

APPENDIX F

Board Hearing Transcripts
September 12, 2007

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California Regional
Water Quality Control Board

San Francisco Bay Region

Meeting

September 12, 2007

ITEM 10

Proposed Amendment to the Water Quality Control Plan (Basin Plan) to Establish a Total Maximum Daily Load (TMDL) and Implementation Plan for Polychlorinated Biphenyls (PCBs) in San Francisco Bay

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Oakland, California

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PROCEEDINGS

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September 12, 2007

Oakland, California

Item 10: Proposed Amendment to the Water Quality Control Plan (Basin Plan) to Establish a Total Maximum Daily Load (TMDL) and Implementation Plan for Polychlorinated Biphenyls (PCBs) in San Francisco Bay

CHAIRMAN MULLER: We're going to try to get started because of such a lengthy day here. So first call - yeah, we're going to get organized here. And we're all going to - yeah, so we'll just say it right up front about our disclaimers, we'll be honest with everybody.

Again, thank you.

We have 11 or so cards for this next item, and I tried to organize them as best as possible. We do have one or two speakers that need to get out of the building as soon as possible, so I've given them the liberty to go early.

And at this time we will be moving to Item 10, the Proposed Amendment for Water Quality Control Basin Plan to Establish a TMDL for PCBs in San Francisco Bay.

And at this time I'll disclose that I did meet with representatives from General Electric for a few minutes yesterday, and just in general terms talked about the Bay and issues, and so nothing specific, nobody bought my lunch or dinner or night at the Ritz, so just a quick get-together.

BOARD MEMBER YOUNG: Well, I did not meet with General Electric, but I do have a past history with the company by virtue of the fact that my husband represented them in an environmental case, which is now over. My husband's law firm, however, still has a relationship with General Electric. I have been advised by counsel that I do not have a financial or ethical conflict of interest, and I don't think there's anything that's going to prevent me from being fair and impartial in looking at the PCB TMDL.

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CHAIRMAN MULLER: Well said.

Any others? Okay. If not, staff, please, Fred?

MR. WOLFE: With that let me remind everybody that this is a hearing to receive testimony only that's scheduled for today for the staff presentation. Fred Hetzel will lead off, and then Tom Mumley will provide some description of the comments received to date.

Fred?

MR. HETZEL: Thank you. Good morning - good afternoon, Chairman Muller, and Board Members. My name is Fred Hetzel, and I work in the TMDL Planning Division.

I will be presenting only the technical portion of this talk, and describing the details of the PCBs TMDL. And Tom Mumley will then present an overview of the public comments we've received to date.

This is, as Bruce just said, this is the first of two planned hearings on the proposed PCBs TMDL Basin Plan limit. We have been working on this TMDL for over seven years, and a large number of supporting documents were prepared either by us or by stakeholders. I would like to specifically note the important contributions that were made by the San Francisco Estuary Institute, the Regional Monitoring Program and the Clean Estuary Partnership.

PCBs are a class of compounds formed by two carbon rings, or benzene rings, with different arrangements of chlorine atoms. There are 209 possible arrangements of chlorine; therefore, there are 209 PCB compounds called congeners. Widespread use of PCBs occurred from the 40s through the 70s, and there were many associated with transformers, but there were also a lot of other uses, such as in paints and caulks, for example.

PCB oils are very resistant to heat, and are relatively chemically inert. They are very stable compounds that persist in the environment for long periods of time, but over time they

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do slowly degrade or naturally attenuate. Although PCBs were banned in the 1970s, they are still found in the environment, particularly in older urban and industrial areas.

So, what is the problem with PCBs in San Francisco Bay? Well, basically San Francisco Bay is impaired because of PCB concentrations in fish. This impairment affects the sport fishing and wildlife habitat beneficial uses of the Bay.

Concentrations of PCBs increase as you move up the food chain. Basically, predator species accumulate higher concentrations of PCBs in their bodies than are in the prey they consume.

Exposure to PCBs results in cancer risk and other health concerns. The main threat from PCBs is due to the consumption of fish residing in the Bay. This consumption increases the risk of cancer to people who consume Bay fish.

This graph shows PCB concentrations of seven fish species caught at various locations in San Francisco Bay. The red line at the bottom of the graph indicates a TMDL target protective of the public who consume Bay fish, and the data points we present on the graph show the PCB levels in fish. As you can see, two species in particular, Shiner Surfperch and White Croaker, have the highest current concentrations of PCBs.

This slide presents a conceptual understanding of the PCB problem in the Bay. This is obviously a very simplified view of the Bay's environment, but it serves to illustrate our approach to the PCBs TMDL.

First, on the left side where it says watershed activity, there are a number of PCB sources in the landscape. We're actually going to discuss these later in the presentation. Once PCBs enter the Bay, as you go from left to right, they can settle and mix in with Bay sediments, much like mercury does. Historical releases of PCBs have resulted in the large amount of PCBs

already in the Bay, and sediments are the main reservoirs of PCBs in the Bay.

PCBs can remain dissolved in the water or be re-suspended attached to sediments. They are taken up by organisms living either in the water column or the sediments, and then by the fish feeding on these organisms. On the slide there's a term called trophic transfer, that's simply the discussion of the PCBs moving up the food chain.

Finally, PCBs are taken up by consumers of Bay fish such as birds and humans. This is very similar to a situation we had - we have for mercury.

Okay. In the Basin Plan Amendment we propose a fish tissue concentration of 10 parts per billion as the numeric target for TMDL. This represents direct measure of attainment of beneficial uses of the Bay.

We derived the TMDL from this fish tissue target in the following way. We used a food web model to translate the PCBs target to a PCB level in sediment. We then use the PCBs mass budget model to determine the maximum PCB load that will result in attainment of the fish tissue target. This results - this comes out to 10 kilograms per year.

Now I want to discuss the sources of PCBs to the Bay. This graphics shows the sources we evaluated. We evaluated Central Valley - we split the sources into two categories: external sources, that is sources coming into the Bay; and PCBs already in the Bay, or internal sources. The external sources are shown in the blue boxes, and the internal sources are shown in the yellow boxes.

We estimated loads from the following external sources: atmospheric deposition, the Central Valley, municipal and industrial wastewater, and urban and non-urban runoff. We also recognize that there are these internal sources of PCBs to water, and more importantly, directly to aquatic organisms.

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Internal sources include in-bay disposal of dredge material, in-bay contaminated hot spots, and the erosion of buried sediments.

We allocated TMDL 10 kilograms per year solely to external sources. Here's a breakdown of the allocation by sources. Our staff report provides further breakdown of the allocations to individual dischargers, but I will not be presenting that today.

We are proposing an allocation of zero to direct atmospheric deposition to the Bay. Direct atmospheric deposition is estimated currently to be an actual net loss of PCBs to the Bay.

We are proposing a load allocation of 5 kilograms per year to the Central Valley. This represents a large reduction from the current estimates of approximately 40 kilograms per year.

The proposed allocation for wastewater is 2 kilograms per year. This is the same as the current load estimates. Allocation to individual wastewater dischargers is based on average flows.

We also are proposing an allocation of 2 kilograms per year to urban runoff. This reflects a large load reduction, and then in a later slide I will present our proposed approach on implementing this load reduction. Individual load allocations for urban runoff are based on population.

Non-urban runoff that is from open space and agricultural lands contributed a negligible amount of PCBs to the Bay, and therefore, as with wastewater, we're proposing current lows for the allocation.

Finally, we are proposing to reserve a load allocation of 0.9 kilograms per year for treatment of urban runoff by wastewater plants. This is an urban runoff treatment control

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measure we would like to evaluate and we see this load allocation as an incentive to explore its feasibility.

Although the TMDL of 10 kilograms per year does not require reductions from internal sources such as contaminated in-bay hot spots, these cleanups are currently ongoing, and we expect that they will be a benefit to attainment of the target.

Now I want to give you an overview of how we expect the load allocations will be attained. First, the Basin Plan Amendment does not call for actions to control atmospheric deposition since this source currently constitutes a net loss.

We expect this load reduction to occur due to natural degradation of the already low PCB concentrations in sediments delivered from the Central Valley. Keep in mind that the water and sediment entering the Bay from the Central Valley are already lower in PCBs than what is in, what is in the Bay.

For wastewater dischargers, we expect that current performance will be maintained to ensure maximum treatment.

Finally, the large load reductions expected from urban runoff dischargers will necessitate a variety of actions. Our approach to urban runoff load reductions will be included in stormwater permits, and these are presented in the next slide.

Briefly, our approach to urban runoff load reductions is based on the five year term of stormwater permits and uses a tiered approach to implementation. Depending on the certainty of success, each implementation action will either be deployed full scale, will undergo limited implementation to determine its effectiveness, or will be pilot tested to evaluate its potential. Basically, we are proposing is to control “controllable” sources of PCBs on land.

During the first term of stormwater permits we intend to focus actions in

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historically industrial areas. This will be done in cooperation with other regulatory and local agencies. We intend to review the success of these actions and either expand or adapt them as needed.

Now, I want to use a slide to illustrate our rationale for focusing stormwater control efforts in urban areas. This is an issue we've studied quite a bit in the seven years we've been working on the TMDL.

This figure shows the concentration of PCBs in the sediment - red circles. The bigger the circle, the higher the PCB concentration. The on-land sediment samples represent sediment collected within our stormwater runoff drainages, mainly.

The purple areas that are around the edge of the Bay represent the urban areas in the mid-1950s. These areas contained the historical industrial zones at the time of greatest PCB production and use.

Overall, the bigger circles, or the higher PCB concentrations, are located in areas that were historically urbanized. That makes sense. This is where industries were located, this represents the waterfront in Oakland, Richmond, and San Francisco. This is where - these were near marine and rail transportation. One example is the watershed we're in right now, where this building is in. It's called - it is called the Ettie Street watershed. And one of those big red dots represents this watershed. We have already begun pilot level efforts to understand the best approach for reducing PCB loads to the Bay.

In my mind this figure clearly shows the relationship between elevated sediment and historical land use providing a focus for implementation in areas.

This slide addresses internal sources of PCBs. First, we do not expect to control naturally occurring erosion of Bay sediments. However, we expect continued removal of PCBs

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from the Bay due to the reduction of dredged sediment disposed of in-Bay. This is an outcome of the long term management strategy for the placement of dredged material in the San Francisco Bay Region, commonly known as LTMS. Decreased in-Bay disposal of dredged sediment will result in decreases of PCBs in the Bay.

We also expect reductions of PCBs in the Bay from ongoing and future cleanups of in-Bay PCB contaminated sites. We will maintain a list of PCBs, of in-Bay PCB contaminated sites and prioritize these for cleanup. We will continue to follow a standard approach in evaluating on a site-by-site basis the cleanup efforts for each site. This includes site investigation, risk assessment and feasibility of various cleanup options. We recognize that there's a challenge posed by the fact that responsible parties cannot always be identified.

I want to emphasize that these actions are not dependent on the TMDL; rather, they rely on existing regulatory tools or programs.

We propose implementation of the TMDL following an adaptive scheme. This approach includes continued monitoring and special studies, implementation of actions that have proven benefit, and pilot studies for other implementation actions.

We know that we can still improve our understanding of the Bay and of PCBs in the Bay. For example, efforts are currently underway to improve our PCBs model, by developing a next generation multi-box model. We are also in the process of collecting more sediment cores in the Bay. This will help evaluate the effect of erosion on the PCB budget for the Bay.

We have and continue to work with SFEI on improving our understanding of PCB loads from urban runoff.

We are also working with stakeholders and SFEI to evaluate actions with the potential to reduce PCB loads from urban runoff and to develop an implementation framework

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for municipal stormwater agencies. Among all the actions being evaluated, routing of urban runoff to wastewater treatment plants is noteworthy, mainly due to the multi-containment benefit that could result.

Finally, as we start implementing PCB control measures and refine our understanding of PCBs in the Bay, we are also calling for a region-wide program to manage the human health risks associated with consuming Bay fish, similar to what is required in the TMDL.

This is the part - this is portion of my talk, the portion where my talk ends. So I will turn the talk over to Tom.

MR. MUMLEY: Thank you, Fred. And good afternoon, Members of the Board. And for the record, I'm Tom Mumley, Assistant Executive Officer here at the Board.

What I'm going to do is give you an overview of the comments received. Specifically, we received comments from 12 parties, that include U.S. EPA, urban runoff and wastewater agencies, dischargers, environmental organizations such as the Baykeeper and Clean Water Action, and then a nested set of comments from General Electric, the Chamber of Commerce, and the Building Trade Industry, and a concerned citizen as well, which I will touch on in a second.

I need to step back and give - make sure you understand what we received from GE and the Chamber of Commerce. We received comments that came as a nested package, there's a master comment letter which is included in your packet, and it's backed by comments from various contracted experts, two of which we included in your packet: one associated with ARCADIS and the one associated with Dr. David Sunding. Now, this was not intended to highlight these experts, but frankly it was just an artifact of the challenge that we had to sort out all of the GE et al comments, and that they came in eight boxes.

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So when I'm telling you this to fully disclose to you the scope of comments that we have received and are available for review by all parties, versus what we actually made available to you in your packet.

Now, the concerned citizen I note happens to be a former Executive Officer from the Board here, Roger James, who provided insightful comments on urban runoff implementation measures. And we welcome those. And I don't think Roger's here today, but I thought I'd give him recognition. But now I'm going to give an overview of these categorical comments, and not necessarily touch on all commentors and all specific comments. But just to give you the gist of what we received so you can absorb them in an integrated fashion.

First, we received comments from EPA, and they've raised two main issues. First, is that they would like us to better demonstrate reasonable assurance that the Central Valley and urban stormwater allocations will actually be attained. And secondly, they raised questions that would lead towards more specifics on implementing wastewater allocation in future NPDES permits, specifically how will the wastewater allocations be implemented as water quality based effluent limitations.

And then a number of other comments they gave us are mostly going to be easily resolved through clarification and answering their questions.

We've already met with EPA and are confident that we will resolve these issues as we did similarly with mercury recently. And I believe that the fact that they're not actually here - they're here in the audience, they're not testifying: essentially an affirmation that they expect to be able to resolve, have their concerns resolved by ongoing dialogue with us. And they see no need to emphasize any particular point beyond what they put in writing. So I welcome that.

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The Bay Area Clean Water Agencies, these are the wastewater treatment agencies, submitted very supportive comments. They support the TMDL, particularly the adaptive implementation scheme. However, they do make a case that individual wastewater allocations are not needed, and they indicate that there's limited ability to reduce loads and treat urban runoff. And I also recognize that we received similar comments from the City of San Jose, and the San Francisco Public Utilities Commission.

The Bay Area Stormwater Management Agencies, the urban runoff, the Bay Area Stormwater Runoff Management Agencies submitted extensive comments. And most importantly they recognize resolving PCBs impairment is a priority. But they do express several concerns like, for example, associated with the uncertainties in our source analysis and the TMDL model. They also question the feasibility of attaining allocations to them, and the associated costs of implementing actions, implementation actions. They also recognize that they have a role in the cleanup of contaminated sites in urban drainage areas, but they call out - not only do we also have a role as the California Department of toxic substance control and U.S. EPA in that they ask for a coordinated effort.

And we also received comments similar to BASMAA's from the City of San Jose and Caltrans.

Now the Baykeeper and Clean Water Action submitted joint comments, and expressing a number of issues. First and foremost their concern that the fish tissue target is not protective of people who regularly consume Bay Area fish, particularly since fish contain other contaminants as well that pose risks.

They request we also establish a sediment target, as we did in mercury, to reflect the significance of PCBs in Bay sediment. They also would like to see more detail about

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implementation of urban runoff load reductions. And they ask for specific deadlines for cleanup of in-Bay hot spots. They also want more emphasis on wastewater sources and better assurance that Central Valley load reductions will occur.

Now, I'll refer to them as General Electric et al. These are the comments that came forward under General Electric and the Chamber of Commerce. Essentially raise issues with every aspect of the TMDL implementation plan. For example, they assert that we have not adequately accounted for natural recovery of the Bay and our TMDL calculation is overly conservative. They also assert that proposed allocations do not reflect uncertainties in our external load estimates, and further assert that in particular the urban runoff allocation is not attainable. They question the adequacy of our economic and environmental impact analysis of potential actions. But I'll remind you that there's no legal requirement to conduct a cost benefit analysis. Cost is just one factor that we must consider when identifying reasonable foreseeable implementation actions. There's no legal requirement certainly, the benefits of actions are something that we want to weigh in terms of doability and for the general good.

Now, the bottom line concern by GE et al is that the TMDL numbers, specifically the translation of the fish tissue target to a level in sediment will become a de facto cleanup standard. That's really the bottom line. And the basis for this concern is that General Electric owns a facility in Oakland that handled large amounts of PCBs. And that this facility drains to San Leandro Bay, which is one of the in-Bay contaminated hot spots. So therein lies their concern.

Now, the good news is that they've been nearing completion of cleanup of the site under the lead of the Department of Toxic Substances Control. So we are fairly confident that that will resolve at least the on-land portion of their responsibility. And there's still issues to

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be resolved regarding our understanding of San Leandro Bay, the degree of contamination, and the like, and there are some - there is some work underway via the development of sediment quality objectives using our regional monitoring program resources, as well as the expertise of the San Francisco Estuary Institute as we speak, in San Leandro Bay.

And I'd also like to add, in contrast to these comments received from GE et al, we received comments from Pacific Gas and Electric Company, which as you may know used PCBs in transformers at its sites throughout the Bay Area, including locations within the San Leandro Bay drainage area. However, the comments received from PG&E are favorable to the TMDL, and in particular they assert their ongoing commitment to PCBs elimination and assessment of all their facilities. Just the other side of the coin.

So, in closing, I want to give you a few thoughts that provide some perspective on our proposed solution to this challenging and complex problem. Now, maybe it's like the biggest challenge that we've had to grossly simplify an extremely complex situation, that's by the nature of the beast. But - and we've spent over seven years gathering data and conducting studies and engaging stakeholders to get to this point in time.

And but as we've used this term a lot, our solution is based on the concept of adaptive implementation. Where we take - we call - we propose actions commensurate with our current state of knowledge while we continue to gain knowledge of the system engage the benefits of further actions. So that's the general scheme of things.

As we fortunately, you know, fortunately the problem the - consumers of fish is not going to go away over night. Fortunately they will slowly decline over time due to the fact that PCBs don't last forever, but they do have a slow breakdown period. But rather than just bank on natural recovery as some have argued, we propose taking doable actions in the short term

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as expeditiously as possible, while we improve our understanding of recovery of the Bay.

And that's our solution in a nutshell.

Now, the number and scope of comments that we've received certainly reflect how important this issue is to the Bay Area community. Many comments call for clarification or more documentation, or otherwise many also reflect misunderstandings or misinterpretations of our proposal, but that we think are easily resolvable. Although we are disappointed with the negative nature of many of the comments, we also feel we can address them all. So the next steps are that we'll thoroughly review all comments and prepare responses, and as necessary, revise the Basin Plan Amendment and supporting documentation. And though currently we have an adoption hearing to present the completed package to you in November, albeit we recognize there may be quorum challenges, and we also just to let you know we have - we will have challenges ourselves to get our arms completely around all the comments we've received and to be thoroughly responsive to them. So but we are - we'll trudge along as of today.

And as before I close I'd also just like to recognize two other key members of our team, Naomi Feger and Jody Bailey who are sitting here, so who worked with Fred and me in preparing this package for you.

With that we are open for any questions that you have.

CHAIRMAN MULLER: Clifford?

MR. WOLFE: Actually, before we go into questions, let me just note on that issue about the potential for November hearing with John indicating that November 14th won't work for him, we can look at whether the following Wednesday, November 21st, might both be available, and see if enough of you are available that we might have a quorum. But I'll throw that out both for the Board to consider - well, I'll get back to you on that, but also let all the public

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know that we will be looking at that and obviously be providing notice to all parties should the date of the adoption hearing change from our projected (tape interference).

CHAIRMAN MULLER: Okay. Clifford, did you have comments, questions?

BOARD MEMBER WALDECK: I shouldn't just focus on one thought, but eight - now when you said eight boxes of material came in, is that one of those banker's boxes that have handles on them and with the lid on the top?

CHAIRMAN MULLER: Yes.

MR. MUMLEY: Well, there's - they - it's there's a fair amount of redundancy in what they've given us from what we already have. But their comments include a lot of references so they provide copies of every reference they use, whether we have them or not. They also gave us comments to our TMDL report that we released in February of 2004; similarly quite of few pieces of paper. But the resubmitted all those - so there's - so you could say - so there's a lot of paper backing up their nested comments. So there's - think of the pyramid, main letter, the second level of expert comments, and then below them are maybe some further analysis of their experts, and then all the supporting documentation. But, yes, seven boxes.

BOARD MEMBER WALDECK: And because it still doesn't make sense, because especially when you said that Pacific Gas and Electric Company was okay with it. And when I think of PCBs I think of the transformers. There's a heck of a lot of transformers all over the place there.

I did want to ask, and thanks for answering that question there, on this combined letter that came in from California business and manufacturer's group and all that there, they make the claim that the fish target is eleven times greater than the current proposal. It says then the current proposal in as recently as 2004 proposed a target that was more than twice as high as

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the current proposal. I mean, are we clamping down too hard on this here? I mean in the same way we're asking for a dioxin level that's lower than the ambient dioxin level that's in the air, I mean is it that type of thing?

MR. MUMLEY: Well, are we clamping down too hard is I'll take as a rhetorical question.

BOARD MEMBER WALDECK: Yes, yes.

MR. MUMLEY: The -

CHAIRMAN MULLER: It's a little early in the testimony.

MR. MUMLEY: Yeah, and without -

CHAIRMAN MULLER: We can let the testimony unfold a little bit.

MR. MUMLEY: But to give you context, to put your question in context, it is like a how clean is clean question. And what we - the changes we made in this public notice proposed target versus what we had in that 2004, had to do with an adjustment we made based on comments we received from EPA.

So our proposed target is consistent with EPA guidance, consistent with EPA guidance for establishing fish tissue numbers. At the same time we also had to make sure it was consistent with any existing water quality standards/water quality objective. And there's the California Toxics Rule that establishes a level of PCBs in water that we have to demonstrate that this fish tissue target translates to a level that's equivalent to that.

We assert that we do all of that in that this is a, I guess, you know, obviously by default we are proposing what we think is a reasonable definition of how clean is clean, and subject to consideration of people's comments, of course.

BOARD MEMBER WALDECK: And just one final question. You work

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statewide on TMDLs, and you're pretty much a TMDL go-to guy in terms of knowing about TMDLs. I'm sure we're going to hear things that are going to be the whole range of perspectives of saying you're not doing enough, you're not doing a little. You've kind of been down this path quite a few times. Do you have a fairly good sense that as testimony comes in you'll be able to give pretty much everybody pretty much a good answer when we go to the actual vote on it.

MR. MUMLEY: Yes.

BOARD MEMBER WALDECK: Okay.

MR. MUMLEY: And I say that because we are well aware of everything else that's going on in the state. Comments that we're receiving are similar to comments that have been expressed on similar actions. We will review how the other Boards respond to those. So we're really on top of that.

I, you know, I want to be careful about being too bold to say we will satisfy to your concern, provide responses that totally satisfy, but we are confident that we can be responsive to all concerns.

The challenge is, as in any of these kinds of exercises, they are competing comments, too high versus too low, too far to the left, too far to the right, whatever, that we have to weigh just to make sure that we just don't say because we're in the middle we're right. That's not necessarily - that's not our mode of operation. We have to weigh all comments and that in a comprehensive fashion. And so with that we will be careful about the stay - we will be willing to move where we need to move to provide the best overall package for your consideration.

BOARD MEMBER WALDECK: Great. Thank you, Dr. Mumley.

CHAIRMAN MULLER: Thank you. Bill?

BOARD MEMBER PEACOCK: Tom, you indicated that on a natural

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occurrence these PCBs attenuated themselves. If you did absolutely nothing, how long would it take in the natural course of events for them to attenuate themselves to your target, roughly?

MR. MUMLEY: Well, decades at least.

BOARD MEMBER PEACOCK: Then the nearest 30 days.

[Laughter.]

MR. MUMLEY: Well, I would say 50-plus years.

BOARD MEMBER PEACOCK: Okay.

MR. MUMLEY: Now, we're not certain - now one of the complications is that there's given the complexity of the Bay system and how well we know and don't know where PCBs are in the system there's a threat that it can recover, unless we - the dirty sandbox won't get cleaner as long as there's dirty sand still coming into it. The question is, is there - is the dirty sand going out of the - getting out of the Bay or getting buried quick enough that it can assimilate any remaining dirty sand coming in. That's the complicated - that's a simple picture of the complicated problem that we're trying to address.

CHAIRMAN MULLER: That's great. I guess we could conclude the hearing then, let's go, we know what we're doing.

[Laughter.]

CHAIRMAN MULLER: But we have all of these to go through, Tom, so I think we - Margaret, did you have a question with Tom, or we can get back to him at the end?

BOARD MEMBER BRUCE: Just a few.

CHAIRMAN MULLER: Yeah. Do you want them now?

BOARD MEMBER BRUCE: Yeah.

CHAIRMAN MULLER: Okay. Go at them.

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BOARD MEMBER BRUCE: Why is the - let's see - can you describe a bit what are the sources from the Central Valley watershed? And is there a PCB TMDL plan for the Central Valley watershed that would help us understand those floating quantities from the Central Valley, their sources, and as you put it so well, cleaning up that dirty sandbox that feeds into our dirty sandbox?

MR. MUMLEY: Well, first, unlike mercury we don't have a listing of the Delta for PCBs and the main tributaries of the Delta, like the Sacramento River. Which - so we have the Delta and the Sacramento River listed for mercury, so therefore the Central Valley Board, our partners, had this comprehensive effort underway.

There are spot listings in the Central Valley, and I don't - I can't - I'm not - I'm going to be careful about saying I don't know where they are, I believe maybe around Stockton there might be something, but anybody from Stockton I'm sorry if I'm misleading the Board on this. There are a couple of spot sites where there's PCB contamination, small dots in this huge watershed. The levels of PCBs coming in from the Central Valley are less concentrated than what's in the Bay now. So the levels of PCBs coming in from the Central Valley are essentially diluting what's already in the Bay. They are the residual of a global balance of PCBs in - all over the place. There are PCBs in the air coming down, they're cycling.

So clearly given the history of California and urbanization like we find in the Bay Area where we have historical industrial areas in some of the older urban areas, we find elevated PCBs. Well, think about the Central Valley, those are spotty spots, the big picture - those will probably have to be attended to presumably sooner or later if they are causing a problem. But the main issue is that you have large amounts of runoff, large amounts of sediment that have residual amounts of PCBs in them coming in, that's why the load looks so high. But

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it's also why we feel pretty confident over time it's only going to get lower and lower and lower, ahead of how - always ahead of the Bay getting lower and lower and lower.

BOARD MEMBER BRUCE: So one of the statements you just made was, "We feel pretty confident," brings me to another point, that as I was reading through this I was wondering in several instances if there were a way of describing the loading data that you have, or the distribution of load apportionment according to some kind of percentage of certainty.

You know, often we see in climate change models there's the statistical - the line that the map says right in the middle, but then there's the line of statistical variability. What's the range of uncertainty? Is there any way you can describe the quality of the data, and I'm not implying the quality of the work here, but the quality of the certainty of the data, according to a range of uncertainty, so that as you go through the iterative process of implementing this TMDL you have a more I guess sort of a reality-based checkpoint to say, look, this is not an absolute number, we know the range of uncertainty is plus or minus 5, 15, 25, 50 percent, whatever you think it is, as the experts, and that we know that reasonable variation due to the accuracy of the data or just the limits of the science says that's the range.

So some of the things I read in the comments I thought were very legitimate. And I think I understand some of the commentor's concerns about being nailed for being out of compliance on a very specific number. But your range of uncertainty isn't - can't let you say there is a specific number. We want to be measurable, we want to be accountable, we want to say we're making progress, but how can you square those two things up? It's really hard.

MR. MUMLEY: Yes, but we - but I appreciate how you put - how you presented that question, because it is consistent with a number of comments received. So we are obligated to generate a response for you on those comments, and we have accounted for some of

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that in the documentation already, I think. So part of it - it's one of those areas where we just need to clarify and maybe call out some of our existing documentation.

We have what's called a Conceptual Model Report prepared by the San Francisco Estuary Institute for us that does a lot of that. Conceptual Model Report describes our current understanding of the systems, sources and loadings and the relative understanding of those pieces. And the idea is that this is the basis of how we judge and set priorities for what new data we need to improve our understanding and how to judge the benefit of that.

But I hear what you're saying and we can be responsive to that. How much does this uncertainty affect the call to action today, versus how including which uncertainties are most important for getting better resolution.

BOARD MEMBER BRUCE: Uh-huh, thank you.

And sort of a similar thing about how you derived or how you came to the conclusion about a few things would be really helpful. It's sort of like I tell my kids with their math homework, show your work. Describe what your presumptions were or your data collection methodologies were so that if for no other reason the Board Members understand what underlie your data collection and how you process that information. You have some data limitations, I mean you can't sample every place, every year, every way for everything, that's a given. So what were you faced with, what did you have, and how did you make use of that data, so that we know what the limitations are and what the strengths are of those data sets.

MR. MUMLEY: So, again, as you know, the comments didn't leave any rock, stone or cobble unturned, that we have to be responsive by where we've been asked to provide better documentation, like where did this conclusion come from. That's it's included in references and the like that we will just draw out as necessary, again, to make sure, make really

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clear what the bases or recommendation is for your consideration.

BOARD MEMBER BRUCE: And I'm really curious about how you decided to apportion urban runoff according to population. How did - if you look at a great little map, I love the map with the dots, if you look at that I'm not sure how all of the legacy sources in and out of Bay, and those presumably out of Bay on land are the ones that contribute to the urban runoff load, how those do or do not correlate to population.

Am I befuddled?

MR. MUMLEY: No, no, and I guess I'm trying to come up with the smart answer that's not smarty pants answer. Because I was - it was the simplest thing to use to portion the overall load around the Bay Area. So we could have considered other factors in addition to that, I presume, about land area versus population versus percent industrial area and the like. In the short term we feel we would make the case at that level the tweaking is inconsequential to the adapted implementation scheme. But ultimately we would have to consider - the idea is as we get better information we'll definitely look at the specific individual allocations to make sure they're founded, because in no way do we want an ill-founded allocation to cause action that's not appropriate or inconsistent with or unfair to actions elsewhere.

So it's as simple - and we chose going simple rather than trying to defend a more complicated analysis with a limited amount of knowledge that we have, so therefore we defaulted: simple is better, if in doubt then work it out as we get more knowledge.

BOARD MEMBER BRUCE: Okay.

CHAIRMAN MULLER: Bill?

BOARD MEMBER PEACOCK: I may have misunderstood you during part of your testimony, but my understanding is that Porter-Cologne requires us to at least do some kind

of economic balance. And I thought I heard you say that we didn't have to get involved in cost benefit. Could you just clarify that for the members of the Board what your position is on that? And maybe call on Dorothy if you need some legal help.

MR. MUMLEY: Yeah, well, actually, economics, and I'll defer to legal counsel to speak up if I misstate that, the Porter-Cologne does not say a lot about economic considerations. It comes into play under 13241, which is the part of the Act that allows - calls on the Boards to establish water quality objectives. So when the process of establishing water quality objectives - the costs must be a consideration. Cost must be considered. It's different than cost - a full-fledged cost benefit analysis. I mean taken in consideration means that you're just be aware of what these costs are. You can ask us, you can have - ideally you're going to want more than us to tell you it's going to cost a lot. You know, that you want to know is that really - what's the bang for the buck.

There are some other - CEQA itself also brings in economics as a consideration in determining what are the likely actions that will be required as an outgrowth of this project. And so we have to consider the environmental impacts of reasonable foreseeable actions. And so what's - obviously economics comes into play when you consider reasonable and foreseeable. So it's mostly there's very little direct requirement to do economic analysis. But it is - is has to be touched as part of our efforts.

CHAIRMAN MULLER: We have a large number of cards, so do you want to get going, or do you want to get one more to Tom. We can get back to him.

BOARD MEMBER YOUNG: Well, I have one - I have a lot of questions, but I'll limit it to one. There is sort of a logical cascade that you go through in deriving the going down from the fish target all the way down to the load allocation. And as part of this TMDL

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there would be a commitment towards adaptive management. What I'm concerned about is that there may be some tentative conclusion that we come to as part of this TMDL, like adopting a fish target, or something else, that puts us on an irreversible path. There are certain things that we've done as a Board that start a time clock over which we then have no control, for example. And I'm wondering if there's any component of this logical cascade that has a lot of numbers in it that we would not be able to for some legal reason come back and rejigger based on better information.

MR. MUMLEY: Well, the simple answer is nothing is irreversible, and I think we be responsive to your question, I think elaborate not here but in our response to your question in our response to comments document to provide you a little more assurance of that by maybe touching each number.

BOARD MEMBER YOUNG: There's nothing like anti-backsliding that would change - make us change - not be able to change the fish target or anything. Okay.

CHAIRMAN MULLER: Did you want to continue, Terri, with a couple of other quick ones?

BOARD MEMBER YOUNG: No, it's -

CHAIRMAN MULLER: You're all right for now, okay.

Then we'll go ahead and jump in, and Tom will get back to you, I'm sure.

So as I said, we have a large number here, and do the best to stay within the three to four minute time range. I'm fair to all of you, but let's try to get our testimony precise and try not to repeat too much of it.

So at this time I'll call Ellen Johnck for the first one, get going, and then we will line up from there.

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MS. DICKEY: Mr. Chair?

CHAIRMAN MULLER: Yes.

MS. DICKEY: If I could jump in just before Ms. Johnck gets her testimony -

CHAIRMAN MULLER: We could get the light -

MS. DICKEY: I'm going to agree with Tom, but for a different reason. Tom mentioned a section of the Water Code that does not apply here, because the Board is not adopting water quality objectives. But there is a provision in the California Environmental Quality Act that requires that the Board consider - take into account economic considerations when it's looking at reasonably foreseeable means of compliance when it's adopting a performance standard. So bottom line is Tom and I are essentially in disagreement, but for different reasons.

CHAIRMAN MULLER: That's that 13241?

MS. DICKEY: 13241 is the section that we believe does not apply, but it's a section of the California Environmental Quality Act, so it's a Public Resources Code section that does apply.

CHAIRMAN MULLER: Okay, thank you. Ellen?

MS. JOHNCCK: Good afternoon. I'm Ellen Johnck, Founding Executive Director of the Bay Planning Coalition, 1983. Let me preface my comments by saying it's my understanding that the close of the written comment period was August 20th. And so any comments delivered to be accepted and reviewed and considered in the record should be verbally entered into the record today. So I will more or less read what we would have written if I had met the deadline, which I was short a few days on that.

So I just want to make sure that my comments will be considered, because I'm

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introducing them into the record verbally today. Correct?

CHAIRMAN MULLER: Okay. We can accept it.

MS. JOHNCK: Okay, great. Bay Planning Coalition is a nonprofit membership based public benefit organization dedicated to the balance, use, and regulation of Bay Delta resources to achieve economic prosperity and environmental health of the region.

Our 175 members cover quite a broad and diversified range of entities throughout the Bay and Delta. They include the maritime industry, our public ports, Oakland, San Francisco, Richmond, Redwood City, Stockton, and the private port inports, several marine terminals, both for liquid and bulk - dry bulk cargo, a large part of the segment of the recreational marina industry, the labor unions, builders, and quite a number of professional service firms in the legal, engineering, and environmental planning and toxicology evaluation fields.

We certainly welcome the opportunity to submit comments on the PCB TMDL staff report. This report represents several years of work, since the first documents many years ago, on a very complex scientific and regulatory process. And we applaud your conscientious effort and achievements to date.

Today our comments reflect the interests and concerns of the maritime community members of Bay Planning, and the regulatory impact of the PCB TMDL Basin Plan Amendment on our ability to accomplish necessary dredging and disposal of sediments to support a safe and navigable and reliable navigation channel system serving trade and commerce.

We recommend that our six points about to be discussed be considered in the finalization of this TMDL.

Number One. The topic of general accounting of sources and losses from dredging and dredge material disposal. With the mercury TMDL as your foundation for

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assessing loading from dredging and sediment disposal, Bay Planning supports your analysis that in-Bay dredging and disposal has a net zero loading allocation. Moreover, we support your use of the LTMS Implementation Plan as a basis on which to identify a -3.3 average annual estimated PCB mass kilograms per year associated with dredge material disposal.

Also we note your agreement with the scientific understanding that PCBs resuspended by dredging and transported by in-Bay disposal are small relative to the suspension and deposition assumed for the more active layer.

Two. Sediment Dredging. This is on page 72 of the report. The report proposes that the, quote, "PCB concentration and dredge material disposal of - and material disposed of in the Bay not exceed the 99th percentile total PCBs concentration of the previous ten years of Bay surface sediment samples collected through the Regional Monitoring Program," end quote. This same requirement was adopted in the mercury TMDL, and it poses a problem for us. This percentile changes frequently - it is a moving target. Also it increases the threshold being used by the dredge material management office on which to make permitting decisions.

As the ten-year period slides forward in time, the ambient concentration should or would become lower. This could hurt smaller dredgers in the future who maintain their harbors in frequently, once maybe every five to ten years. Sediments would be buried after dredging in one year, and be consistent with background concentrations, but exceed a future background concentration.

We propose a lowering to the 90th percentile, which is what we proposed for the mercury TMDL. Further, the Regional Monitoring Program data is a bit skewed for use here, because it is based on sample locations taken from the spine of the Bay, and not shoreline locations as discussed in the PCB TMDL.

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Three. Linkage analysis and food web bio-accumulation modeling. We believe the assumptions on which the food web bio-accumulation modeling is based are somewhat flawed. On page 54, 55, in the report, it indicates that you have chosen sediment rather than biota as the primary vector causing PCB concentrations and bio-accumulation in fish. Based on this approach this means that a sediment management strategy will have to be employed to reduce sediment concentrations to the fish tissue level of 10 parts per billion. As a general approach this natural recovery will be impossible to achieve.

We also note that one of your assumptions is that PCBs are really deposited into the Bay from the watershed, and so we believe that a management strategy should be redirected at that assumption.

Four. Other technical problems. The theoretical bio-accumulation model does not take into account how PCBs can vary dramatically between different ecosystems, due to site-specific hydraulic, biological, chemical and ecological factors that affect bio-availability and bio-accumulation. For instance, there are substantial differences in the toxicity of various PCB congeners, differences in the degree to which such congeners can be sequestered in the sediment such that they're bio-availability is reduced and substantial differences in the process of breakdown of congeners. More analysis is needed to assess the relative distribution of congener patterns relative to fish tissue.

Five. Sediments as a sink. The literature on dredging and sediments shows that sediments sequester contaminants and release only a small fraction of constituents. This fact should be reflected in the PCB TMDL.

Six. Other relevant studies. Two studies, a U.S. Army Corps of Engineers evaluation of the HARS site in New York, and the Willamette River Study, were recently

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completed that indicated that PCBs primary transport mechanism is through the water column, not sediments. And this is reflected in the studies by the cogener pattern.

Seven. Implementation actions for dredge sediment and dredge material disposal. The dredging implementation component of the PCB and mercury TMDL is based on the subscription to the LTMS 40 percent ocean disposal, 40 percent upland, and beneficial reuse, and 20 percent in-Bay disposal. The dredging community diligently works towards achieving the LTMS disposal plan, and is making good progress. However, the plan is a disposal target, not a regulation. Reaching this target is in part dependent on variables beyond the control of dredgers, such as a timely permit process and available funding.

Thus, we would like the Board to understand that TMDL implementation cannot strictly rely on the dredging community adherence to the 40-40-20 plan, because we can only achieve it if it is financially and practically feasible to do so, and that permits are approved.

Finally, we have one general comment to be considered when developing future TMDLs. As the Bay and watershed is a dynamic ecosystem, individual TMDL criteria and implementation plans must be developed to ensure that plans are complimentary and provide for adaptive environmental management.

We look forward to participating in the TMDL program in the future, and now, to ensure the integration of sound science and the balancing of economic and environmental goals. Thank you.

CHAIRMAN MULLER: Thank you, Ellen. Next will be our senior engineers from Caltrans and Sacramento, Ivan Karnezis, I think it is. Help me out.

MR. KARNEZIS: Karnezis.

CHAIRMAN MULLER: Karnezis, sorry. And you have also an associate with

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you.

MR. KARNEZIS: Good afternoon, Members of the Board, Chairman Muller, Ivan Karnezis with Caltrans, headquarters Sacramento, Stormwater Unit of the Division of Environmental Analysis. And I have with me Jag Grewal, who is a new employee with us.

Caltrans is a leader in innovation and research, we've bragged about that before, but I've never really told you about what we do when we're here, and what our little unit does. And with introducing Jag I just want to tell you that we look at our job in the TMDL unit of the stormwater office as coming to the Boards throughout the state and finding out what's going on with the TMDLs, so that when it comes time to implement them we're able to better educate our districts that are out there constructing devices to take care of the stormwater issues, to be able to do so efficiently. And we're kind of like a liaison between you and our own districts, which are sort of autonomous from the headquarters unit.

We also provide comments. And with that we want to continue to do a better job of providing comments and providing this liaison. So we've had a little bit of a reorganization with our staff, we've hired some more people. And, whereas, we've had basically one of us traveling across the state visiting the Boards and collecting this information from you, we now have four and have pretty well divided it up.

Jag here will be our liaison with you for the San Francisco Bay, and for the north region. I'll be strictly working the southern part of the state with the seventh, eighth, and ninth regions from now on. So I wanted to introduce Jag, he will be here presenting and emphasizing comments from now on. It's been my pleasure to be associated, especially with this group. I really appreciate the work of Tom Mumley and his pragmatic approach to the TMDL process. It's been much easier here than other parts of the state to understand and to deal with.

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CHAIRMAN MULLER: Except for the Bay Bridge Eastbay. I have a little history there, a couple of other people here.

[Laughter.]

MR. KARNEZIS: So specifically with regard to the comments of today's issue, thanks to Tom's approach today, and also the questions brought up by the Board. I don't really have anything more to say. I want to say that, Ms. Bruce, I'm going to miss you because today the comments you made were exactly what I was thinking of emphasizing in our letter. We presented a four-page letter, and I wanted to just emphasize some of the points there, but I'm not going to bother. And, Mr. Peacock, same to you, the comment you requested information about.

So we look forward to Tom's responses to these comments, and I don't envy at all what he has to do for the next few weeks to get them to you.

Thank you very much.

CHAIRMAN MULLER: Thank you, appreciate it. Jag, welcome, and look forward to working with you throughout the years.

MR. GREWAL: Thank you.

CHAIRMAN MULLER: All right, thank you.

Andrea Ventura, please? There she is.

MS. VENTURA: Hi, how are you? I'm Andrea Ventura, with Clean Water Action. I am also here speaking on behalf of the Environmental Justice Coalition for Water, of which we are a member. And I want to thank you, as always, for the opportunity to appear before you today, and also to thank staff for the hard work that they have been doing on this.

I was thinking about something on my way here this morning, that over the last few years we have all been on a long and at times, let's face it, arduous journey regarding

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TMDLs. Some of us have a few battle scars from that, but in the end we got there, we learned a lot, and we made some progress.

And so today we're here to make some comments and suggestions. I'm pleased to hear Mr. Mumley say that we consider, we're going to consider the comments that people make knowing that there's disagreement on certain issues, and to actually improve and move the TMDL forward, and that is the reason for us to come forward and offer them today.

And I want to just talk about two major things, major points in the TMDL that we are somewhat concerned about. For one thing, I do want to thank staff for including the issue of risk reduction in the TMDL, to create strategies to protect - impact the communities, particularly subsistence fishers from low income communities, and communities of color. That said, it shows a real commitment that the Regional Board is extending this to other contaminants other than mercury.

We have to remember that creating this reduction strategy and exposure reduction strategies is kind of the bandaid that we're going to need over the next few decades while fishing poses a threat to health. The long term strategy to protect health is to actually address the contamination in the Bay, cleanup the Bay, if you will, to a level that is safe for subsistence fishers. And for that reason we do feel, as our written comments said, that the fish tissue target in this TMDL is not adequately protective of those vulnerable populations. We do believe that at minimum we should be looking at a risk factor of one in a million, particularly for the cancer. And that in so doing and setting that as our ultimate goal we are incorporating issues of environmental justice into the TMDL. That is something that I cannot overstate the importance of to the communities we work with.

Our second concern is over what we perceive in the TMDL's kind of vagueness

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as to how we will achieve the necessary reductions in urban stormwater. Stormwater obviously clearly we've seen it on slides is particularly problematic source of PCBs, and has been assigned a significant reduction in the impacts on the Bay. What we don't see in the TMDL itself is some of the detail needed to demonstrate a thought-out plan, maybe not every single specific thing that we're ever going to do, but a thought-out plan on how to effectively reduce PCBs in stormwater. And we encourage the inclusion of a little bit more fleshing out of that issue, particularly in the adaptive implementation section.

Given the work that this Board has been involved in to develop a municipal regional stormwater permit, I think that provides an opportunity to do that, to just, you know, kind of codify that in the TMDL, that some of the actions that would be more explicit to reduce the amount of PCBs in the stormwater.

At the very least the TMDL should include the activities in the proposed permit. For instance, require the completion of the pilot programs that are outlined in the permit by 2010, and achieve abatement of contaminated land sites by 2018.

We're also - related to this issue we're concerned about how we're going to measure stormwater permittees success in actually reducing PCBs. And we need that to be clarified and shored up a little bit more. We are not confident, frankly, that the assessment methods offered in the TMDL for the permittees will provide accurate information. And we ask staff to provide some rationale, perhaps in their comments to comments, behind each of the methods that they've outlined, there's three of them in there, and how we think that that's actually going to give us the data we need to measure success. For example, one question we would have is how you by merely collecting flow and water column data get an accurate picture of reductions when there is a strong sediment association between PCBs.

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So we look for that kind of explanation. We also are concerned, however, that by allowing permittees to employ different methodologies we're going to end up with kind of a confused result, you know, and people are going to be measuring success a little bit differently, and it's not really going to give us the accurate picture we need.

So if the TMDL, after the explanations that we're asking for by staff, includes multiple assessment methods, we believe the plan should actually require a weight of evidence approach using all three assessment methods. And this way they'll have a more rounded information picture of how we're doing on our progress.

Finally, we believe that the TMDL and the permits must specify that municipalities should inspect abandoned sites on land, and it must also set real goals for reduction instead of being based - instead of basing municipal compliance on a standard of maximum effect possible or the best technology that's economically available. We don't see that as in line with the Clean Water Act. We believe that effluent limits on what - should be based on what is needed to reach the beneficial uses of the Bay. And that, obviously, is our goal.

So with that, I will end my comments. And thank you once again.

CHAIRMAN MULLER: Thank you. I'd like to ask you quickly, do we any estimated number of subsistence fishermen in the Bay? I know we've heard about it over the years.

MS. VENTURA: That came up with the mercury TMDL, and that is - I will be up front with you, that's a very difficult thing to answer. Because it is hard to identify some of these folks, and that is something that all of us who are involved in risk reduction, both Regional Board staff as well as advocates such as myself, struggle with, because people don't necessarily want to admit to that, there's stigma issues around that.

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We know that it's significant, we also do have data, there have been studies of fish consumption practices in the Bay Area that do indicate that on average Bay Area fisherman, not just subsistence fishers, actually eat more fish than the - than Cal EPA's recommended advisory. So we have an issue, regardless. We do know though that we have strong ethnic ties to fishing for cultural reasons, and we do also know that we have economic, you know, communities like Bayview Hunters Point, North Richmond, where we have high levels of fishing for basic nutrition. But it is, admittedly, a very difficult thing to quantify, because it's kind of a hidden practice.

The Department of Public Health is trying to do similar studies and outreach in the Delta area. There's less data in the Delta than areas on the Bay in just fish consumption in general. And they - we are trying to do some specific outreach to try to identify communities to move forward with the risk reduction.

CHAIRMAN MULLER: Thank you. Next will be Paul Singarella, and I believe you have two or three associates with you also, and we'll give you kind of equal time there.

MR. SINGARELLA: I won't be working on the slides for these introductory remarks. My name is Paul Singarella, I'm a lawyer with Latham & Watkins, and I'm here today on behalf of the California Chamber of Commerce and the General Electric Company. We want to express our appreciation to the Board for the opportunity to address you on this matter this afternoon. We also want to thank staff for their help making themselves available to us over a period of years to discuss the TMDL, and also for considering our comments.

The presentation this afternoon consists of three parts, the short introductory remarks, and then I will be followed by two of our experts, and we collectively will do our level best to try to keep our comments to about ten minutes or so.

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The Chamber of Commerce and General Electric have a substantial interest in this TMDL. The TMDL document itself states that hundreds of millions of dollars per year are going to be spent under this plan, and we think that the cost could be substantially more.

Yet the Bay is rapidly recovering from historical discharges of PCBs, and what remains in the Bay today are largely residual concentrations of PCBs that our experts tell us are not presenting any substantial threat to people or the environment; they're not hurting people and they're not hurting the environment.

So you have to ask yourself under that situation does it really make sense to spend millions of dollars, maybe hundreds of millions of dollars on PCBs. We don't think the case has been made for those expenditures.

You'll be hearing from an economist who has been working with us who has looked at the economic balance, to use a phrase used by a Board member, the economic balance of the proposed TMDL. His name is Professor David Sundiy. Among his other credentials he's a professor at UC Berkeley, he served in the 1990s on President Clinton's Council of Economic Advisors, and he recently sat on a U.S. EPA science advisory board.

You'll also be hearing from Dr. John Connolly. Dr. Connolly has taken a look at the technical merits of the TMDL. Among his credentials he's a Ph.D. engineer, he's a former professor, and he currently serves on a U.S. EPA science advisory board. He also in the 1990s was an expert on a PCB case in southern California, one of the biggest PCB matters ever in the state of California. He served as an expert for the government in the Palos Verdes Shelf case.

Now, Dr. Connolly is going to tell you that the problems with the TMDL leave the Regional Board without the necessary scientific foundation to make informed decisions about managing PCBs in the Bay.

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And before I turn it over to Dr. Connolly and Sundiy I want to leave you with a few thoughts; three actually.

One, relates to environmental dredging, or remedial dredging of the Bay, not maintenance dredging. The TMDL speaks a lot about environmental dredging. We don't think the case has been made for environmental dredging in the TMDL, we think it's likely to do more harm than good. We don't think it's going to promote attainment of the TMDL. And Dr. Connolly has taken a very close look at that.

Number two, PCB standards. This TMDL proposes to establish some very, very aggressive numeric PCB goals. We request that you make very clear that these numeric goals are not intended to be and will not serve as remedial cleanup standards. We request that you make a very clear separation between the TMDL on the one hand, and any remedial program to deal with contaminated sediments on the other.

And finally, let me end with our commitment to you. Our commitment to you is to continue to work with you so that the TMDL that you adopt is based on sound science, and so that it provides you with the necessary foundation to make good, smart decisions that reflect reasonable balance about the residual levels of PCBs in the Bay.

And actually, Mr. Waldeck, I probably would be remiss if I didn't at least take a stab at responding to your comments about the boxes. So maybe I should end on that and then get out of Dodge. There's a method to our madness here, we thought that it would be very useful for the Agency to have all of our stuff in one place. So, therefore, there was some redundancy, we reached back to 2004, but now it's all there in one place.

The other very important point is that there's a tremendous amount of backup supporting documentation, not stuff that we created, but stuff that's out there in the great big

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world. For example, this National Academy of Sciences report that just came out in June on dredging megasites, it has some very important information for staff and the Board to consider. So if you really breakout the eight boxes, you've got a couple hundred pages, I admit, of new information that we generated for you, and we hope you won't begrudge us that. But the vast majority of it is the backup supporting documentation that's very important to provide to staff, it's very important to provide to the Agency, so that you have transparency. In my experience, which goes back a few years now, sometimes it's very frustrating for staff to get an expert report that looks good, looks interesting, but the backup documentation to the expert report isn't there. It's all in one place for you.

And finally, another important point about the eight boxes is we're in a situation where we're filling some gaps here. What I mean by that? There really is no recognizable economic analysis in the TMDL documentation that we can find. So what did we do? We went out and created one, right, that's one box of material out of the eight, is the economic analysis that perhaps hopefully the Agency will find instructive.

So with that and unless there are any further questions, I'd ask Mr. Chairman if I could turn it over to Dr. Connolly?

CHAIRMAN MULLER: Fine.

Margaret, did you have a question? No.

MR. SINGARELLA: Thank you.

CHAIRMAN MULLER: Thank you.

DR. CONNOLLY: Good afternoon. As Paul indicated, my role in this was to examine the technical merits of the TMDL, and the comments that I'll go over with you now are based on our findings of several shortcomings.

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I think we can boil the TMDL process down to three steps.

The first step is to establish what's the maximum load that the Bay can handle without violating the applicable water quality standards, or in this case the fish tissue target.

The second step is to establish what are the current loads going into the system.

And the third step is to establish a workable and cost-effective plan to reduce the current loads to the established maximum load.

And so we've examined the TMDL in that way, and we've found deficiencies in all three of those components. And I'm going to give you really highlights of some of those issues that I think are fundamental to the TMDL, and have some real impact on whether or not this TMDL would be effective at achieving the stated goals.

CHAIRMAN MULLER: Clifford, yeah.

BOARD MEMBER WALDECK: What is a Q-E-A?

DR. CONNOLLY: Excuse me? The company? QEA stands for Quantitative Environmental Analysis, it's a consulting firm.

BOARD MEMBER WALDECK: Okay. So is that a title or the name of the firm?

DR. CONNOLLY: Say again?

BOARD MEMBER WALDECK: I mean is that, I mean is that -

DR. CONNOLLY: No, QEA is the name of the firm.

CHAIRMAN MULLER: It's a firm.

DR. CONNOLLY: LLC is limited liability company.

BOARD MEMBER WALDECK: Okay, got it, got it, okay, just thank you.

DR. CONNOLLY: Sure. Here's a quick summary of the points I hope to make

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in the next couple of minutes. We've heard a little bit about natural recovery, and natural recovery is occurring in the Bay. And it's important to understand, in terms of understanding what is the maximum load that the Bay can accommodate, and in our view the TMDL has not sufficiently and appropriately accounted for that natural recovery.

The second point is that of the assimilative capacity of the Bay. How much load the Bay can handle and not violate the fish tissue target, is higher than estimated by the Board's model.

The third is that in our view the loading assessment is too deficient to provide a reasonable basis for the Basin Plan Amendment. It's our belief that the loadings are so uncertain at this point in time as to be effectively unknown.

And, finally, the TMDL fails to really evaluate the efficacy of its proposed loading reductions. We're proposing very aggressive stormwater controls, the feasibility of which have not been assessed, and in our view may in fact be infeasible. There is discussion, and even some emphasis in the document on remediation of in-Bay sediments, particularly hot spot or Bay margin sediments, that would be basically impractical. And for a number of reasons I'll lay out for you very quickly would like provide little benefit to the Bay.

If we look first at the natural recovery issue, what I'm showing you here are time trends of data, and we've looked at data in sediments, in water, in fish, and in mussels. The mussels data set is particularly useful because it's very extensive. And what's plotted there are concentrations in muscle, and actually in the fat of the muscle, from about 1980 to 2005.

And for simplicity, let's focus on the central region of the Bay. If you look back in 1980 the levels measured in the central Bay were about, and you see the number there, 2 to the 4th, that's 10,000 parts per million, micrograms per kilogram is parts per million on a lipid basis,

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so it's the parts per million in the fat of the muscle.

If you go all the way over to the right, 2005, you can see that the levels are down to about 10 to the 3rd, or 1,000. So over the 25 years from 1980 to 2005 the levels have dropped by 10 times, they were 10 times higher in 1980 than they are in 2005. Now, a drop of about 10 times over 25 years suggests that the levels are being cut in half about every 8 years. If you think about it this way, if you start at 10, if you cut it in half it's 5, if you cut it in half again it's 2 1/2, cut it in half again it's 1 1/4. So that's three half-lives in 25 years, about every 8 years the concentrations get cut in half.

It's important to understand that and what the implication of that might be to the necessary loading reductions. Where would the Bay end up even if there were no additional loading reductions? It's important to understand that to understand what loading reductions are necessary.

The second point - yes?

BOARD MEMBER BRUCE: Could I - just a second, could you just toggle back to that slide?

MR. CONNOLLY: Sure.

BOARD MEMBER BRUCE: I note with interest that at about 1993 the data sets changed from mussel watch to RMP data.

MR. CONNOLLY: Yes.

BOARD MEMBER BRUCE: What is the difference between those two data sets?

MR. CONNOLLY: Okay. They're two different agencies that were responsible for the collection, all right. In the one case it's a combination of transplanted mussels and native

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mussels, and that's the earlier data. And in the later case it's the transplanted mussels, so mussels are placed out and allowed to accumulate PCBs, and then they are sampled.

BOARD MEMBER BRUCE: Same species?

MR. CONNOLLY: Same species, yes.

BOARD MEMBER BRUCE: And sampling design?

MR. CONNOLLY: Same process. And we've examined the data sets in three ways, looking at the entire data set, looking at the first agency's data, looking at the second agency's data. And they give similar answers. So we've concluded that the change from one agency to another really doesn't have any significant implications with regard to the time trends. Sure.

The second point is the assimilative capacity. We heard that the estimate of this assimilative capacity is 10 kilograms. Well, that's derived from a very simple model of the Bay where the Bay is treated as one big bathtub to which flow and PCBs enter, and to which PCBs exit through the Golden Gate. In constructing that model a scale factor was applied to the model to scale the outflow from the Bay. And in fact that violates the principles of mass balance, and is not appropriate to have done. And if you'd correct that mathematical error that same model with that simple correction says that the assimilative capacity of the Bay is more like 25 kilograms. So there's a real uncertainty here as to what is the assimilative capacity of the Bay. I don't believe that we can rely on the 10 kilograms that come from the model, because the model has a mathematical error.

But with regard to the issue about loading, and loading being poor. The urban stormwater loads, they're based on a model, and that model has not been verified with site-specific data. One of the keys to developing and using a model is to take the model and compare

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it to data to see how well it performs. You can see in the graph there, there's an estimate from the Guadalupe River based on data that were measured in a particular study, compared to the estimate from the TMDL model, and you can see they differ substantially. And if you look at the table at the bottom there's a data-based analysis, TMDL 2005, that estimated that urban loads to the Bay are between 7 and 27, the TMDL says 40. But, more importantly, he estimated that the non-urban loads were between 2 and 11 kilograms per year; the TMDL model says .1. If they really are 2 to 11 that's hugely significant in terms of what benefit are we going to get if we ignore those loads.

We talked about the Central Valley load. Well, the Central Valley load is based on what we think is erroneous data. The graph to the right shows the estimates of fresh water inflow to the Bay by two publications that are cited there that estimate the average freshwater flow is about 30,000 cubic feet per second. The TMDL model it appears uses a flow of over 200,000 cubic feet per second, which is erroneously high freshwater flow.

In addition, it uses concentrations measured at stations that are influenced by tides. And you can see in the map at the bottom indication of the sampling sites that were used to establish PCBs coming from the Delta. And the USGS gauges that are upstream of there, and the graphs to the left, show the variation in flow, which you can see is going up and down. It's going up and down because it's tidal there. And so those sampling stations are influenced by tides. And so they're not really giving a valid measure of the PCB concentrations coming from the Delta, or coming, I'm sorry, coming from upstream in the Sacramento and San Joaquin.

So it's we think an invalid estimate at this point.

Finally, the last issue, and I'll close up in about 30 seconds here, in-Bay dredging is costly and inefficient in our view. And why do we think that? Well, the Bay margin sediments

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on average are only slightly more contaminated than the whole Bay, about 18 parts per billion in the margins on average, versus 10 in the main Bay. If you attempted to remediate those, they will very rapidly become recontaminated at the levels of the main Bay, so you'll never be able to reduce concentrations below the main Bay levels of about 10.

Also, to the extent that those Bay margin areas are at elevated concentrations because of ongoing sources, and we saw the nice map showing the urban areas with the higher concentrations, to the extent that those were influencing the margins dredging would be ineffective because the ongoing sources would provide a recontamination. And also there needs to be some consideration of the fact that the sheltered near shore areas in many cases are net depositional, and what keeps them from attending low concentrations are in fact ongoing sources.

And so the evaluation of ongoing sources relative to dredging needs to be considered in terms of efficacy in implementation of the TMDL.

And that's where I end. And so I thank you very much. And I'll entertain any questions.

MR. WOLFE: We have one speaker who needs to have left a couple minutes ago. Can she stick in here?

CHAIRMAN MULLER: Oh, okay. And she is a new mom, and I'm sure it's baby duty, so, Sejal, jump in there with - we'll let you go.

MS. CHOKSI: Thank you, guys.

CHAIRMAN MULLER: Sorry about this.

MS. CHOKSI: Oh, no, it's okay, you know. I'll bring a fancy power point presentation next time, maybe I'll get lots of time, too.

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Good afternoon, everybody.

CHAIRMAN MULLER: Uh, excuse me?

[Laughter.]

MS. CHOKSI: I was hoping you wouldn't catch that, John.

CHAIRMAN MULLER: Sejal, that baby's going to be crying in an extra ten minutes.

MS. CHOKSI: I was going to slide that one in, you caught me. All right. Good afternoon, everybody. I haven't been up here in about a year, so I just want to welcome Board members Young and Peacock.

BOARD MEMBER WALDECK: Welcome back.

MS. CHOKSI: Thank you. And I also wanted just to have brief input, I know you didn't ask for input, but I would hope that the Board wouldn't hold an adoption hearing on the PCBs TMDL the day before Thanksgiving, that's the 21st.

CHAIRMAN MULLER: I think the way it's going right now this is going to - we're still thinking about it.

MS. CHOKSI: We're still talking, all right, great. Well, Baykeeper appreciates this opportunity to provide input, and we also really appreciate staff's efforts on this.

I think that it's really funny that GE, you know, and I'm coming in between the two GE presenters, and I didn't get to fully hear their presentation, but I think it's really funny that they called this an aggressive TMDL, because Baykeeper thinks it's not aggressive enough. And the amount of money and time that GE has spent preparing these eight boxes makes me wonder, you know, maybe we should be looking at what GE's doing more carefully, maybe Baykeeper should be looking at what GE's doing more carefully. What are they hiding here?

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But that aside, I know that my time is limited, so I'm going to incorporate by reference Ms. Ventura's comments on specifically regarding the stormwater, and the fish issue target issues. And I'm going to focus today on three other issues that are really important for Baykeeper regarding this TMDL.

And the first one is the load reduction that's been assigned to the Central Valley. Currently there's no real assurance that that reduction will ever be achieved. According to the staff report the PCBs are going to be reduced from 42 kilograms per year to 5 kilograms per year based mainly on natural attenuation. But there's no assurance in the TMDL, no detail about how that's actually going to happen, and whether that's actually going to happen. And we believe that the adoptive implementation plan should really discuss a course of action that will be triggered if that turns out that it's not going to happen, if it looks like natural attenuation isn't going to solve the problem.

The second point I'd like to make is that the TMDL does not establish a time frame or standards for cleanup of in-Bay or on land contaminated sites. I think that having a deadline for cleanup is really critical in terms of you, the Board, having a regulatory driver. It's also really important for you to establish that standard in this TMDL, because then you won't have to fight GE et al at every cleanup site, every time you determine that cleanup needs to occur. If you've got a regulatory mechanism here in the TMDL you won't have to deal with this issue on a case-by-case basis.

And what strikes us as interesting is that the 2004 TMDL actually did include a sediment target that was fairly protective. And for some reason it's been removed in this version, and we're not sure why, we've asked staff for clarification of that in their response to comments. It really makes no sense to not have a sediment cleanup target here, given the fact that PCBs - the

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pathway for bio-accumulation of PCBs is sediment. And so we really need to be paying attention to cleanup of sediment, especially considering that DTSC often takes control of cleanup of these sites, and they're mainly focused on health standards, and not on water quality. So it's really imperative that the Regional Board establish cleanup standards that will be very protective of water quality.

And our third concern is that the TMDL should require wastewater dischargers to analyze their discharges using a lower detection limit. And this was a really interesting issue that we just came across in discussing the Delaware River Basin TMDL with the regulatory agency there. And apparently they required their dischargers to start monitoring PCBs at a lower detection limit, and realized that the lower - the method used to establish the lower detection limit actually showed that wastewater dischargers were a bigger source than they realized. And so I would think that in an effort to be really protective here, we could easily revise the TMDL to just require a lower detection limit be used, and then we can determine what future steps are taken if it turns out that wastewater is a larger source.

So to summarize, Baykeeper urges you to ask staff to revise the TMDL to use more protective fish tissue target level, of 10 to minus 6, to improve the stormwater reduction requirements and the monitoring requirements, to specify actions that will be taken if the Central Valley load reduction is not achieved, to establish a time frame and deadline standards for cleanup of contaminated sites, and to require the lower detection limit for analyzing wastewater discharges.

And those are my comments. Thank you.

CHAIRMAN MULLER: Clifford?

BOARD MEMBER WALDECK: Can I ask a quick question?

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MS. CHOKSI: Sure.

BOARD MEMBER WALDECK: Welcome back. There are 55 pages worth of comments from Baykeeper. You do not cover 55 pages worth of concerns in your presentation. Were some of these concerns addressed, or do you need more time, or?

MS. CHOKSI: Oh, well, thanks for asking, Clifford. Actually, our comments included attachments as well, so I think that the gist of our comments were actually probably only about 10, 8 to 10 pages.

BOARD MEMBER WALDECK: Okay.

MS. CHOKSI: And I think that I've pretty much highlighted the ones that are the biggest concern, along with Ms. Ventura's issues.

BOARD MEMBER WALDECK: And I've got one quick question for you. If the trend of PCB amounts in the Bay is actually going down, wouldn't that mean that let's just say someone argues that the restrictions are too strong on this TMDL here that it actually works the people that think it's too strong because it's going, you know, it's not like something that's adding onto the Bay, it's something that's reducing the Bay out here. So tell us why we should relax it right now?

MS. CHOKSI: Well, I think it's, I think it's really important to remember right now that the Bay has been listed for PCBs, dioxins, furans, and these compounds, and that essentially means that there is no assimilative capacity for additional inputs, yet inputs are being made. And so before we can allow business as usual, it's really imperative that we focus on the Bay's current problem and create an assimilative capacity, and I think that's what the TMDL is attempting to do. And we essentially have a few suggestions for how to make that happen a little better.

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BOARD MEMBER WALDECK: Good, thank you.

MS. CHOKSI: Yeah, and thank you very much for the opportunity to stick in here, and come a little bit earlier.

CHAIRMAN MULLER: We'll strike the first comments.

MS. CHOKSI: Thank you (laughing).

CHAIRMAN MULLER: See you later, take care of the baby. Thank you. You corporate giants here, come on up. Right, we'll get you up there and, Professor, about how long will your presentation be, sir?

MR. SUNIY: Oh, I'll keep this very brief, it should be three minutes.

CHAIRMAN MULLER: For a professor?

MR. SUNIY: That's right, that's hard, this is an occupational hazard.

CHAIRMAN MULLER: Go ahead.

MR. SUNIY: But I understand you have my written comments in front of you.

CHAIRMAN MULLER: Yes.

MR. SUNIY: So I'll just - I'll hit the high points here.

CHAIRMAN MULLER: Welcome. This is kind of exciting to have you here today.

MR. SUNIY: Oh, well, thank you very much. Thanks for the opportunity to address all of you. Let me also, just before I get started, also thank the staff. We had, as you know, a very short public comment period, we worked very hard, very quickly to get this material together for you. We asked for a lot of information from the staff, and they provided it to us. So I did want to note that and thank them.

Now, just hitting the high points in my testimony. What was it that I did here?

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Threshold comment, I don't think that this should be controversial. The TMDL does not - and by the TDML I mean the staff report, does not contain an economic analysis of this proposed regulation, at least not one that conforms to federal standards developed by Office of Management and the Budget used by EPA and other regulatory agencies. There's nothing in the staff report that looks like an economic analysis that a professional economist would recognize.

So my firm was engaged to essentially fill the gap, to take a look at economic impacts, positive and negative, of the TMDL, not just to look at costs, but look at costs in relation to what's being achieved. The method that we tried to use was consistent with the academic literature, I teach environmental economics at Berkeley. We used that literature as a basis for the work. And also, again, with federal guidelines for economic analysis of environmental regulations.

Now, the bottom line conclusion, if I could sort of just boil it down to - one important thing that I'd like you to take away from this, my conclusion is that the TMDL could impose very high costs in relation to the level of benefits achieved. And I'll explain, you know, as I go on, exactly what I mean by that.

In terms of cost-effectiveness or reasonableness, no one's expecting you to only adopt actions that pass a cost benefit test. We're not talking about that. We're talking about something more fundamental - is this is a reasonable action when you look at what's achieved in relation to the potential costs as we understand them. In that sense I think that this action, if it were promulgated at the federal level, for example, it is well outside the mainstream of environmental regulation in this country, in terms of again, what's being achieved, what we expect to be achieved, relative to what it actually could cost. So it is not a balanced regulation or a reasonable regulation.

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With respect to costs, again, another threshold point, the vagueness of the implementation plan laid out in the staff report makes it frankly impossible to put an exact number on what compliance costs will be. However, a reasonable assessment of costs leads to the conclusion that they may well reach into the hundreds of millions or billions of dollars. The staff report itself has a number of 500 million dollars annually for just one aspect of compliance costs. And when you wonder why, what is the origin of the famous eight boxes of information, you know, I'd point out that when a staff report contains a number like 500 million in costs annually it's not unreasonable that that would get people's attention.

Let me highlight here just two aspects of cost. First, dredging. Second, urban stormwater runoff. There's not, again, an adequate treatment of costs of compliance of either of these two factors. Although I think the staff report does acknowledge in general terms that costs of compliance may be considerable.

With respect to dredging, there is a history in this country of dredging projects similar to what might be required here. Again, another reason for the eight boxes of information is we tried to provide you with a lot of background information to help you understand, and this is totally genuine, to help you understand what the costs of compliance might be. So included in ours, we had probably a foot of documents that we provided, is information from other dredging projects in the United States in terms of cost per cubic yard.

With respect to urban stormwater runoff, I believe you have comments submitted by Arcadis in your packet here. They suggest that compliance costs may run just for infrastructure alone they run to a number like 8 billion dollars, not even counting O&M and land assembly costs. And, again, the staff report has a number like 500 million dollars annually.

Now, with respect to benefits, the positive side of the regulation, and there is a

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positive side, I'll note that the TMDL does not explicitly define the benefits achieved. And what I mean by that is there's no statement in the staff report anywhere about the level of risk today, as opposed to the level of risk that would be attained even assuming the TMDL could be implemented just the way it's written down. It's that difference in risk levels that's the economic benefit achieved by the regulation. And there is nowhere in the staff report a statement about what that level is. So that was one of the things that I calculated using the method and the data contained in the staff report, augmented by data from the Department of Fish and Game, and the natural marine, or National Marine Fisheries Services, sorry.

It's pretty unobjectionable that the benefits accrue to a small population. We're talking earlier about subsistence anglers, I think that's probably not too inaccurate. In monetary terms the total present value of the expected benefits to be achieved by the TMDL is less than \$400,000 over a 70-year period, and that's assuming an EPA standard of 7 million dollars per life saved, and not taking into account these natural attenuation processes.

So this benefit accounts for 4/1000th of an avoided case of cancer each year. So just to put that in perspective, let's assume that the compliance costs really are the 500 million dollars listed in the staff report; maybe lower, maybe higher. But just for argument's sake let's assume that. A benefit of 4/1000th of a cancer case per year amounts to compliance costs of 125 billion dollars per cancer case avoided. No matter how you cut it that does not strike me as a reasonable regulation.

In terms of competing risks, I'll go through this very, very briefly. There is a threshold above which regulations simply do more harm than good. Compliance costs impose their own health risks. And what the OMB has concluded is above a threshold of something like 21 million dollars per life saved. Regulations cause more health risk, different kinds of health

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risk, but they cause more health risks than they address, the proposed TMDL easily exceeds this threshold. Again, assuming the 500 million dollar number is correct, we're at 125 billion per cancer case avoided, orders of magnitude above the 21 million per life saved standard.

Skip that last point just for brevity's sake.

So conclusions. First, again, I think this is unobjectionable, the TMDL does not contain an economic analysis, even though my understanding is that one is required by Porter-Cologne. It is not a balanced regulation when one compares compliance costs to what will actually be achieved, the actual reduction in risk levels, that is not a balanced regulation.

And the beneficial effects of the TMDL, the reduction of cancer cases of 4/1000th per year is not substantial, and very likely be orders of magnitude below the cost of the regulation.

So I'll leave it there.

CHAIRMAN MULLER: Thank you. Clifford?

BOARD MEMBER WALDECK: I'm a little bit confused, and you're a little bit, you're painted by a previous (inaudible) here when I was involved with the League of California Cities, when stormwater regulations first came out you said it's going to cost California 500 million dollars, and all of that there.

So I don't understand what the costs are of compliance if you're lumping in stormwater regulation, which does have its costs there, but that includes all this other type of stuff, too. What makes PCB regulations so onerous and so costly? It sounds like a pretty easy thing, I mean there's less OWDA there, it's naturally going away. I don't - what are the big costs, and what's the cause for alarm?

MR. SUNIY: Right. Well, again, this is an attempt to provide some information.

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I'm not trying to be alarmist. And what I have to go on is the information that's in the staff report. The staff report lays down numeric targets, and those targets cost some money to achieve.

Now I will say, sorry to interrupt, but I will say, again, I don't disagree with the notion that's it's hard to know exactly what the costs are going to be here, because the implementation plan is not - it's not specified in as much detail as most environmental regulations, it's fairly vague and it contains - or it's like adoptive management, meaning we don't know exactly what's going to be required. But just taking the requirements at face value, the numeric targets at face value, I don't think it's a long putt to say there's going to be some compliance costs attached to that.

BOARD MEMBER WALDECK: And just to follow up so either one of you can answer, I'm not asking for hard numbers or hard examples, but a good example if you were to say this will cause every POTW to spend 30 million dollars to add this extra thing onto their waste treatment plant. Those are the types of costs that I'd like to get my arms around.

MR. SUNIY: Sure, sure. The costs for stormwater treatment are more likely to involved building substantial storage capacity in order to capture the stormwater during storm events. And a lot of the cost is associated with the construction of such storage facilities.

And then in order to achieve the levels mandated by the TMDL it ultimately would require extensive treatment operations, that would include solids removal facilities, activated carbon removal that add the additional costs that we're talking about. So it's a combination of the costs associated with capturing the water and then pretty aggressive treatment in an attempt to get down to the levels mandated by the TMDL. And it's no assurance that you'll ever be able to get to those levels, even with that level of treatment.

BOARD MEMBER WALDECK: And the question that I have, and I might have Dr. Mumley follow up on that, is with the TMDLs, I mean most TMDLs do have a stormwater component to it, whether it's pathogens or mercury or something like that. So in some ways, and I'm just being academic, if it costs all that money to clean the stormwater then I would divide that by 10 or 20, because there's many other members of the same family that would have to go through the same treatment.

MR. SUNIY: Well, I think that's where there's a difference here. So, for example, if we're addressing a pathogen problem typically you can address those kinds of problems with best management practices, and so controls of the sources, controls in the streets, for example.

Here the levels are so low, and there's so much residual contamination everywhere, that that's a fool's errand. Best management practices will never get to the levels that the TMDL suggests that we need to get to. And it requires this level of capture and treatment that would be unprecedented and would not be necessary to achieve the levels that you would have to treat - achieve for other pollutants, which in many cases could be achieved with EMPs.

BOARD MEMBER WALDECK: Okay, thank you. You actually answered the question well.

CHAIRMAN MULLER: Barbara, did you have a question, or Terri?

BOARD MEMBER BRUCE: Yeah, a quick question on attenuation of PCBs on land versus in the water. We've seen those attenuation scales, is there any information about PCBs natural half-life or attenuation on land?

MR. SUNIY: That's a technical question. There's not a lot of specific data, but attenuation processes in the Bay are very different from the attenuation processes in the landside.

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And typically the attenuation in the Bay would be faster than attenuation on the landside.

BOARD MEMBER BRUCE: Because?

MR. SUNIY: I can't give you a number, but -

BOARD MEMBER BRUCE: Just why, why would they be faster in the Bay, in water than on land?

MR. SUNIY: Because we've got this tremendous dilution mechanism in the Bay with all the tides flushing in and out, so there's a flushing mechanism. And then in addition, in certain portions of the Bay that are depositional we can bury the PCBs.

And you really just - those mechanism are not operating like that on land.

BOARD MEMBER BRUCE: Okay.

CHAIRMAN MULLER: Okay, thank you very much.

MR. SUNIY: All right, thank you.

CHAIRMAN MULLER: Next we'll have the BASMAA engineer, I think it's John, right? Yep, there you are. And that will be followed by a very, very patient Douglas Samuels who's been here since early, early this morning. So we'll get to you here, soon.

MR. KONNAN: I do I think. Good afternoon, Members of the Board, my name's John Konnan, I'm here to represent the Bay Area Stormwater Management Agencies Association. I'm an engineer, as you said. I've been BASMAA's technical lead on the PCBs TMDL for several years now.

I'm representing more than 90 agencies today, mainly cities all around the Bay. So if I go a little bit over my allotted time, like some others, I hope that you'll bear with me.

CHAIRMAN MULLER: Come on, no more quick shots on the Chair here you guys.

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[Laughter.]

CHAIRMAN MULLER: Go ahead.

MR. KONNAN: I also want to mention that there's a stormwater conference happening today in Costa Mesa, and a lot of our people are there. So otherwise I think we'd have more people at the hearing here today.

So I'd like to start by commending the Water Board staff on all the hard work that they've done to date. They put together a staff report that's well thought out. They've done some excellent outreach, and they've worked with us collaboratively for several years now through organizations such as the Regional Monitoring Program, the Clean Estuary Partnership, and most recently on developing a new regional stormwater municipal NPDES permit.

We all know that development of this TMDL is an enormous and challenging effort. There's going to be a lot of implications and repercussions for a long time. And local governments are particularly concerned about the TMDL because as the current proposal lays it out the - most of the burden for implementing the TMDL will fall upon local governments.

So keeping in sight all the good work that staff has done, we do feel that we need some changes, and we'd like to see those changes happen through the adaptive implementation process.

I don't have time to go over all of our comments, but I'm going to hit upon three key areas. And we've already been talking about some of these areas today. That's pollutant fate modeling. Number two is feasibility of the urban runoff load reduction. And number three is the regulatory framework of PCB site cleanups.

What we're requesting is the opportunity to work with staff maybe in the next few weeks to come up with a schedule that would go in the Basin Plan Amendment to

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periodically update the TMDL as part of the adaptive implementation process.

Okay. Number one, pollutant fate modeling. As you hearing before, the TMDL uses a very simple model to predict future concentrations of PCBs in the Bay. And it treats the entire Bay as one big compartment, or bathtub, as what was said before. This is a big simplification. We know that the Bay has regions. And the different regions have different properties with regard to things like flow and flushing.

Another important point is that the sediments beneath the Bay, and we call those bed sediments, contain PCBs that have been deposited over the past few decades. And most of the Bay is eroding right now, so these sediments are being released back into the Bay along with the PCBs in them. And this is a big source of PCBs to the Bay right now.

Now there's a new much improved model available. You know, there's also the work that was done by John Connolly & Company, and it seems like there's a - well, I'll just say what we were going to say and then we'll have to reconcile the fact that there's various modeling attempts going on right now.

This new improved multi-box model treats the Bay as different compartments, so it's a big improvement over the one-box model. And it tells quite a different story than the one-box model. Preliminary runs from this multi-box model say that the erosion of bed sediments - and just as an aside you'll probably remember the same concept from the mercury TMDL, but the erosion of these bed sediments is actually what's controlling the future concentrations of PCBs in the Bay, rather than external loads, including urban runoff. So what I'm saying is that reducing urban stormwater loads would actually make little or no difference.

Now there's obviously some uncertainty associated with this conclusion, as there always is for all of these things. But it is based on the best information I believe that we have

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right now. I mean I'm not sure how this compares to the modeling that John Connolly has done, I've not looked at that. But compared to the one-box model this is the best information we have right now.

In the spring there's going to be the results available from some other field studies that will allow us to better calibrate this model, and reduce that uncertainty. What we're saying is we'd like to tie this into that adaptive implementation schedule that I mentioned earlier, so the spring would be one milestone in that schedule, to start incorporating this kind of information into the TMDL, because it really needs to be there.

Okay. Number two point is feasibility. TMDL proposes reducing urban runoff, PCBs loads by 95 percent in 20 years. The 95 percent is based on a sediment target and - or goal, I should say, and the 20 years as far as we can tell is arbitrary. You've heard this before but we believe that this is infeasible, impracticable, and will impose an undue burden and unfunded mandate on local governments.

The TMDL has a very brief analysis. We've heard all about economic analyses. We share GE's thought that what's in the project report right now is not an adequate analysis. As to what needs to be in there, from a legal standpoint I guess we need to let the lawyers figure that out. But from a practical standpoint we don't feel that it's adequate.

We did a really brief calculation using information in the report. Despite the fact that we don't think that this information is ready, it needs more work, just as an example as a line of thinking, the 500 million year upper bound cost for implementing urban runoff - for urban runoff to implement the TMDL equates to 14 million dollars per kilogram of PCBs removed. This is just kind of a line of thinking, just an example of a cost benefit analysis. And I think what GE showed is probably - well, it's definitely much more thorough, and probably more relevant.

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The main point here is that through the adaptive management process we would like to see a more realistic load reduction and time frame that would be based on a thorough analysis of sound scientific data, technical and economic feasibility, and costs and benefits.

PCB site cleanups is my last topic. A large source of PCBs to the Bay right now is contaminated surface soils and sediments that are located throughout the urban landscape, are being washed into the Bay.

We also know that these soils and sediments are more contaminated in some areas compared to other areas, and the TMDL report rightly points out that cleanup of some of these contaminated sites, especially in industrial areas where they tend to be, is one of the most effective tools that we probably have available to reduce loads from urban runoff into the Bay.

So what we'd like to say is that we need a new toxics cleanup program to address these PCB sites. We'd like it to be based upon existing tried and true regulatory models that have been used for toxic cleanups in the past. Examples are CERCLA, which are otherwise known as Super Fund, and cleanups led by the state, including the Department of Toxic Substance Control, and the Water Board. For example, the Water Board is cleaning up a site in San Carlos right now, called the San Carlos - sorry, called the Delta Star site, and they used to manufacture PCB transformers there. There's PCBs in groundwater and soil beneath the site. We took some samples of sediment in a storm drain near the site and found PCBs also.

So that's an example of a Water Board cleanup that's happening right now.

Our main point is that these cleanups should happen through these kinds of regulatory programs that I - and models that I just mentioned, rather than through municipal stormwater permits. We don't feel that that's the appropriate regulatory mechanism for these kinds of cleanups.

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We also need to identify responsible parties whenever possible, and when we can't do that then we need to be creative about finding other sources of funding to do the cleanups.

And the last point I want to make is that I mentioned that there's cleanups happening right now of PCB sites. As best as we can tell there isn't a lot of connection between these cleanups and the TMDL being made. We need to see that connection made in the future.

Thank you.

CHAIRMAN MULLER: Thank you. Moving on, go to Mr. Samuels, Douglas, please? We have a couple more cards, San Francisco PUC and BACWA.

MR. KONNAN: I have copies of my handouts, anybody like that? Want to pass it around?

CHAIRMAN MULLER: Yeah.

MR. KONNAN: Can I just hand it to you to pass around.

BOARD MEMBER PEACOCK: Mr. Chairman, before we begin I think there's a general consensus on the Board that we'd like to get copies of all of these handouts that we've seen in the slides. I don't think there's any reason not to have a copy of all of them.

CHAIRMAN MULLER: Yuri?

BOARD MEMBER PEACOCK: Is that possible?

CHAIRMAN MULLER: Additional written material.

MS. WON: (Inaudible.)

BOARD MEMBER PEACOCK: I'm referring to the slides that we've looked at here. Yeah, that would be -

MS. WON: It's not a problem.

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BOARD MEMBER PEACOCK: That would be great if you could just collect them and send them to us after the meeting, I guess is fine.

CHAIRMAN MULLER: Okay. Mr. Samuels, please?

MR. SAMUELS: Yeah. First I want to thank you for your courtesy in allowing me to speak, and I will keep it less than three minutes.

CHAIRMAN MULLER: You've been here since eight o'clock this morning, so you're welcome to get a few more than three minutes.

MR. SAMUELS: I'm Doug Samuels, and I'm President of a company called Clean Water Corporation. And I'm mainly interested in addressing three simple points, and that would be economics, technology, and effectiveness.

We are basically a pilot operation presently. We have a pilot plant in Orange County, and we're taking water that is considered to be untreatable by standard procedures and turning it into drinking water. We're looking at actually engineering to design to clean up the Bay at Pearl Harbor, Hawaii, which has been a dead zone for some time, and restore the life there by working with the stormwater coming into that Bay.

We have innovative technology I won't get into, but we think we can reduce the costs, the land usage, and the effectiveness - improve the effectiveness of taking out the PCBs or TMDLs through our system. And I have some brochures out in front if anybody wants to look at them, and we're glad - we'd like to get a pilot project going in the Bay Area bay to see what we can accomplish there.

And so if there's any interest in that from any parties, why we're more than willing to pursue it and see what we can do. And our units are modular, so they're portable, so they're very easy to install and move around and that kind of thing.

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CHAIRMAN MULLER: Well, thank you. I would suggest you talk to the next couple of speakers, they might be able to refer you.

BOARD MEMBER WALDECK: Sir?

CHAIRMAN MULLER: Go ahead, Clifford?

BOARD MEMBER WALDECK: I saw that you had some of the brochures up at the table in front if you want to bring them here.

MR. SAMUELS: Sure, I'll be glad to do that.

BOARD MEMBER WALDECK: Thank you.

CHAIRMAN MULLER: Okay, thank you. And then we will - you can see who's coming up next. Next will be San Francisco PUC, and that's Kaamil? Kaamil, please. And Michelle will be the last speaker.

MR. PARGHI: Hi, I'm Kaamil Parghi with the San Francisco Public Utilities Commission. In your presentation, Mr. Hetzel and Mr. Mumley, you said that the treatment - the wastewater treatment plants will not be required to upgrade, but just maintain their own treatment capacities. And I have a question here. We have a combined system of - that has stormwater also going into the treatment plants. So that would double our PCB levels that are expected.

And my question is will you require us, will you require us to upgrade to say a (inaudible) or something like that?

CHAIRMAN MULLER: We'll never answer that right here, but someone will answer you someday. It's a great question, it's a good question, and we never - I never even thought of that. So you will answer that regarding his combined flows, I think that's a very important question on the PCB issue. Thank you.

MR. MUMLEY: How we actually account for this in that San Francisco is given

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an allocation via its wastewater for its wastewater discharge, and it's given an urban runoff, urban stormwater runoff allocation consistent with the rest of the Bay Area. So it's essentially you have - you get two allocations that presumably, you know, which I'm not going to - can't say right here and now it doesn't mean you don't have to maintain current wastewater system is all you have to do, there may be actions that San Francisco will have to be responsible for to manage urban stormwater runoff. But it's you're getting - you get two allocations that will affect your combined sewer systems discharge.

MR. PARGHI: In that case, do you have any system for stormwater controls in mind that can be easily quantified accurately? Will there be any guidance provided for that?

MR. MUMLEY: I'm not quite sure what your question is?

MR. PARGHI: If you're going to require stormwater controls, do you have any system, I should say do you have any method or technology that can accurately quantify the control of PCBs from so many multiple points in the city?

MR. MUMLEY: Yeah, the answer to that is, no, but that's part of our adaptive implementation scheme is to evaluate the effectiveness of specific controls. We have general knowledge, there's not much in the literature and we're actively studying that. Again, one of the more promising approaches is to route, strategically route some contaminated stormwater to wastewater systems that have the capacity to handle it, because the wastewater systems that do an effective job of removing sediment do an effective job of removing PCBs contaminated sediments.

Again, let me just tell you that you're - the allocation, the wastewater allocation assigned to the southeast plant is .3 kilograms per year. The urban stormwater runoff allocation to San Francisco was an additional .2. So it's not - and I think relative to your current

performance you may be in a better position than any other community in the Bay Area because you already have the advantage of the combined system, which essentially consists of strategically routing runoff to your wastewater system.

Now, I'm not going to say that's a done deal, but I believe - I appreciate your concern and I think in responding to your comment we will clarify that to the best we can. And, again, we're going to call your attention to the fact that we don't have everything figured out in terms of what is truly reasonable and feasible to implement for urban runoff management.

MR. PARGHI: Thank you.

CHAIRMAN MULLER: Thank you. And conclusion, Michelle, please?

MS. PLA: Good afternoon, my name is Michelle Pla, and I'm the Executive Director of the Bay Area Clean Water Agencies. And we are the municipal wastewater agencies all around the Bay Area. And in fact we spend in excess of 500 million dollars a year treating wastewater here in the Bay Area already.

So I have a couple of comments, and I did submit written comments. First off, I want to acknowledge that this is a very difficult situation, that this is a complex challenging problem. And, in fact, you see that right in the Baykeepers letter which when I read that I was well I'm going to agree with the Baykeepers on that, this is a complex challenging problem. And it's primarily because we have limited data, we are working on a single-box model, but we're investing a multi-box model. Through the Clean Estuary Partnership we agreed several years ago to invest in a single - in a multi-box model, and we are looking forward to seeing the results of that.

And so I think we know that adaptive management is absolutely essential, not only with the previous TMDLs that we've seen, but with this TMDL, because we're going to

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continue to invest in knowledge, and then we want to be able to use that knowledge to determine whether our program is correct or whether we need to make adjustments to it.

BACWAA would like to support today the fish tissue standard that the staff has established in this draft TMDL. We think it is an appropriate fish tissue standard, and that it will protect the beneficial uses, and will protect the people that are consuming in the San Francisco Bay.

We also have a fairly major issue that we'd like to raise with you, and that is that we strongly recommend that Table A-3 be eliminated from this TMDL. If you look at Table A-3 in your TMDL you'll see what this is is that the waste load allocation for all municipal wastewater is 2 kilograms per year. And this is not - this as you heard from the staff requires that we maintain - actually improve a little bit of the level that we are at now.

But then that 2 is then allocated across 44 municipal wastewater treatment agencies. And you look at this these allocations are minuscule. And our sense is that you don't need to do that. This TMDL has an implementation strategy which requires a concentration limit be implemented through permits, which are going to be - which we know will be consistent with the waste load allocation because that's the law, and that's the rule, that whatever this waste load allocation is eventually in this permit we will have to - excuse me, in this TMDL, we will have to have permits which are consistent with that wasteload allocation. We heard that time and again through the mercury process, we know that it's important.

So we don't think that taking this 2 and breaking it down to 44 separate waste load allocations from municipal wastewater is necessary. And, in fact, in our comments we attached some examples of approved TMDLs around the country where EPA has approved TMDLs that were group allocations or combined allocations like this, which were not broken

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down to every individual wastewater agency, but in fact approved waste load allocations for a full class of wastewater, or a full class of stormwater.

So we think that with this entirely small number it really isn't necessary, and we really, really encourage staff to take a look at that and eliminate that table.

As far as the numeric limit that's in here for municipal wastewater, it's a .05, and that is at our limit of detection. We have to use gas chromatographs to detect that, and we are concerned that we may have instances where there's some variability in how that's detected, and that may end up with violations. So we do ask - and we take another look at that and potentially make that a 1.0 instead of a .5.

As I said earlier, we highly support and will always support an adaptive management approach. We think it's incredibly important that we know that we're going to be making some changes to this.

I did want to start my testimony out with how emotional this morning was for all of us to have Dr. Wu's family here today, and to have these first annual awards. I found it very emotional, as well. But I also found that I was extremely proud of the Bay Area Pollution Prevention Group, a stepchild or a grandchild of Dr. Wu. And I wanted to assure you that through part of what we do with adaptive management, as well, is to be improving our pollution prevention and our ability to do pollution prevention as we go along. So that's another aspect that we assure you that when we have these concentration limits we also have requirements to do pollution prevention, we also have requirements to improve our knowledge and keep going along. So it's not just focused on concentration limits.

We absolutely need an offset program. The staff has suggested some fairly interesting and innovative ideas here of having some waste load allocations set aside for

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stormwater treatment at POTWs. That's really interesting, and something we would like to be able to pursue, but we can't do it without an offset program because it's not just PCBs we'd end up taking into our systems, we'd end up taking mercury, we'd end up taking dioxin, we'd end up taking everything else.

And with the strict concentration limits that we have in our permits, with MMPS, and with cease and desist orders, we just have to have an ability to offset and to get credits.

So we will continue to push that issue, I think Dr. Wolff left, with Dr. Wolff and others at the state.

The Baykeeper pointed out that they had two issues that I wanted to speak to. The first is that they thought the Delaware River PCB TMDL had some examples for us. But they also point out in their letter that that PCB TMDL focused in on primarily municipalities that had combined sewer systems, and that in fact it was the wet weather aspect of what was coming into those municipal wastewater treatment plants which was potentially driving that.

I want to point out that we only have one combined sewer system here in San Francisco Bay Area, and that's the San Francisco, and they already collect and treat 85 percent of everything that comes - that runs off the street. Excuse me, they collect everything, they collect 100 percent and treat 100 percent, but 85 of it goes through secondary treatment. So I don't think we have the same issue with combined sewers that they have in the Delaware River. I don't think the Delaware River is a good example of a PCB TMDL and how to do that here in the Bay Area.

The other major storm - major agency is East Bay Mudd, that takes a lot of wet weather. But, again, they collect it and they treat it, unlike what we see with a lot of runoff combined sewer overflow in the Delaware River area.

So I don't, you know, I would say that that's not a good example for us here.

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The other thing that they point out is perhaps we should look at the blending issues in the permits or the sanitary sewer overflow programs to try to see what more can be done. We're talking about such a small amount of allocation here. When we talk about wet weather and as it impacts municipal wastewater we're talking about infrequent intermittent discharges, which are not going to be carrying a lot of PCBs with them. We do have an SSO program that is focusing on control of sanitary sewer overflows, and the blending program, as you know, because it's something I raise every time I'm here to talk about permits, requires that all blending agencies do an analysis of all feasible alternatives to see if there's other things that they can do.

So I think we have other programs in place, we don't have to be focusing on those in this TMDL.

And then the last point that was raised by Baykeeper was the approved - the methods for how wastewater agencies actually measure PCBs. And I think what they're calling for is a method that's not approved by EPA. And we're very reluctant to go to methods that are not approved.

So I think that's the gist of my comments. And I'm certainly open for questions, but I know you all want to get out of here. So thank you very much.

CHAIRMAN MULLER: Any questions or comments? Clifford?

BOARD MEMBER WALDECK: Yes. You said you'd prefer a combined load. Isn't that a logistical nightmare to get all 95 of the agencies to all send their numbers into you and send that onto the Water Board, or how does it actually?

MS. PLA: Well, actually my understanding of the way I read this, and perhaps I'm misreading it, is that the compliance with this TMDL waste load allocation will be through a

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concentration limit that everyone will have in their permit. And that's why I'm not - and that concentration will be consistent with the data and the analysis that was used to develop the waste load allocation, which is required.

So that's why I'm saying I don't understand why we'd have to break that 2 down into 44 separate waste load allocations, because we will in the implementation scheme have a permit with a concentration limit in, and that's what we will be reporting on. And we probably also will be reporting on the waste load allocation itself, but it would be easier to be looking at that from a combined - it would be easier to be looking at it combined.

If you look at that table you'll see that those numbers are minute. And with our ability to measure these numbers, you know, it's very easy to find ourselves with the technology of having a difficult time measuring to those low levels. And that's I really just - and as I said before, EPA has approved numerous TMDLs all over the country where you don't break that number down into every individual wastewater agency's - a waste load allocation. So I don't see why we need to do it here.

BOARD MEMBER WALDECK: Understood, thank you.

CHAIRMAN MULLER: Thank you, Michelle.

MS. PLA: Thank you very much.

CHAIRMAN MULLER: Well, I think that just about concludes all our testimony on this Item here. I know the Board has some more comments quickly, or questions to our staff regarding it. And start down the end.

Clifford, do you want to? Any other comments, questions, Margaret? Or Terri, you want to handle it?

BOARD MEMBER YOUNG: Yeah. I have a couple of thoughts. The first is

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that it is difficult when you read through this document to separate out actions that are already ongoing and planned by the Water Board under other programs that are actually part of the implementation of this TMDL, but are not caused by the implementation of this TMDL. So in other words they're going on anyway. And they do help to remediate the PCB problem, but they are not going to add to costs for the difficulty of the implementation.

And for the reader's sake I think it would be helpful if those things could be broken out.

Secondly, we've heard a lot of concern today from everyone who's spoken about what I will call "awfulizing." Awfulizing about how this might be implemented in the future. And yet when I look back at or try to remember back through my reading of the document, and like the gentlemen this morning my short term memory is not what it used to be, I don't actually remember a whole lot of specific actions that are in the document so far. So what I think you've actually done is what - is suggest what we kind of what we used to call a screening level TMDL, where you identify the big pockets of things that need to be addressed, you recognize that there's a lot of uncertainty in all the factors that are going into the calculation, and you figure out what's the most obvious thing to be doing first that we know we'd have to do no matter what these numbers look like. What are the no regrets actions.

And it strikes me that what I can remember of what has been identified in this TMDL largely falls into the category of no regrets actions, it's doing pilot studies, figuring out what works, what doesn't, going ahead with site cleanups that are already underway and already on the docket. So on the one hand that seems pretty logical, and on the other hand we have a lot of people who are concerned that even though that's where we're starting we may end up spiraled off somewhere else.

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So I just sort of lay that out as a way of thinking about it, and maybe of presenting what it is that we're doing.

I thought the gentleman's suggestion from BASMAA about scheduling identifiable points in time where the Board is accountable for tightening up its estimates in the TMDL was actually a good one. That would be a good self-imposed something.

BOARD MEMBER BRUCE: Intellectual rigor.

BOARD MEMBER YOUNG: Yeah, there you go, for us, so that we make sure not to let this slip to the bottom of the pile.

There were a couple of other things that I thought also would be fairly easy to clarify. One is to discuss how the goals and the TMDL might or might not be interpreted by somebody else as remedial cleanup standards, and also how they will be - how they will be related to future sediment standards, however we decide to deal with sediment standards.

And secondly, clarifying who is going to be responsible for requiring site cleanups inland. There's language in the TMDL that kind of makes it sound like the stormwater agencies are only going to be responsible for identifying where those are, and then the Regional Board or somebody else is going to pick it up. But I noticed that the stormwater agencies were still concerned that they might be saddled with that responsibility. So I guess there's a lack of clarity in people's interpretations.

And as - that's all the sense I can make out of this muddle at the moment.

[Laughter.]

CHAIRMAN MULLER: Anyone else? Yeah, Clifford? George?

BOARD MEMBER PEACOCK: Mr. Chairman, I just would like to ask, do we have the ability just to address previous witnesses here just for quick questions here?

CHAIRMAN MULLER: Yes.

BOARD MEMBER PEACOCK: I have talked to just about everybody on this Board during the lunch break and in different aspects, and quite frankly I don't think anyone is clear on the statutory and regulatory authority by which we're being asked to make a lot of these decisions. We heard from the representatives of GE that we were supposed to consider cost benefit analysis or risk reward or economic benefit, and we had a conflict within our own staff about which aspect or which statute applies. And frankly as they used to say when I went to law school, there's a conflict in the circuits, and I don't know which end is up on what we're supposed to be - what we're allowed to consider, what we should consider, and what we must consider.

And so I think it would be very useful to not only have our own staff put together a summary or Ven diagram of what is available, what is not. But I'd also like to hear from the people who are saying we should consider these cost benefits. Maybe Mr. Singarella could put us together a couple page brief or one of the, one of the representatives from GE, because these are enormous numbers if they're true. If they're not true, then they're just enormous fictions.

So I think we really need to have this because we're inadequately equipped to fight this battle.

CHAIRMAN MULLER: Margaret, not yet, Paul, please.

BOARD MEMBER BRUCE: And I think I would augment what Mr. Peacock is asking for, by asking staff to prepare to the - understanding that there are ranges of uncertainties, but asking staff to prepare kind of a, sorry to use this metaphor, but a loading order of the kinds of things that could be taken, the steps that could be taken soonest or in some rational order, given other things like the MS-4 permits, or other kinds of TMDLs being implemented so that

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there's a sense of, like Terri said, what other actions are already being undertaken, and which actions have the most efficacious bang for the buck. Whether it's bang for effort, bang for planning, bang for dollars, but where's the biggest chunk going to come from, and where that's going to - when and how that can happen perhaps where it overlaps with other existing programs, so we have a loading order of activity within the TMDL that at least suggests within the adaptive management process where prioritization could occur.

CHAIRMAN MULLER: Paul, quickly, just a quick closure.

BOARD MEMBER WALDECK: And I just want to dovetail on that, you know, find the most available biggest bushel of lowest hanging fruit that is - that agrees with everybody involved, including U.S. EPA.

CHAIRMAN MULLER: Did you have a quick comment, Paul, at the end here, and then for some answers to Board Member Peacock?

MR. SINGARELLA: Sure, I'd be glad to take a stab at that, and appreciate the opportunity to address the Board on this issue. Paul Singarella.

We think it is very clear that under Porter-Cologne and under the California Environmental Quality Act that this agency, when it promulgates a regulation, must take into account economics, reasonableness, what's achievable, and come up with a balanced regulation. We think it is equally clear that that does not translate into the need to do a strict cost benefit analysis. We are not saying that, we have never said that, that is not the point, Porter-Cologne does not require that, and no one's going to tell you that they do, certainly not us.

Where do these requirements come from? It comes from the very first statute, the very first provision of the Porter-Cologne Act, Division 7 in the Water Code, Section 13000 says you are to achieve the highest water quality that is reasonable taking into account all

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competing objectives, tangible and intangible, social and economic, water quality protection part of that balance as well. The next provision of Porter- Cologne says everything you do under Porter- Cologne needs to take into account the policy of Section 13000. It's a fundamental principal of your governing act, and it should guide and inform your policy.

Other provisions of Porter-Cologne are also very important in this regard, Sections 13241 and Section 13242 that deals with your standards and your implementation plans. And if this action isn't about your standards and implementation plans I don't know what is. 13241 and 13242 say do what's reasonably achievable, get the best water quality you can taking into account all factors, the coordinated control of all factors resulting in what is reasonably achievable. What a wonderful concept, right, achievability and reasonableness.

The 13242 says that the actions that you are to specify need to be specific and laid out so that people can understand their obligations and understand what's being asked of them is feasible, reasonable, and achievable.

I could go on, and I won't, I'll leave you with this. Bill Dendy is a very good friend of mine, Bill Dendy was the youngest Executive Director of the State Water Board in its history, and the second Executive Director, and he was instrumental in putting together the Porter- Cologne Act for this state. And he wrote the seminal legislative history on Porter- Cologne, and in it he says that the Regional Boards are to be - are to provide the reasonable balance that's required when you have these competing objectives that you need to take into account.

CHAIRMAN MULLER: Good, thank you. Clifford? We got to bring this to closure.

BOARD MEMBER WALDECK: And that was exactly the thinking we had

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when we approved our mercury TMDL for the first time. So and we saw what happened with that.

[Laughter.]

CHAIRMAN MULLER: And I think, you know, staff has worked very hard to bring balance to all our TMDLs, and that's a difficult situation. But we've heard the testimony today.

My couple of quick things would be I think the points of dredging were brought up that we have to be very cautious there that the dredging is not the answer to cleaning up all the PCBs in the Bay Area. I think there were some comments there.

The time and the adaptive management to get on to move forward. On the timing factor I just feel that the next couple of months are going to be very difficult. I don't know how we can handle it from testimony wise. It seems like October's not good timing. November, who knows. In December -

MR. WOLFE: We definitely did not plan to return with this in October, we can look because it would not only be this Item but any other Items we might want to bring before the Board in November. We'll look to see if we can find a possible date. Sejal noted that the date I threw out as a possibility of the 21st is indeed the day before Thanksgiving, which is commonly a travel day, or what have you.

In some years we have had a combined November December meeting the very last week of November. We can look at that. If it's before I think November the 29th or 30th, it would still allow, assuming there wasn't a new appointment, it would still allow Mr. Waldeck to serve on the Board.

So we'll look at that.

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CHAIRMAN MULLER: Okay.

MR. WOLFE: But I think the - I think your broader point is to make sure that when we do return for the Board's consideration of the PCB TMDL that we have addressed your points and concerns, and those in the audience. I think a lot of it goes to making sure that we do significant clarification in here as to who does what. From what I've heard, I don't hear a lot of at least our initial implementation actions that we would propose changing. But what we do need to do is make sure it's clear, especially as Terri pointed out, that there are a number of things that would be ongoing under existing authorities anyway. We want to make sure that we recognize those, not to spell out that that's new and different initiative, but that we are getting some potential benefit out of those initiatives that are ongoing already. That was a lesson we learned in the mercury TMDL, when initially we pointed out that dredging would be done consistent with our ongoing practices, we didn't specify - or we weren't specific about the objectives LTMS in that, and State Board said, no, go back and be very specific about that you're doing this consistent with LTMS.

And that's the type of thing that we're trying to apply and make sure, as I think all the Board members were saying, that let's get the bang for the buck out there early and demonstrate how we can make progress in a cost efficient manner, but in an effective manner.

CHAIRMAN MULLER: Good. Thank you very much, and thank everyone for sitting through this very important testimony. And thank you, staff, for hanging in there and giving us good guidance to get started here.

So we'll move onto Item 11.

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(CONCLUSION)

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