pyramid of Giza; are you not?

WITNESS VALLES: I haven't been there.

MR. KEELING: You've seen pictures of it?

WITNESS VALLES: Yes.

MR. KEELING: Would it surprise you to know that that consists of 91 million cubic feet of material?

WITNESS BEDNARSKI: I'll have to take your word for it.

MR. KEELING: Well, it -- I'm trying to get a comparison.

What did you say that was in cubic yards?

WITNESS VALLES: 25 million.

MR. KEELING: 25 million cubic yards. All right.

You don't have any -- Can you tell me how many -- how -- if we're right about the Pyramid --

WITNESS VALLES: 675 million cubic feet.

MR. KEELING: 675 million cubic feet.

WITNESS VALLES: Yes.

MR. KEELING: Very good. You were the guy I always looked at on the math test and said, "Psst, what is it?"

Thank you.

CO-HEARING OFFICER DODUC: Only a Stanford Guy does that.

(Laughter.)

MR. KEELING: This is going to get out of hand.

To what use will the -- Well, given 675 million cubic feet, how deep will those spoils be? I mean, depth-wise. Do you know?

MR. MIZELL: Objection: Vague.

At which location is the questioner referring?

MR. KEELING: Well, will it be a uniform depth or will it vary from site to site?

WITNESS VALLES: It varies from site to site.

Down at Clifton Court, it's about 11 feet. Bouldon Island is about 6 feet. And right around the Intermediate Forebay, we're talking about 14 feet.

MR. KEELING: Well, looking at those numbers, let's say it were 10 feet on the average. I don't know if it's the average.

But if it were 10 feet, how much area -- and I'm talking square footage -- would that cover given the

fact that you have 675 million --

WITNESS VALLES: Down in Clifton Court, we're looking at about 900 acres; and at Intermediate Forebay, we're looking at close to 500, 600 acres; at Bouldon Island, it's about 1200 acres.

MR. KEELING: 1200?

WITNESS VALLES: Yes.

MR. KEELING: So, that's 2600 acres. Even a Stanford Guy can figure that out.

Are there any other spoil sites?

WITNESS VALLES: No, that's about it.

MR. KEELING: What do you intend to use these spoil sites for after the Project?

WITNESS BEDNARSKI: The plan at this point is to resurface them with the -- with the topsoil that's been removed prior to their placement there and replace that on top of the spoils.

MR. KEELING: That's because the spoils themselves will be relatively sterile for agriculture purposes?

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

MR. KEELING: I'm asking.

WITNESS BEDNARSKI: I think that that's yet to be determined.

We've done some initial studies. I don't

recall the specific results about whether it would be suitable for -- for growing anything or not.

MR. KEELING: You haven't -- You have not completed an analysis of the suitability of these spoil sites for agriculture?

WITNESS VALLES: That's why we were putting the topsoil back on.

MR. KEELING: Thank you.

At DWR-57, Pages 17 through 18, which you could put on the screen if you like. I'm sure you have it in front of you.

(Document displayed on screen.)

MR. KEELING: Your written testimony indicates that tunnel construction will use (reading):

". . . Closed-face pressurized soft ground tunnel boring machines (TBMs) in alluvial soils . . . at depths greater than 100 feet with" -- I'm quoting -- "relatively high groundwater pressures and earth pressures."

Have I accurately described your testimony?

WITNESS BEDNARSKI: Yes, that's correct.

MR. KEELING: And this morning, you will recall that you testified a bit about those high pressures. I believe you used 65 --

WITNESS BEDNARSKI: Pounds per square inch.

MR. KEELING: Pounds per square inch, yes.

And you showed one photograph of a machine, and you showed a beautiful schematic, a very cool schematic, and a video about this boring machine.

I'd like to ask you a few questions about the machines.

You mentioned a few projects -- and I think you mentioned San Diego, Seattle, Florida -- that have used similar machines.

Can you tell me what those projects are? Can you go down the list?

MR. BERLINER: Objection: Relevance.

MR. KEELING: I want to find out, Madam Chair, about the injurious effects, if any, of this Project and construction of this Project in the San Joaquin Delta.

In order to do that, I have to know about how -- what the construction involves, noise levels, other disturbances from these machines, so -- and I don't have an example.

So I'm asking --

CO-HEARING OFFICER DODUC: I guess I'm -- I hear you.

To an extent, Mr. Bednarski or anyone else, are those -- the site conditions similar between those projects and this one? And would the site condition make

any difference to the way the device is operated?

WITNESS BEDNARSKI: I think in my testimony, I mentioned four specific project locations. I mentioned a Project in Sacramento, a Project in Seattle, a Project in Washington, D.C., and a Project in Miami.

The one that would be closest in similarity would be the Project in Sacramento. It's a 12-foot-diameter tunnel.

CO-HEARING OFFICER DODUC: Okay. Let's focus on that, then, Mr. Keeling.

MR. KEELING: All right. You say the bore width for this -- If I may, let me back up.

You cited all of these -- all of these examples this morning to show that this technology was -- was well established; did you not?

WITNESS BEDNARSKI: Yes, I did.

MR. KEELING: For the purpose of reassuring these decision-makers about the well-established and predictable nature of this technology; did you not?

WITNESS BEDNARSKI: Yes, I did.

MR. KEELING: So you used all four of those examples for that purpose; right?

WITNESS BEDNARSKI: I used those examples as these are areas that these types of machines are being used in.

MR. KEELING: Was that really true? In Sacramento, you indicated a 12-foot bore?

WITNESS BEDNARSKI: I did not say that. My understanding is, it's a 12-foot sewer pipe. I do not recall the exact diameter of the tunnel-boring machine that was utilized there.

MR. KEELING: How wide was -- How wide was the width of the tunnel that was bored?

WITNESS BEDNARSKI: My recollection is it was approximately 15 feet.

MR. KEELING: That's not 40 feet; is it?

WITNESS BEDNARSKI: 15 is not 40, no.

MR. KEELING: Good. You must be from Stanford.

Were any of these projects 40-foot bores or 40-foot tunnels?

WITNESS BEDNARSKI: Yes. The project in Miami was approximately a 42-foot tunnel-boring machine. The project that's currently underway in Seattle, I believe, is about 57-foot.

MR. KEELING: How long -- I'm talking about length -- was the bore in Sacramento with the 15-foot boring?

WITNESS BEDNARSKI: My recollection, it was about 3 miles. I wasn't involved in the project. It's just what I had researched in the past. That's my

recollection.

MR. KEELING: With the 56-foot boring in Seattle, how long is that tunnel?

WITNESS BEDNARSKI: I believe it's a little bit over a mile.

MR. KEELING: And with the Miami boring, how long is that?

WITNESS BEDNARSKI: That was about the same.

MR. KEELING: A mile?

WITNESS BEDNARSKI: Yes.

MR. KEELING: Were any of these --

WITNESS VALLES: Let me add to that. It's actually two bores, each about a mile.

WITNESS BEDNARSKI: That's correct.

MR. KEELING: I'm glad you mentioned that. That was my next question.

Are these all single borings or double borings? All of them double?

WITNESS VALLES: Miami's double.

WITNESS BEDNARSKI: Miami. That's the only --

MR. KEELING: But Sacramento is single?

WITNESS BEDNARSKI: I believe so.

MR. KEELING: Seattle is single?

WITNESS VALLES: Yes.

MR. KEELING: For the Sacramento boring,

15-footer, how deep is that?

WITNESS BEDNARSKI: I do not know.

MR. KEELING: For the Seattle boring, how deep is it?

WITNESS BEDNARSKI: I think, at points, it's around 120 to 125. It may even go deeper than that. I don't exactly know.

MR. KEELING: And, I'm sorry, that was 3 miles?

WITNESS BEDNARSKI: No.

MR. KEELING: One mile.

WITNESS BEDNARSKI: I believe the tunnel in Seattle is a little bit over a mile long.

MR. KEELING: One mile.

And the depth of the Miami boring?

WITNESS VALLES: I believe directly into the channel, it's about 40 feet.

MR. KEELING: Are all three of those projects -- Miami, Seattle, and Sacramento -- completed?

WITNESS BEDNARSKI: Sacramento's completed. Seattle --

WITNESS VALLES: Miami --

WITNESS BEDNARSKI: Seattle's completed, Miami's underway.

MR. KEELING: Are you aware of any engineering obstacles encountered in the Miami Project during

construction with the boring machine?

WITNESS VALLES: No, no issues with the boring machine itself. There was extensive grouting that they had to do in the soil.

MR. KEELING: For reasons related to the previous testimony here with respect to clay, rock, or in the absence of either, the need for grouting?

WITNESS BEDNARSKI: No. I believe they had a very porous limestone that they were mining through and they had to grout to basically seal all the voids in the limestone or some coral formation in order to be able to mine through there.

MR. KEELING: Are you aware of any cost overruns on any of those three projects?

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

We're getting into the details of projects that are geographically disparate. And at this point, I'd like to focus on what this panel's actually here to testify about, which is our Project.

CO-HEARING OFFICER DODUC: Mr. Keeling.

MR. KEELING: Madam Chair, I did not raise these other projects as examples of the use of these machines to persuade you that this Project should be approved. They raised them.

MR. MIZELL: And I'd like to know what the

financing of a foreign project has to do with the engineering aspects of our proposed Project.

MR. KEELING: I'll withdraw that question.

CO-HEARING OFFICER DODUC: Withdraw that one.

And if you could wrap this up, because you've made your point with respect to the use of those examples.

MR. KEELING: To wrap it up very quickly:

You refer to the 15-foot boring in Sacramento.

Has there ever, to your knowledge, been a wider tunnel bored in the Delta?

WITNESS BEDNARSKI: I'm -- I'm not aware of that, no.

MR. KEELING: What analysis, if any, have you done with respect to the noise, measured in decibels or any other recognized increment, made by these machines?

WITNESS BUCHHOLZ: In the Draft EIR/Draft EIS and the Recirculated Draft EIR, in Chapters 23, the discussion of noise at the -- both the noise considered at the shafts where the materials would be moving around -- moved out of the tunnel and into the areas for transport to the storage, and also associated with the noise inside the tunnels due to -- on the surface due to the construction within the tunnels, those were addressed in decibels in Chapter 23 in the Draft EIR/EIS and the

Supplemental Draft and Recirculated.

MR. KEELING: Is the information in there -- it's been a while since I read that -- indicating what the noise level would be in decibels from, say, a mile away from the boring?

WITNESS BUCHHOLZ: What they looked at in this process was in the immediate vicinity of the construction and found that it was less than significant dealing with sensitive receptors in this area so they did not go out to a mile.

MR. KEELING: How many hours during the day would you expect the boring machines to be operated?

WITNESS BEDNARSKI: They could be operating 20 -- anytime -- at any time during a 24-hour cycle, anticipating that they would work approximately five days a week.

MR. KEELING: 24/5?

WITNESS BEDNARSKI: Yes.

MR. KEELING: By the way, what do you intend to do with these machines -- Strike.

How many machines do you intend to use for the Project?

WITNESS BEDNARSKI: I believe we're anticipating at this point about 12 machines.

MR. KEELING: What do you intend to do with

these machines at the end of the Project?

WITNESS BEDNARSKI: Those machines will be owned by the contractors that operate them and it will be up to their discretion what they do with those machines.

MR. KEELING: I couldn't tell from the schematics in the video. How large are each of these machines? I mean, it's obviously larger than a VW, larger than a bread box or a bus. Is it the size of a city block? What is it?

WITNESS BEDNARSKI: They could be upwards of 3 to 4 feet long with all the equipment that's connected to the actual cutting part of the tunnel-boring machine.

MR. KEELING: And the other dimensions, width and height?

WITNESS BEDNARSKI: Well, it's 40-foot -- We're anticipating for -- It's a 45-foot-diameter machine, so everything will fit within the 45-foot diameter.

MR. KEELING: And I believe you testified earlier that the Project was to continue for 13 years, the construction?

WITNESS BEDNARSKI: The construction activities -- I believe that the tunneling activities will be completed within 10 to 11 years of that.

MR. KEELING: Thank you.

Going back to the topic that we heard

throughout the day, the five anticipated permanent relocations of diversions in the intake area and the 10 temporary relocations.

By temporary, what duration do you mean?

WITNESS BEDNARSKI: What we've -- What we've characterized as temporary is that we will not be removing as part -- or we do not anticipate removing the portion of the diversion that goes out into the Sacramento River.

In those areas that we call permanent diversions, we will be physically removing that portion of their diversion that goes into the Sacramento River along the levee.

So if it's categorized as temporary, it means that we will basically replumb their part of the system that's on the land side of the river and then, as I mentioned -- as I explained to one of the other individuals, we'll reconnect those so that the users have basically a seemless supply of water and quality at their present levels.

MR. KEELING: Will the five permanent relocations require permits for changes in those points of diversion?

WITNESS BEDNARSKI: I anticipate that they would, yes.

MR. KEELING: Will the temporary relocations require such permits?

WITNESS BEDNARSKI: We're -- At the present time, we're not anticipating that they will, because we're not going to impact their actual connection to the river itself.

We will be modifying downstream piping and pumps but not affecting where that diversion enters the river, so the short answer to your question is no.

MR. KEELING: With respect to the five -- the five permanent relocations, then, what entities, if you know, would be making those Applications for Changes in the points of diversion?

WITNESS BEDNARSKI: We will be working with the present landowner that controls or owns that diversion and, I believe, through our discussions with them, will determine whether they would want to do that or whether DWR would want to do that.

But we would be prepared to do that if the owner of the diversion did not want to. DWR would take that responsibility.

MR. KEELING: But no applications have been filed yet for those changes in points of diversion?

WITNESS BEDNARSKI: No, they have not.

MR. KEELING: What contingency plans, if any,

have been made to address the consequences to the Project if one or all of those requested Change Permits are not granted?

WITNESS BUCHHOLZ: I think that, at this point in time, we'd have to take that into account, as we would other things that would occur during the predesign.

They will be -- We will probably have to make some decisions that we may need to come up with Plan B, but right now, all of our plans are as established in the Project Description that we have right now.

And it may mean changing locations or something, but I think that's really speculative at this time.

MR. KEELING: But nobody's assured you that they will be granted.

WITNESS BUCHHOLZ: Nobody's assured us, but it's like the rest of the Project Description: It's defined and we've done the analysis based on the definition of the Project Description that we have in front of us right now.

MR. KEELING: For construction of the California WaterFix, did you request any approvals at all from the California -- from the Delta Stewardship Council?

WITNESS BEDNARSKI: I'm not aware of any that

the Engineering Team has requested.

MR. KEELING: Have you ever been told -- I know you're not a lawyer. I'm not asking you for your opinion.

But have you ever been told that the proposed Project would be a covered action under the Delta Plan?

WITNESS BEDNARSKI: The Engineering Team has not been told that.

MR. KEELING: Have you performed an analysis of the impacts of tunnel construction on San Joaquin County's efforts to comply with the mandates of the Sustainable Groundwater Management Act earlier referred to as SGMA?

WITNESS BEDNARSKI: To the best of my knowledge, the Engineering Team has not been requested to do that.

WITNESS BUCHHOLZ: Currently, the Environmental -- the Recirculated EIR/EIS identify SGMA as a cumulative impact, and the groundwater sustainable plans, GSPs, are currently being developed and it would be speculative to identify specific criteria that would need to be complied with in the future.

MR. KEELING: So the answer --

WITNESS BUCHHOLZ: So, the answer is no, it's a contingent project.

MR. KEELING: So the answer is no.

WITNESS BUCHHOLZ: No, but it's recognized that it is a future project.

MR. KEELING: Do you know how many wells San Joaquin uses in San Joaquin County for any uses, domestic, municipal, recreational?

WITNESS BUCHHOLZ: I do not know. And the groundwater analysis did not analyze individual wells. We recognize that that would have to be done during the Preliminary Design phase of the Project.

MR. KEELING: Did your Engineering Team meet with San Joaquin County Engineers in connection with the planning of this Project through San Joaquin County?

WITNESS BEDNARSKI: I'm not a -- During my duration on the Project, I'm not aware that we have.

MR. KEELING: Did your Team --

CO-HEARING OFFICER DODUC: Mr. Keeling, please get closer to the microphone.

MR. KEELING: Sorry.

Did your Engineers --

CO-HEARING OFFICER DODUC: That did not help. Is your microphone on?

Stanford.

(Laughter.)

MR. KEELING: Did your Engineers meet with any

Engineers from Reclamation Districts in San Joaquin County about the construction of this Project through their R&D jurisdictions?

WITNESS BEDNARSKI: I don't have a specific Reclamation -- Reclamation.

I don't have a specific recollection of any meetings that have taken place, although we're generally aware of the fact that we will have to do that in the upcoming stages of design.

MR. KEELING: Did your Team -- Are you -- Were you provided with any study or analysis of the effects of tunnel construction on specific aquifers in San Joaquin County?

WITNESS BEDNARSKI: No, we were not.

MR. KEELING: Were you ever provided with any study or analysis of the range of possible effects of tunnel construction and tunnel operation on aquifer recharge efforts in San Joaquin County?

MR. MIZELL: I'm going to object as a compound question. If he wants to rephrase it and break it in two . . .

CO-HEARING OFFICER DODUC: Please break that up.

MR. KEELING: Were you ever provided with a study of the effects of tunnel construction on aquifer

recharge efforts in San Joaquin County?

WITNESS BUCHHOLZ: We have not. I've not reviewed anything or seen anything or heard anything about that matter.

CO-HEARING OFFICER DODUC: Mr. Keeling, I'm sorry, before you continue, let me check in with the court reporter since I shortchanged her on the last break.

Do you need to take a break?

THE REPORTER: No.

CO-HEARING OFFICER DODUC: You good?

THE REPORTER: Um-hmm.

CO-HEARING OFFICER DODUC: Thank you.

MR. KEELING: That's fine.

CO-HEARING OFFICER DODUC: Please continue, Mr. Keeling.

MR. KEELING: Have you ever been provided with a study of the effects of the -- of the operation of the tunnels on recharge efforts -- aquifer recharge efforts in San Joaquin County?

WITNESS BUCHHOLZ: I have not seen any such study.

MR. KEELING: Have you done an analysis of how many NPDES Permits will be needed for tunnel construction?

WITNESS BUCHHOLZ: We do not quantify that as part of the environmental document.

We recognize that, during Predesign, the specifics for dewatering will be determined at each site, and there will -- Depending on the methodology for disposal of the dewatering water, we would have to consider NPDES Permits if the water was discharged back to the surface water bodies, usually posttreatment, to remove sediment and anything else -- any other constituents that are necessary.

And we also anticipated that there would be one or maybe just a few storm water NPDES Permits completed for the construction processes, for the non-storm water discharges of the construction.

MR. KEELING: But you don't know what conditions might be imposed in connection with the issuance of those Permits?

WITNESS BUCHHOLZ: No. That's always something that's done during the Predesign Project.

MR. KEELING: Do you know if, in fact, any requested NPDES Permits will be issued?

WITNESS BUCHHOLZ: We recognize that we will definitely need them for the -- for the construction under the storm water discharge. That's mandated in California.

And if we're discharging dewatering water back to the surface waters, then we'll need an NPDES Permit for that.

MR. KEELING: My question's actually a little different.

You answered the question whether you'll need them. I'm asking if you know the Permits will be issued?

MR. MIZELL: Objection: Speculative.

WITNESS BUCHHOLZ: Right.

MR. KEELING: So you don't know.

WITNESS BUCHHOLZ: We would apply.

MR. MIZELL: Same objection.

CO-HEARING OFFICER DODUC: She can answer no.

WITNESS BUCHHOLZ: No. Right.

MR. KEELING: Well, on dewatering.

Can you give an estimate of how much groundwater you estimate will be pumped during the construction of the intakes?

WITNESS BUCHHOLZ: We have not done that analysis. Now that we've looked at the -- the construction methods with the slurry walls around the entire construction footprint, we've not completed that, no.

MR. KEELING: Do you have an estimate of how much groundwater will be pumped during the construction

of the tunnels?

WITNESS BUCHHOLZ: We have not done that. As I said with the -- now with the slurry walls in the tunnel shafts, we're not anticipating any groundwater.

The groundwater part that would be coming in with the reusable tunnel materials is part of the volumetric analysis of the tunnel material when it's returned.

MR. KEELING: Can you provide an example to us of other dewatering projects similar in size and scope to this Project's dewatering component?

WITNESS BUCHHOLZ: Have I provided you that?

MR. KEELING: Could you?

WITNESS BUCHHOLZ: Could we?

We -- From the -- From the size of the three -- of each of the three intakes, and of multiple intakes, I'd say probably one of the ones I worked on as Permanent Engineer during construction was, we were responsible as Construction Manager -- the firm I worked for, we were Construction Managers for three large wastewater pumping plants from Monterey Regional County Sanitation District that were constructed along the beach of Monterey Bay.

And in that case, where we had to use slurry walls and the grouting procedures, because otherwise we were fighting a losing battle trying to dewater the bay.

So I don't mean to be flippant but --

MR. KEELING: No, I understand.

WITNESS BUCHHOLZ: -- it was a massive job.

And we had the connecting pipelines that went with it.

It wasn't a tunnel operation in that case. It was open trench, and it was a challenge.

MR. KEELING: You would compare that Project to this one in terms of the size of the dewatering?

WITNESS BUCHHOLZ: For the -- For the intakes as well compared to those wastewater pumping plants, absolutely.

MR. KEELING: Will you be testing the quality of groundwater before dewatering?

WITNESS BUCHHOLZ: Yes, and during dewatering operations. That testing's mandated by the State of California.

MR. KEELING: And after?

WITNESS BUCHHOLZ: And that -- Well, it would be -- As we withdraw it, we will be doing testing, and prior to discharge or disposal methods.

MR. KEELING: Will that data be publicly available in connection with this Project?

WITNESS BUCHHOLZ: It generally is part of the -- It's certainly publicly available because it needs

to be submitted to the Central Valley Water Quality Board in this instance.

MR. KEELING: And what will you be doing with the pumped groundwater?

WITNESS BUCHHOLZ: That's going to be determined in Predesign, which will depend upon the rate, the timing, the production of that groundwater.

I've been on projects in which we've been able to discharge it after treatment to -- to an adjoining surface water body. I've been on projects in which we hauled it away. It'll just really depend in Predesign what will happen.

MR. KEELING: So at this time, you don't know.

WITNESS BUCHHOLZ: We don't have it. We've covered it in the Environmental Impact Report, the range of proposed disposal methodologies.

MR. KEELING: What are your contingency plans to address situations in which groundwater samples show reductions in the quality of water that would affect legal users downstream?

WITNESS BUCHHOLZ: The -- It's anticipated that the NPDES Permits would not allow us to compromise the downstream water quality and, therefore, if that occurred based upon our groundwater samples prior to dewatering, treatment processes would be put in place.

MR. KEELING: How large are these proposed dewatering pumps, by the way?

WITNESS BEDNARSKI: I don't believe their size has been determined at this point.

MR. KEELING: Do you know how many of them you'll need?

WITNESS BEDNARSKI: No, we do not.

MR. KEELING: Would they be operated 24/7?

WITNESS BEDNARSKI: That would depend on the specific application whether they were or not.

MR. KEELING: In your experience, what is the usual time per week of the operation of dewatering pumps in large dewatering projects?

WITNESS BEDNARSKI: Well, in a -- in a -- I would assume that, in an uncontrolled environment, like had been originally proposed, they would have to operate continuously to keep the groundwater level down.

I'm not sure that now, with the confined situation that we're anticipating with the slurry wall construction, that we would necessarily need to operate those pumps 24 hours a day.

MR. KEELING: So you're not sure about the time of operation yet of those pumps?

WITNESS BEDNARSKI: We'll determine that once we're able to get some geotechnical information and be in

our Preliminary Design.

MR. KEELING: Same question with respect to seasonality.

Were you -- Do you anticipate the pumps will be used throughout the year or just during certain seasons?

WITNESS BEDNARSKI: I don't have a specific answer for that. I would assume it would depend on the groundwater levels and how they're responding or changing during those different seasonal conditions.

WITNESS BUCHHOLZ: If I may add to that, too.

At the intakes -- well, all of the construction sites, but especially at the intakes and the tunnel shafts, the -- once we construct the slurry walls and we put in the groundwater pumps and dewatered and we make the site impermeable so we can do construction, we should not be doing major dewatering for long after that.

There'll be a little bit of tail-off water time, and we'll do it, but once it's dry, it's dry. And we're constructing an impermeable structure.

MR. KEELING: Have you done an analysis of how the discharges might increase water levels in local sloughs and channels during the wet season?

WITNESS BEDNARSKI: With respect to the impasse, we're adjacent to the river, and I would anticipate -- and we talked about this in the document --

that those discharges would probably go back either into the river or to something close to the confluence of the river and adjacent sloughs so that we wouldn't be back-watering up to affect adjacent properties.

And the -- With respect to the tunnel shafts, it's going to have to be dependent on each location because many of those are interior to an island.

And so we're going to have to work on a site-by-site basis to come up with something so that we don't affect irrigation drainage or raise the adjacent shallow groundwater that could affect root zones for adjacent agricultural crops.

MR. KEELING: Do you have any more detailed plan for that at this point?

WITNESS BUCHHOLZ: No. That's all Predesign aspect.

MR. KEELING: And, finally, has the Team made any requests for Encroachment Permits from Reclamation Districts in San Joaquin County with respect to levees and other Reclamation works that might be affected in that county?

WITNESS BEDNARSKI: Not to my knowledge, no.

MR. KEELING: Do you have any plans to do so?

WITNESS BEDNARSKI: Oh, once we move into the next stage of the Project, Preliminary Design, we would

begin that process.

MR. KEELING: I'd like to thank this panel for their attentiveness and their time.

And thank you.

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

All right. Does anyone object to us adjourning at this time?

(Laughter.)

CO-HEARING OFFICER DODUC: All right. I'm not seeing anyone -- Everyone's able to return next week?

All right. With that, then, thank you all and have a great weekend and we will see you next Tuesday, 9 o'clock.

(Proceedings adjourned at 3:41 p.m.)

State of California)
)
County of Sacramento)

I, Candace L. Yount, Certified Shorthand Reporter for the State of California, County of Sacramento, do hereby certify:

That I was present at the time of the above proceedings;

That I took down in machine shorthand notes all proceedings had and testimony given;

That I thereafter transcribed said shorthand notes with the aid of a computer;

That the above and foregoing is a full, true, and correct transcription of said shorthand notes, and a full, true and correct transcript of all proceedings had and testimony taken;

That I am not a party to the action or related to a party or counsel;

That I have no financial or other interest in the outcome of the action.

Dated: August 12, 2016

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Candace L. Yount, CSR No. 2737