PANEL MEETING

STATE OF CALIFORNIA

OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT

ENVIRONMENTAL CONTAMINANT BIOMONITORING PROGRAM

SCIENTIFIC GUIDANCE PANEL

ELIHU M. HARRIS STATE BUILDING

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AUDITORIUM

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APPEARANCES

PANEL MEMBERS

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Dr. Asa Bradman

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Dr. Marion Kavanaugh-Lynch

Dr. Ulricke Luderer

Dr. Thomas McKone

Dr. Julia Quint

Dr. Gina Solomon

Dr. Michael P. Wilson

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Mr. Allan Hirsch, Chief Deputy Director

Dr. George Alexeeff, Deputy Director, Scientific Affairs

Mr. David Berger, Health Education Consultant, Cancer Toxicology and Epidemiology Section

Ms. Amy J. Dunn, Research Scientist, Cancer Toxicology & Epidemiology Section

Dr. Sara Hoover, Research Scientist

Dr. Gail Krowech, Staff Toxicologist Cancer Toxicology & Epidemiology Section

Dr. Martha Sandy, Chief, Cancer Toxicology and Epidemiology Section

Dr. Lauren Zeise, Chief, Reproductive and Cancer Hazard Assessment Branch

APPEARANCES CONTINUED

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Dr. Peter Flessel, Chief, Environmental Health Laboratory Branch

Dr. Diana Lee, Research Scientist

Dr. Michael Lipsett, Chief, Exposure Assessment Section

Dr. Jianwen She, Chief, Biochemistry Section

Ms. Robbie Welling, Research Scientist

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Dr. Myrto Petreas, Chief, Environmental Chemistry Branch

ALSO PRESENT

Mr. Davis Baltz, Commonweal

Mr. Hasheem Bason, Parents 4 a Health Community

Mr. Mike Horowitz, California OSHA

Ms. Sumi Hoshiko, California Department of Public Health

Mr. Scott McAllister, California OSHA

Dr. Meg Schwarzman, University of California, Berkeley, Center for Occupational & Environmental Health

Dr. Rebecca Sutton, Environmental Working Group

Ms. Andria Ventura, Clean Water Action

Ms. LaDonna Williams, People For Children's Health & Environmental Justice

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PROCEEDINGS

OEHHA DIRECTOR DENTON: Good morning to everyone. My name is Joan Denton. I'm the Director of the Office of Environmental Health Hazard Assessment, one of the three departments which is managing the biomonitoring program. And it's my distinct pleasure to call the meeting to order.

And I will -- the first order of business is to swear in the newest member of the Panel. As you recall from the last meeting, Dr. Dick Jackson, that was his first and last meeting. And Dr. Jackson has gone on to his creative future. And Dr. Julia Quint has agreed and has been appointed to the Panel.

So before I swear her in, I asked her if she would be willing just to say a few words about herself and her interests in the program. And then I will go ahead and swear her into the Panel.

PANEL MEMBER QUINT: Well, yeah, my training is in biochemistry. That's where my degree is in. But for the last almost 30 years I've worked as a toxicologist in public health at the California -- which is now the California Department of Public Health, primarily in occupational health. I was Chief of the Hazard Evaluation System and Information Service two different times in my career. So my work has been mainly focused on chemical

hazards as they pertain to protecting workers in the State of California.

But in the last years of my tenure in HESIS I became very interested in the nexus between environmental and community and worker exposures, because I truly believe that you can't solve one problem without addressing the others, and have worked with OEHHA, the Department of Toxic Substances Control, and a number of other agencies on the Cal EPA side, to address -- use the same sort of toxicological data that OEHHA develops to try to -- to use that data to develop better standards for workers for chemical hazards; but, more importantly, to look at the development of safer alternatives for chemicals, because I think that's where we need to be headed with all of this, is to have safer alternatives for a number of the chemical hazards.

So my interest is longstanding, and I hope sort of merges with biomonitoring, because biomonitoring I think really adds a whole new dimension that has a lot of public interest and can be used quite effectively to develop better policies in terms of chemical exposures.

So it's a pleasure to join this distinguished group of people who are on the Panel.

And no one can replace Dick Jackson. And I don't think that was the impetus in selecting me. Our

backgrounds are very different. But I know Dick and have worked with him, and it's quite an honor to have been asked to be on the panel.

So thank you.

OEHHA DIRECTOR DENTON: Thank you very much, Julia.

And now let's go over to the podium so we can stand.

So I'm not sure whether you raise your right hand or not. But at least you're standing.

Okay. So "I, Dr. Julia" --

PANEL MEMBER QUINT: -- Julia Quint --

OEHHA DIRECTOR DENTON: -- "do solemnly swear" --

PANEL MEMBER QUINT: -- do solemnly swear --

OEHHA DIRECTOR DENTON: -- "that I will support and defend the Constitution of the United States" --

PANEL MEMBER QUINT: -- that I will support and defend the constitution of the United States --

OEHHA DIRECTOR DENTON: -- "and the Constitution of the State of California" --

PANEL MEMBER QUINT: -- and the Constitution of the State of California --

OEHHA DIRECTOR DENTON: -- "against all enemies" --

PANEL MEMBER QUINT: -- against all enemies --

OEHHA DIRECTOR DENTON: -- "foreign and domestic" --

PANEL MEMBER QUINT: -- foreign and domestic --

OEHHA DIRECTOR DENTON: -- "that I will bear truth faith and allegiance" --

PANEL MEMBER QUINT: -- that I will bear true faith and allegiance --

OEHHA DIRECTOR DENTON: -- "to the Constitution of the United States and the Constitution of California" --

PANEL MEMBER QUINT: -- to the Constitution of the United States and the Constitution of California --

OEHHA DIRECTOR DENTON: -- "that I take this obligation freely" --

PANEL MEMBER QUINT: -- that I take this obligation freely --

OEHHA DIRECTOR DENTON: -- "without any mental reservation or purpose of evasion" --

PANEL MEMBER QUINT: -- without any mental reservation or purpose of evasion --

OEHHA DIRECTOR DENTON: -- "and that I will well and faithfully discharge" --

PANEL MEMBER QUINT: -- and that I will well and faithfully discharge --

OEHHA DIRECTOR DENTON: -- "the duties upon which

I am about to enter."

PANEL MEMBER QUINT: -- the duties upon which I am about to enter.

OEHHA DIRECTOR DENTON: "Amen."

PANEL MEMBER QUINT: Amen.

(Laughter.)

OEHHA DIRECTOR DENTON: Well, that's done. And all the members -- the other members did the same exercise last time.

So I wanted to take a minute and have the Panel members introduce themselves, and their affiliation, if you'd like. Maybe we could start with you, Dr. Culver.

PANEL MEMBER CULVER: Yes, I'm Dwight Culver, University of California Irvine.

PANEL MEMBER QUINT: And I'm Julia Quint, retired, CDPH.

PANEL MEMBER McKONE: Tom McKone, University of California, School of Public Health at Berkeley, and also at Lawrence Scribner National Laboratory.

PANEL MEMBER SOLOMON: Gina Solomon with UCSF, Division of Occupational and Environmental Medicine, and also the Natural Resources Defense Council.

CHAIRPERSON MORENO: Good morning. Ed Moreno. I'm the Director of the Fresno County Department of Public Health and the Fresno County Health Officer.

PANEL MEMBER LUDERER: Ulrike Luderer, University of California at Irvine, Occupational and Environmental Medicine.

PANEL MEMBER BRADMAN: Asa Bradman from UC Berkeley, Center for Childrens' Environmental Health Research.

PANEL MEMBER KAVANAUGH-LYNCH: Marion Kavanaugh-Lynch, Director of the California Breast Cancer Research Program.

PANEL MEMBER WILSON: Mike Wilson, research scientist with the Center for Occupational and Environmental Health at UC Berkeley.

OEHHA DIRECTOR DENTON: Okay. Just a few welcoming remarks.

This is the second meeting of the Science Guidance Panel. Our first meeting was last December in Sacramento. And at that last meeting, the Panel had the opportunity to meet each other, to hear from Senator Perata, who was one of the co-authors of the biomonitoring bill.

We talked about biomonitoring in general. We heard about the early efforts of the staff to implement the program.

And the conclusion of the meeting was that the Committee asked us to investigate what other biomonitoring

programs were out there, about the laboratory capacity and the needs of the laboratories, and to bring that forward to the next meeting.

So yesterday I think many of you were in the audience as we had the first part, which was the workshop to look at what other programs, specifically programs in Canada and Germany and the CDC, had to -- the information that could inform us about this program going forward.

So at this meeting the Panel is going to focus on the chemical selection, which is a very important aspect of the program. And we're going to be hearing about the results of our staff work on public outreach and what we've done to follow up on their questions from the last meeting. And they will begin deliberating about the selection of the chemicals for the biomonitoring program.

So we're looking forward to these discussions. And we appreciate the Panel taking the time now to attend these meetings, as well as the audience, the staff, and the public who are here.

So with that, I will turn it over to our august Chair, Dr. Edward Moreno, who will take it from there.

CHAIRPERSON MORENO: All right. Thank you, Joan.

I also want to welcome all of you for attending this morning. Thank you for spending your time with the Panel and the department staff.

There's really three goals that we'd like to achieve out of this meeting. The first is to advise the biomonitoring program -- the chemical selection for the biomonitoring program. We also will be hearing information updates from the -- about the laboratory capacity and the program activities to date.

And this Panel -- I would expect this Panel would begin to give feedback to the program based on what we hear today and based on what we've heard yesterday.

And as Joan pointed out, the meeting follows up on action items that were identified at the December meeting of the Guidance Panel.

We will begin with an update of program activities from Dr. Michael Lipsett from the California Department of Public Health. And he is the lead for the California Biomonitoring Program.

We'll follow this with a report from our laboratories - laboratory staff - on laboratory capacities and capabilities.

Then there will be some presentations and a discussion of the chemicals for consideration for biomonitoring. And since the last meeting, program staff have done a tremendous amount of work on chemical selection upon the action items from last meeting in December. And that's when we'll hear some of the findings

from those activities. And we as a panel will give the program further advice on next steps.

Then we'll hear about findings coming out of the program's inquiries to the public and state public health programs about criteria for chemical selection.

And the meeting will end with a summary of the advice that we will give and follow-up actions we suggest that the program take.

And I have a note here that the materials for the meeting are under Tabs 2 and 3 in your briefing binders.

I want to let the public know very clearly that there will be opportunity for public comment. And there will be two opportunities:

The first will be after presentations on possible chemicals for biomonitoring, and that's -- and that will be this morning. So we'll have that opportunity for the public before lunch.

And we'll also have an opportunity after staff presentations on approaches for identifying priority chemicals. That will be in the afternoon.

If you'd like to make a comment, I'd ask that you pick up a purple card from Robbie -- where's Robbie? -- over here to your right. She's holding the purple cards.

CDPH RESEARCH SCIENTIST WELLING: The cards themselves are outside. So if you didn't pick one up on

the way in, then you can go get one and --

CHAIRPERSON MORENO: Okay. And those purple cards are --

CDPH RESEARCH SCIENTIST WELLING: If you want -- if you'd like to make a comment, fill out one of these and give it to me.

CHAIRPERSON MORENO: Okay. And I also invite you to, as much as you're willing to, put your name and your affiliation on the cards and hand the card back to Robbie.

OEHHA DIRECTOR DENTON: Just put them on the table there.

CHAIRPERSON MORENO: We will accommodate everyone who wants to speak, to provide comment at this public hearing -- public section. But in the interests of accommodating everyone and getting through the agenda that we have ahead of us, we will have to limit the time. And that will just depend on how many people want to comment and how much time we have.

We are recording -- I'm sorry. As far as recording and accessing the meeting, the meeting is not being webcast due to cost restrictions. But the meeting will be transcribed, and a transcript will be available for the public on the State's Biomonitoring Program website.

As far as lunch and breaks, we'll take a break in

the morning, we'll take another break in the afternoon, and we'll have about an hour for lunch. And I regret we can't providing you with lunch, so you'll be on your own. And we'll resume after lunch.

And there's plenty of places within walking distance close by. And there's a list, I understand, at the entrance of the auditorium, with some places for those of you who are looking for a place to eat.

And a couple more things. The bathroom is out the main entryway here to the auditorium and to the right and down the hall.

And I just need to point out the exits. And the exits are marked in the auditorium -- in the back of the auditorium and to your right and to your left.

So with that, we are going to move on to an update on program activities. And I'd like to introduce Dr. Michael Lipsett, who is with the California Department of Public Health. And, again, he is the lead for the California Biomonitoring program. He's going to review what the program has done since our last meeting in December and he's going to give us a preview of some of the things that will be on the agenda at our next meeting.

Dr. Lipsett.

(Thereupon an overhead presentation was Presented as follows.)

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Dr. Moreno and members of the Panel. It's a pleasure to be here this -- the mic is off?

Just the opposite of yesterday. Okay.

Is this better?

All right. Good morning, Dr. Moreno and members of the Panel. Happy to be here to give you a very brief update on what we've done since our last meeting.

And do you have little -- you don't have little screens there, so I guess you have to look at the one behind there.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

I wanted to start with some of the good news; and, that is, that we were extremely busy during the past few months soliciting public input into this process, specifically with respect to chemical selection and priorities that the Panel and we might consider in choosing these chemicals. We've had three public meetings, in L.A., in Fresno, and in Oakland; three statewide conference calls; an online survey; and a telephonic survey of state agencies.

And I'm not going to go into any of these things in any detail because this is the bulk of the presentations you're going to be hearing this morning.

The laboratories are well along in their process of purchasing equipment, which as you probably know within the state bureaucracy is a very cumbersome process. But they're well along in that and in hiring staff and preparing for the renovation of facilities to accommodate the new equipment.

And we have also completed something called the Feasibility Study Report. And I alluded to this briefly during our last meeting. In order to make any significant purchases for information technology projects, which this program would need -- need a very sophisticated type of IT program, we had to conduct what's called a feasibility study report. And in order to do this we hired a consulting firm. In fact, I don't think any state agencies themselves can meet all the requirements without hiring a consulting firm to do this. It was a very, very labor-intensive process involving a lot of staff time. And, in particular, I wanted to thank Diana Lee, who managed this extensive and really difficult process to get this through.

And now we can finally request some money, or we can make a request anyhow -- we're not necessarily going to get it right away -- for some IT to manage this program.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Okay. We also had an ongoing collaboration with the National Center for Health Statistics. We've had weekly conference calls with them for many months about what we would need to do to set up the study design for the statewide survey. And while these meetings continued, we did have a two and a half day May meeting in Richmond with the NCHS staff to go over a lot of the details, which I'm going to touch on a little bit later. But you will be hearing quite a bit about this during our next meeting.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Some of the technical assistance that they've been providing specifically are with respect to the concept of operations. And what this refers to is what -- when we go out into the field, what do we need to do in advance in terms of like dealing with the public outreach, working with the county health officers trying to identify clinic sites, identifying what areas to sample, how to recruit people. It's an incredibly complex, time-consuming process. This is what has been used with the NHANES and what the Canadians are doing.

We've worked with them on figuring out the costs of all of these and the -- of all of these different tasks, different aspects of the data collection

methodology in terms of their protocols, in terms of ensuring the data integrity and quality control, both for questionnaires that would be administered to participants and also for a variety of different issues related data processing. And they've given us considerable help in terms of designing the IT system and providing input into the Feasibility Study Report that I mentioned earlier.

I'm going to touch a little bit on the sample design towards the end of this presentation. But they've been -- we've spent most of the time working with them on this.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: We also have some not-so-good news in terms of resources. We are getting no new funding for 2008-2009 in the Governor's budget, as well as a 10 percent reduction of the existing resources to address the -- this is done to address the state's fiscal crisis. And I'm not going to make any predictions. I don't think it would be wise for anybody to do so regarding our budget for the next couple of years.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: So I wanted to just touch on a few of the issues that we've been dealing with with the CDC. And this is

just kind of a foretaste of what we'd like to discuss in greater detail with you at the next meeting.

The first of these is: How do we implement the enabling language with respect to what is a representative sample in the preamble? Or more specifically within the Health & Safety Code, that the individual selected to participate in the program shall reflect the age, economic, racial, and ethnic composition of the state?

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

So does this mean do we want to have a self-weighting sample with race, ethnicity and other variables that are proportional to their estimated population proportions? For example, if we wanted to include native Americans in this, that would -- the number that would be generated would be on the order of about two dozen who would participate in the program.

Or do we want to oversample for certain subpopulations and age groups to allow for more statistically robust prevalence estimates and comparisons among them? If we want to do that, that requires a larger total sample size and it requires additional screening when you contact the individual households and, therefore, additional costs.

And these are not issues that -- I don't -- that

we need to discuss at this point. But I just wanted to indicate that these will be things that are going to be very important in terms of making the decisions about what the statewide sample would look like.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

We will be using the statewide sample, a cluster sampling strategy. Even though the statistical idea would be a simple random sample of the entire population of the state, but that would be prohibitively expensive.

Cluster sampling decreases the cost, but it also decreases the statistical power. And this is what all these -- the national surveys do, is to -- including NHANES and the Canadian studies, is to use cluster sampling.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

And this is a slide I showed at the last meeting. This would be an example of the cluster sampling. And It should look familiar to you from yesterday. This is the same overall strategy that the Canadians are following as well. You start with primarily sampling units, which in this case would be counties, take a random sample from among those, which might be census tracts or a random sample of homes from within those census tracts, and then

you would contact those specific homes and identify which of the people living there, if any, might meet the criteria that we would want for participants in the program.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

There are a number of other issues regarding sample size. I mean how precise do we want our estimates to be? Looking at the standard errors of 10 percent or versus 20 or 30 percent, these would make a big difference if, say, the prevalence of a concentration of -- say, of a specific concentration of a chemical that was 10 percent -- or, say, 10 percent within the population, and if you had a 30 percent standard error for that, it would be a very imprecise estimate. So the more precise, the smaller the standard error, the bigger the sample we're going to need to have.

We want to be able to have power to detect specific differences -- percentage differences between groups. We have to figure out, well, if we want to do comparisons among different groups for the concentrations of different chemicals, how big a difference do we want to be able to detect with adequate statistical power? We want to be able to detect chemical trends over time. So if you have really small numbers of people, you're going

to have huge error bars. So that even if you see what may look like a decrease or an increase in a particular chemical, it may not be statistically -- it may be basically the same thing if the error bars are really large.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Other study design issues, just the numbers of primary sampling units a year. Do we want to just look at 2 counties or 8 counties or 15 counties a year? That's going to make a big difference in cost. What data do we want to collect and analyze besides the designated chemicals? Anthropomorphic measurements. Do we want to collect lung function data? Do we want to collect the whole suite of health data that is used in NHANES? What languages are we going to use? And you hear some data comparing California with the rest of the U.S. We have a lot larger immigrant population here, as you can see. And nearly 40 percent of the population whose first language is not English.

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CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

So all of these things are going to involve trade-offs, the biggest one being the sample size and the determinants of sample size versus what the budget is.

You know, the number of primary sampling units and the geographic coverage versus the complexity of logistics. The more sampling units you have, the more complicated it is going to be to get to all of these locations to sample people.

Like yesterday we saw within Germany with a children study, they had nearly 150 PSUs were for about 1800 kids. That would result in sampling about 12 children per site. That would be very difficult for us to do here in California. And the CDC in Canada are using the number of 15 PSUs. Or in the U.S. that would be 15 counties per year to represent the entire country. There are good statistical reasons for doing this kind of thing, but it is going to be a trade-off that we're going to have to deal with. Then the issues that I raised earlier about racial, ethnic, age, and economic groups. And there are many others.

So this is a foretaste of things that are going to be coming up at the next meeting.

And I think with that, I'd like to conclude.

Thank you.

CHAIRPERSON MORENO: All right. Thank you, Dr. Lipsett.

At this time, I'd like to invite the Guidance Panel members to ask questions of Dr. Lipsett and the

program.

PANEL MEMBER WILSON: Michael, I have a question for you on the question of statistical power if you do proportional sampling and, you know, the problem of low numbers in some of the subgroups. How did the CDC deal with that? Did they oversample in those groups?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Well, they are only looking at whites -- or non-Hispanic whites, non-Hispanic blacks, and Hispanics. I mean they will include some people of other race ethnicities in their surveys. But the basic focus is just on those groups. And those -- they have done I believe oversampling for African Americans in that and Hispanics as well in order to be able to make comparisons among these different racial and ethnic groups. But, for instance, native Americans are not included and there's Asians -- Asian Americans are not included in there. And in California that's a big issue. We have 12 percent of our population is Asian or Asian American versus 4 percent for the rest of the country.

PANEL MEMBER WILSON: Was that the rationale for them doing that? Was it a problem of statistical power?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Oversampling?

PANEL MEMBER WILSON: For choosing, you know,

these three sampling categories.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

I can't answer that. This was begun in 1971 when I was still in school.

(Laughter.)

PANEL MEMBER WILSON: Oh. I was only 11.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

And I don't know the original rationale for the selection of those.

PANEL MEMBER SOLOMON: Can you tell us a little bit more about the information technology needs that were identified in this feasibility -- whatever it is -- FSR, Feasibility Study Report and, sort of the, you know, if possible, just a sort of general ballpark of the budget need that's identified there?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

It's a large amount.

(Laughter.)

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

But we're looking at on the order of probably several million dollars a year to get it up and running. And some of the issues that are -- or were addressed in this are being able to collect data, say, on laptop commuters -- commuters -- computers, and to have this data submitted electronically to the laboratories or to the

headquarters; to set up tracking systems for the samples when they're collected, have them bar coded, and to be able to have that tracking system interface with the laboratory information management systems; to redo the lab information management system that we have in the California Department of Public Health, and to have that interface with the LIM system, with DTSC; to be able to set up a data set that will have a variety of different levels of access or tiered access so the program staff and the public and researchers might have different abilities to access different degrees of the data set.

But if you'd like to read the FSR -- I don't know that that's publicly available -- but it's several hundred pages going into all this detail.

But it's a large amount of money.

CHAIRPERSON MORENO: All right. Dr. Culver, do you have a question?

PANEL MEMBER CULVER: Yeah. Michael, since CDC's already sampling in California, can you use their sample as a part of a state sample that you're planning to put together?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

We've discussed this with them. But it's been made pretty clear that if we want to have a sample that's representative of the State of California, that we would

not be able to use this sample that they currently get. For instance, they choose a sample that's meant to be representative of the country. And for their Hispanic -- to be able to fill their Hispanic quota for their survey, they've often come to Los Angeles, and especially East Los Angeles. So that the individuals selected there might not necessarily even be representative of the County of Los Angeles, but they do fulfill the need of the CDC to fill out their particular quota.

It's not designed to be representative for any state. And they will not -- I mean in terms of -- if we go through this cluster sampling process, we would not be likely to identify the same individuals that they would for their national sampling.

PANEL MEMBER CULVER: No, I understand that the CDC population that they sample is different than the California population distribution.

However, for example, they are sampling Hispanics. Can we use some of their Hispanics in our sample and some of their work that's already being done added to what you want to do in order to get a California representative population?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Okay. Well, let me put it this way. When Dick Jackson was a member -- well, he was former member of the

panel. And he used to be the head of the national Center for Environmental Health that runs that -- that does the analyses for the NHANES program. And when Dick was the former Chief Public Health Officer for California, he actually asked them if they would make some of these data available to us for this program, and they would not do so.

There are variety of I think political and ethical issues as well in terms of accessing the data. Although it may be possible to do some analyses of their entire data set, as Dr. Osterloh mentioned yesterday, at their data center. These are not data that they make available to the states. And I think it would -- we have discussed this with our colleagues at CDC. And I think maybe at the next meeting we can go into this in greater depth as to why this is not something that would be likely to be able to work.

PANEL MEMBER CULVER: Since CDC already is doing sampling in California, can we use some of their sampling technology and their sampling resources such as the trailers to do sampling for our program here?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

No. The trailers are not -- they're in constant use. They're traveling -- they come to a particular location, they set up, they do the sampling, they strike

it, they go to another location. They're in use constantly throughout the year.

One possibility logistically might be, that we've talked about at CDC, is to, you know, piggyback possibly some of the logistics, the field operations that we have with the people who do the field operations for them. But they won't do it for nothing. We would have to pay their contractors the same as we'd have to pay any contractor. So we'd be working directly for us. But that is a possibility.

OEHHA DIRECTOR DENTON: Michael, wasn't there an agreement with CDC and ourselves to do some kind in-kind support, training of staff on equipment? I mean wasn't there some agreement that we --

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Right. That's with another part of a CDC. That's with the National Center for Environmental Health with the laboratories. And, in fact, our laboratory staff, they can perhaps tell you about their visit back there a couple of months ago.

But there is an agreement with the National Center for Environmental Health to do some in-kind training and possibly to do a small number of samples in their laboratories. So that's correct. But not for this dimension of things, not for the field operations.

PANEL MEMBER BRADMAN: Michael, another area.

I don't think we should spend too much time on this. But of course the National Children Study is starting to go into the field. And within nine counties in 13 locations there's going to be something like 13,000 children enrolled in California. But I think the sampling strategies both in terms of biological environmental samples and identifying participants is very similar to what you're talking about. So I think there might be a model there that's going to be piloted soon that could help with some of this.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Yeah, we do intend to try to establish some linkage with the National Children Study. And to the extent that we are able to piggyback on some of the efforts there, that would be useful to do. But, again, this is something that requires resources to do.

PANEL MEMBER BRADMAN: Yes.

PANEL MEMBER QUINT: Michael, the bad news part of this -- the not-so-good news, as you framed it, not bad news, is that -- I see two things: One, the uncertainty about the budget in future years, which would somehow -- in some ways affect chemical selection if you're trying to look at trends over time. But also I guess my major question is, knowing what you guys know on

the inside about cost and uncertainty of the budget in future years, have you done some quick sort of assessment of what this means in terms of the number of chemicals or -- you know, because we're charged with, you know, the selection. And it sounds to me like, given the differences between California and nationally, we probably will sample more or additional groups. We have foreign born. I don't know if that means non-English speaking or just foreign born but English speaking, which would mean translations and all sorts of extra resources.

So have you any idea of, you know, what we're talking about in terms of, you know, just compared to CDC or some of the other programs we heard about yesterday, the diminished number of chemicals we're talking about --

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

The labs are going to address that in their presentation this morning.

PANEL MEMBER QUINT: Okay, great. Thanks.

PANEL MEMBER WILSON: I'm going to just pick up on that. It's sort of related to the first question, that it's -- and I want to get your sense. Trying to conduct a representative sample across the racial and ethnic spectrum of the State of California, if that in, you know, your discussions up to date is cost prohibitive and would put us into a position of, as Julia is saying, sampling a

very small set of substances just because of the potential scope of what you'd have to do to capture representative samples.

So I guess the question -- my question is, you know: What is your sense of where we're headed if we're really headed toward an approach that the CDC has taken, looking at sort of major racial and ethnic groups and sticking with that, or really trying to capture a proportional sample?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

So your question is?

PANEL MEMBER WILSON: You asked it as a question in terms of the sampling strategy.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Right. And I think this is something --

PANEL MEMBER WILSON: And I'm asking: What is your sense of where we're going?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Well, I think it -- well, there are two aspects of that. One is the budget and the resources. And I can't really make any predictions about that. I can say though that with the current set of resources that we have, if this is what we're going to be limited to going forward, that we will probably end up doing smaller community-based studies and not a statewide survey.

But I'm going to be more optimistic than that and say we're going to get some additional resources to do this.

And then the second issue really is the one that Doug Haines mentioned yesterday. You really have to decide what do you want to get out of this survey. Do you want to end up with just mean estimates of different chemicals and different groups of the populations? Or do you want to be able to make comparisons? Do you want to be able to look at, say, some of the determinants of exposures in different groups, for example, because we want to develop questionnaires that are going to be exposure related, to look at behaviors and different kinds of consumer product use and this sort of thing that may affect exposures?

If you want to have a more analytical type of program where you're able to make these kinds of comparisons, then you're going to be looking at the oversampling for specific racial and ethnic groups.

If you want to have a self-weighting sample, then some of the groups that would be included, like native Americans, for example, would be, you know, two dozen. And then you also have issues related to geographic coverage then too, because you're not going to have large numbers of native Americans or some of the other ethnic

and racial groups evenly distributed throughout the state. It's only in a few locations.

CHAIRPERSON MORENO: Dr. McKone, do you have a question?

PANEL MEMBER McKONE: Yeah. It's sort of to follow up on that.

I mean I realize what you're -- this gets a bit technical. But what you're really getting at is all these trade-offs among -- you know, do we want a median, which doesn't take a lot of samples, and then a lot of attributes. I mean the CDC goes for a fairly broad coverage of percentiles, which is why they restrict it to really just race, ethnicity, gender, age factors and no spatial characteristics essentially.

But another way to do is to really only focus on the median or some high percentile, and your confidence about that, which would take fewer samples, and include the geography, not as a random sample for coverage but as actually an attribute for comparison. And we could do an urban versus rural. So we could archetypal urban region, archetypal rural, maybe, you know, come up with a list, which is a much different approach. And this is where if you went that route it would be valuable to send someone into that closed room where you can look at the raw data. Because we did find out that they do collect, you know,

they do -- they set up two sites in California -- the CDC sets up two sites in California. And, again, I think you're correct. It's not a representative sample for California. But it's still loaded with a lot of information. Because they heavily oversample California because it meets their -- it's their best opportunity to fill their matrix of race ethnicity by age category without a lot of work.

So, anyway, one of the things we really have to talk about is shifting to very -- you know, actually, in a way, much smaller samples with lower power overall, but maybe target them to have high power on just one moment or one point of a distribution, so we could have some confidence just about compare median groups, and get a lot more diversity in that.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Yeah. Well, we have talked about this issue of trying to look at, say, urban-rural differences and geographic coverage, and also looking at sort of simpler descriptive types of statistics for this too. And these are all things that we've discussed and we wanted to go into in greater depth at the next Panel meeting.

But I think those are good points and they're ones that are worth delving into.

CHAIRPERSON MORENO: Dr. Lipsett, I was

wondering. You've mentioned a couple of times that there's some fiscal constraints that are playing -- have an impact on what is ultimately decided.

Do you or your staff, do you think you could briefly tell us what the budget situation is, how much initially the program expected in terms of revenues and how much you expect down the road?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

You mean how much we projected that the program would cost on an annual basis?

CHAIRPERSON MORENO: Um-hmm

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

We had estimated that it would be in the range of about 9 to $10 million a year.

CHAIRPERSON MORENO: And that would be to run it to what degree? A full program, or is that --

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Um-hmm.

CHAIRPERSON MORENO: Okay. And then what is actually budgeted for next year, say?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Between the three departments, it's about 1.6 million.

OEHHA DIRECTOR DENTON: Michael, when was the program to be fully up and running, 2010 or 20 -- what was

the requirement?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: We were anticipating that it would be like 20 -- I think the initial rollout was 2011.

Is that right, Diana?

CDPH RESEARCH SCIENTIST LEE: Yes.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: Yeah. Okay.

So it would be a five-year rollout is what the administration had asked us to do.

OEHHA DIRECTOR DENTON: And that was to be this slow ramp up of resources. But the issue -- the primary issue with this is that the funding source is the General Fund. And so we all know what the situation is with the budget. So we didn't get any increase funding this year. And, in addition, we had a 10 percent cut. And then, in addition, we don't know what the funding is going to be for the out-years. There's been some sort of, well, fiddling around with the budget inside the Legislature. But at this point in time it's General Fund.

So that's just to kind of lay out for the Panel. That's what we're facing.

PANEL MEMBER BRADMAN: When you say fully rolled out in 2011, do you mean a first report -- exposure report in 2011 or first in the field in --

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

The first full two-year cycle out in the field. I mean first year.

PANEL MEMBER BRADMAN: First year?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Yeah, yeah.

PANEL MEMBER BRADMAN: Okay.

CHAIRPERSON MORENO: Are there any other questions from the Panel?

No?

Okay. It's 9:45.

Thank you, Dr. Lipsett.

Now we're going to have an update on the laboratory capacity. And we did ask for an update on the laboratory capacity in December. And so this is in response to the Panel's request.

I'd like to introduce Dr. Peter Flessel -- Peter Flessel and Myrto Petreas.

Peter's with the California Department of Public Health. And he directs the California Environmental Health Laboratory. And that laboratory performs tests for metals and nonpersistent organics.

And Myrto is with the California Department of Toxic Substances Control, DTSC. And her lab performs analysis on persistent organic compounds.

And they'll be making a joint presentation.

(Thereupon an overhead presentation was Presented as follows.)

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: Hello, Panel members. Good morning. Thank you. You've discovered our first two slides.

Next slide please

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CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: Now, just to distinguish the two laboratories again in terms of our functions. The Department of Public Health laboratory, as Dr. Moreno said, will focus on metals and nonpersistent organics chemicals that leave the body quickly. We'll test most of the chemicals in our laboratory in urine, although we will test some metals in blood. In addition, we have the responsibility to process and archive the samples.

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: And the DTSC lab will be building on our strengths. We'll be focusing on the persistent organics, with chemicals with long half-lives that accumulated in the body. And we've done this for many classes of chemicals in the serum. And we plan to start with those type of classes.

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CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: The next slide please.

Michael mentioned some of our recent activities as far as staff in the Department of Public Health. We've managed to hire four and a half persons and two in DTSC.

We have arranged for a lab remodel, which will occur this summer. We actually walked through the laboratory the other week with the Department of General Services staff that's going to be doing it. And they're very optimistic that they can get the job done soon.

And both laboratories are in the final stages of procuring their testing equipment which we expect to be delivered in the summer or in the fall.

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: Well, out of the two DTSC staff, we have only hired one real person and she's here and I want to welcome her, Yunzhu Wang, chemist. And hopefully next week we'll select the second position. So we're getting there.

Now, in addition to meeting with the entire working group, we have formed the Laboratory Subcommittee and we have regular meetings. And we have focused on navigating the State procurement labyrinths in selecting equipment and visiting vendors together, selecting the proper equipment and helping with the process.

We meet and talk about methods. We want to align

our quality control, quality assurance with the two labs. And we also want to make sure that any transfer of data from in between the two labs is done securely and safely through our Laboratory Information Management systems and any kind of safety issues and quality control to go to coordinate.

We also visited the CDC lab back in March. And it was very impressive. We're very envious of their facilities and their capacities. We learned a lot.

We've -- first of all, we formed a lot of personal institutional relationships. So it's very good to know whom to talk to and who will be there to answer your questions.

We also got some good ideas about equipment, some small equipment that would greatly increase our throughput. In fact, some of the equipment that we were waiting to be delivered are some of this automation, sample preparation machines that will help a lot of throughput.

And the CDC's supposed to help us and have visits. We're going to send staff for hands-on training. I've changed methods, I've changed standards. They're very supportive. They already gave us all the methodologies. And we plan to send the first staff hopefully in the fall for hands-on training.

And now we're working on the development of an memorandum of understanding so we can solidify exactly what expectations are and the timelines for these things to happen.

Now, for the last point, both our labs are used to receiving samples either from a clinic for blood lead or from some field or hospital for epidemiological studies. And these are already, for example, blood tubes that we receive frozen and we stick them in the freezer and we pull them out as we need to and we do our methods and produce results.

But for this biomonitoring program we would need to test some other steps which are before the samples come to us. So that any of the steps, the shipping, handling, that do not compromise the samples, by the time we receive them they're way they have to be. So we need some real samples. And to do that we need some real people. And to do that we have to have approval from the Committee for the Protection of Human Subjects.

So we proposed a pilot study to test the laboratory components over the biomonitoring program for the convenience of the labs again. So this is only we need to get some people to give us blood and urine so our labs can not only process them in the field and send them to the labs, but test them, see what kind of ranges we

expect, because some of the chemicals that we may have in California may not be similar to CDC. And we need our labs to be prepared for the standards and the ranges for the instruments to make sure we don't have any problems on the real studies out.

So we proposed the pilot. And I'm very happy to say that on Friday I was in Sacramento and it was approved. So we should be -- when we're ready again -- when the lab is ready confidentially, we plan to have about a hundred people. And you're welcome to participate. It's confidential.

So when we're ready, we'll have some real samples.

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CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: We have to mention the challenges specifically regarding the laboratory. The Public Health Laboratory has no operating funds for such things as chemicals, standards, solvents, glassware, et cetera, after July 2008. So everything else that follows will be dependent upon having some operating funds.

The DTSC lab is below critical mass, with 1, going on 2 staff below the mass that's really required to sustain and fuel further progress.

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DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: So this is the reason we're here today. Last December you asked us what can we do -- what can the labs do with only the current resources? So by the time the program is up in the field, you've already said no more funding. What could we do when the equipment come and when we was ready to process samples?

And, also, what could the labs do if we had the resources we wanted for a fully implemented and funded program?

So the next slide.

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CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: This is basically the summary of our best guess what we could do when the program is launched. We put down 2012 based on the fact that we didn't get any funding this year.

There are two points to make before we go into the details of this slide. First of all, the testing capabilities that are listed there are only examples. These are chemical classes that we're interested in. But it's by no means the ones that we expect. I'd be surprised if we don't do metals, frankly. But these are just examples to illustrate the types of things that we could do at the two levels, current funding and full

funding.

The second point has to do with having you understand how complex the specimen management business is and how that in fact will with current funding will limit the number of participants per sample.

Now, you imagine how we started out. We started small. We're trying to develop our expertise as we go forward. So we managed to hire a few staff. We're fortunate in having some one-time equipment purchases. And we're in a position now to begin to establish and validate our methods.

Now, as a sort of next step is the whole process of the multi-specimen management program. A participant doesn't equal the sample. A participant will give us many -- several samples, certainly a urine sample, a number of blood tubes depending on the tests that will be run. When those samples come to the laboratory, they'll be logged in. Then they will be allocated for shipment to several locations, one to a private clinical laboratory to do various clinical tests, at least the creatinine and lipids for normalization purposes, as well as some other indices of cardiovascular and infection disease markers.

We will also be sending samples to the packaging and passing the samples on to the DTSC laboratory for their testing. And the same thing within our own

laboratory, sending the samples around to the different units in our lab to do testing. And then we'll be putting them away in the archives.

And then as you heard yesterday how special these samples are that programs that we heard from yesterday are often getting the samples back if there's something left over. For example, if we send Myrto a specimen for testing, we would typically send her twice as much as she needs so in case she has a problem testing it, she could repeat it. Well, suppose she doesn't. She typically will not have a problem testing it the first time. She'll have half the sample left. We'll get that back. So that means there's archiving coming back.

All of that is complicated. We have the LIM system that you've heard about, and then we'll be really customizing that to serve the needs of the program. But there have to be efforts put in, human resources, to make it work.

So if we were to take our current funding, DPH funding, 3 1/2 total lab staff, 1 1/2 million one-time equipment purchases, and then we could begin to test, say, three panels - metals, organophosphates, and phthalates, for example. We would have to divert laboratory staff in order to process and manage the specimens. As a result, we could not handle more than about 500 participants per a

two-year cycle.

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: Again, as an example we propose to look into the fluorinated compounds with our two staff. Now, we used to do the POPs, the persistent organics, the PCBs, the PBDEs, the pesticides, in serum. This is with extramural funding. And usually with one -- with one contract staff, that we already have, and some support from state staff, we manage 500 samples for a year.

So we could have managed -- the fluorinated are new. But apparently according to CDC they're more easy and a faster -- a more faster turnaround. So we could say that we can handle that. But, again, the limiting factor will be how many samples would we get from Peter's lab. So it's a vicious circle there.

Again, the fluorinated is the one that we propose to start with. But we have the capability, not the capacity, to do the POPs. So hopefully it will be easier to transition once we have more resources. We can transition staff, who are already trained and proficient, to produce immediately once we get the additional resources.

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: I like your optimism.

But you -- Michael responded to the question from

Dr. Moreno about current funding and full funding, being something like 1.6 currently, with 8 to 10 full funding. So that's reflected in the number of total staff that we would expect at full funding. In our department it would be 13 laboratory staff. We would request an additional infusion of equipment -- one-time equipment, so that the total laboratory budget for equipment purchase would be about 3 million. And with that we could add -- in addition to the metals and the OPs and the phthalates, we could do metals with speciation we could tell you whether it's organic mercury or whether it's inorganic mercury. We could tell you the organic forms of arsenic, for example. In addition, we would do -- for example, do perchlorate. That's interesting to everybody, including ourselves. PAHs we'd be very interested in, the Bisphenol A, and other organics panels to be defined.

We would be able to develop our comprehensive processing and shipping and archiving system. And so sample management would not be a limitation in the full funding situation, so that we could handle between 2 and 3,000 participants per two-year cycle.

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: So, again, similarly hoping to build up up to 11 staff all inclusive and a total of 3 million, which means another 1.8 million to get more equipment and more some

modeling of the lab to make more clean areas for that.

We hope at the time to propose to do the -- the panel will include the fluorinated, PBDEs, organochlorine pesticides, PCB congeners, and then the hydroxymetabolites of PCBs -- hydroxymetabolites of PCBs and PBDEs, phenols and other persistent organic who may be in fashion two years from now. We don't know. So we're open to other possibilities.

And, again, some chemicals are more elab -- are more sophisticated and more time consuming than others. That's how we say maybe with 3,000 participants from the field, we can do some of the classes on those. But for the more complicated ones, it will be a subset of maybe 2,000 every two-year cycle.

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CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: So in summary, the lab has made significant progress in hiring, renovating lab and -- the laboratories and buying equipment. The batteries are obvious. We lack operating expenses and DTSC lacks staff.

So that in thinking about this, current resources will allow testing for a very limited set of chemicals, maybe four classes of chemicals between the two laboratories.

And then to think a little bit about Mike's

question about, "Well, how many chemicals does that represent?" Probably 20 or 30 specific chemicals. In a small number of participants, perhaps 500 every cycle. That's limited by the number of -- the number would be limited by the sample management.

The full program would allow us to increase by perhaps a factor of four to six, the number of chemicals tested. So we'd be looking at maybe 20 classes in perhaps 100 to 150 specific chemicals. And the number of participants per two-year cycle would jump to between 2 and 3,000. So that's about where they are. Understand, that these are our best guesses. But those are probably ballpark correct.

CHAIRPERSON MORENO: All right. Well, thank you very much.

At this time, questions from the panel?

PANEL MEMBER QUINT: Yeah.

CHAIRPERSON MORENO: Ms. Quint.

PANEL MEMBER QUINT: I'm sure you've considered this and it's been tossed around. But a lot of the cost and what you're not equipped to do is all of the management of samples that have to be sent to separate -- sent in separate directions, you know, back and forth between the two of you, off to clinical labs, et cetera.

What is -- I don't know how the sample -- how the

tests are done. Is the blood or serum or urine frozen or is it fresh or -- there's a lot of these tests.

What I'm asking, I guess, to be direct, is can the division of the samples once collected from the participants, can that be done in the field and then somehow managed in different directions at that point and not come back to the lab and then off again, which would decrease -- and I don't know if there's some contracting system for doing that or how that's done. But --

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: The answer to that is some -- actually some of the sample separation has to be done in the field.

PANEL MEMBER QUINT: Right.

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: But the more energy intensive, work intensive work has to be done in the confines of a laboratory. A field clinic wouldn't be appropriate for opening and closing and separating a lot of samples. We wouldn't -- from a quality assurance perspective you wouldn't want to do that.

PANEL MEMBER QUINT: Right.

The other question I have is along the same lines. Since CDC is set up to do all this testing, is there a possibility of having some sort of contract with them? So once we collect the samples, instead of gearing

up to do the law -- I mean it's better for us to have the capacity to do our own testing. But one alternative to that -- and I don't know if it's cheaper -- would be to have us -- for us to expand that part of our program, number of participants, number of things we test, and then have the actual lab tests done back at CDC through some sort of a contractual arrangement. Is that possible?

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: No. We asked.

PANEL MEMBER QUINT: Okay.

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: Number one, it's too expensive.

PANEL MEMBER QUINT: Right.

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: And, number two, they don't have the capacity to do it.

But we are, I should tell you, exploring other options around at least some kind of contract testing, if it turns out to be feasible economically. We'll have to see.

PANEL MEMBER QUINT: Right.

PANEL MEMBER BRADMAN: I want to comment on that.

I think it's critical that California develop a laboratory infrastructure. I mean I've been starting 10 or 15 years ago going to meetings at EPA and everywhere.

And the biggest constraint on environmental health research in the United States right now is the lack of top flight laboratories. And one of the recommendations that have always come out of these meetings is we need regional laboratories. And I think this is the potential to develop those resources here in California, and that will be on par with CDC.

And there's going to be other benefits. For example, you know, local research studies, instead of sending their samples out of state, can be done here. And that will bring in additional resources for these facilities.

So I mean --

PANEL MEMBER QUINT: Well, you don't have to convince me that is important. I'm just trying to figure out how we can launch this program given the bad news about the capacity.

PANEL MEMBER BRADMAN: All right. And just to underscore what Peter's saying, we're involved in a similar project, and the issues are on QA/QC, and processing are very complex and extremely important. And, you know, anything I think we can do maybe as a panel to discuss later is what we can do to ensure that they get the resources they need to do it properly.

PANEL MEMBER WILSON: I -- oh, go ahead, Gina.

PANEL MEMBER SOLOMON: Oh, thanks.

PANEL MEMBER WILSON: Sure.

PANEL MEMBER SOLOMON: Just a couple things.

First of all, thank you for laying this out. It's super helpful. And it's great to see the thought that went into this and also the interagency collaboration that's reflected here.

And I was just thinking, it was almost exactly ten years ago when I toured the CDC labs, which at that point were in likes trailers and Quonset huts and they had buckets to catch the leaks from the ceiling. And they were, you know, in horrible shape budget-wise. And they've come along way and, you know, not necessarily in the best political and economic times. And so I think there's some hope to build there, though it may not happen obviously right away.

Two questions. One is about the discussion yesterday about looking at individual indicator chemicals. Like if we decided to look at one PAH instead of a whole panel, how much do you think that might -- you know, will that allow us to actually do those? Or do you sort of feel like, well, we still have to kind of tackle all the PAHs at once or not at all? Same thing for some of the POPs.

And also the other question is whether for each

of these chemicals or groups of chemicals you've sort of roughly costed out how much it would -- you know, what the price tag would be for each of these on our shopping list if we decided to add them in, so that we could sort of ask you that in the course of the meeting?

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: Well, I would say -- my response to the first question is -- for example, 1 hydroxypyrene for all the PAH. In terms of a market for PAH, it could be a reasonable market. The question then is, how much does it save you? Well, it would probably -- suppose you were going to do the whole suite, maybe there are 18 or 20 of them. Would doing one of them cost you 1/20? No, it would probably cost you half as much, because you're basically going to do the same tasks, because you're not going to do the QC and all the calibrations on all of the other 19. So it's not a simple algebraic relationship.

The second question having to do with -- say again.

PANEL MEMBER SOLOMON: Did you cost out each of --

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: Oh, yes.

Well, not in terms of dollars but in terms of PYs. In other words, when we sat down we said, well, here

are the staff we have. And we can assign this person, for example, to do a phthalates screen. This person could do a -- be our metals expert. This person could do the OPs. And we'd cross-train them, so on. So in that sense we could cost it out. But in our minds it's about taking the personnel resources and assigning them to tasks. And that's how we came up with these numbers.

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: In addition to this, I can share our experience with costing out some of these classes, because we've done it for proposals and so forth.

So if you do the PCBs and if you go to the first question. PCB 153 is a dominant. But in order to see that you have to separate from the rest.

So the duration of the run. I think cleanup is the same. You may save by not using the label -- the carbon 13 label standards for all the other PCBs, and they're very expensive. But, again, they don't save you too much. They save you some. You may not need to look at exactly the peak of PCB 138. But you have to make sure you separate it from 163. So you don't save much from that.

As far as costing out, because we have done this for PCBs and pesticides, we have a standard cost. And if you add the hydroxymetabolites on to the standard cost,

it's cheaper than if you were doing it individually. So a lot of it is nesters. So having the sample, having fractionated the sample, you collect one fraction that you can process later for the hydroxys, it's cheaper if you already have paid for the other fraction of the PCBs.

So it's more complex -- it's multi-dimensional how many assays do you add on to the package.

CHAIRPERSON MORENO: More questions?

Yes. Go ahead.

PANEL MEMBER LUDERER: I have a related question regarding costing out of assays. And that would have to do with the estimates that you gave us for the current budget and then for the fully funded budget, whether either of those would include the capability to, say, develop completely new assays, you know. And I don't mean for your lab -- you know, new to your lab but that have been developed elsewhere. But, say, yesterday we were talking about the siloxanes, which I guess there really aren't accepted methodologies to assay those yet. So would doing something like that be within any of those budgets, or is that something that would not be possible under those?

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: Not with this budget. This is capability and capacity of things that we know we can learn easily from

CDC.

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: On the other hand, if you had a wish list that contained a small number of these novel chemicals that nobody else has looked at, we could take on some kind of methods development project with a fraction of our resources. We couldn't make it main stream obviously. But we don't want to close that possibility out.

PANEL MEMBER WILSON: Just a comment and then a question. We're really lucky to have both of you at the helm of just this piece of the project. It's going to determine whether this whole thing sort of lives or dies in terms of the technical work in the laboratory.

And I want to -- my question is if -- this is a question that I was sort of pushing Michael on. Looking at current funding, if you have a thousand samples, what is the population size for which that's a representative sample? Do you have a sense of that? I mean if we're looking at -- sort of trying to answer this question of whether we're doing a statewide survey or really sort of community-based sampling, knowing that we can collect a thousand samples.

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: Hey, Michael?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Could you restate the question?

(Laughter.)

PANEL MEMBER WILSON: If we have a thousand samples -- so what is the population size for which a thousand samples in a biomonitoring program is representative?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: You're talking about a thousand samples per laboratory?

PANEL MEMBER WILSON: Well, no. Looking at the number that Peter and Myrto gave us, a thousand participants. With a thousand participants, what is the population that that would be a representative sample, in terms of numbers?

PANEL MEMBER BRADMAN: Five hundred.

PANEL MEMBER WILSON: Well, I thought there was 500 for each lab.

PANEL MEMBER QUINT: Five hundred a year.

PANEL MEMBER WILSON: Okay. I'm sorry. Good.

So we have 500 participants.

CDPH STAFF TOXICOLOGIST LEE: Over two years.

PANEL MEMBER WILSON: Over two years.

So do we have a sense of what the population size is for which that is a representative sample?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

No.

PANEL MEMBER WILSON: No. Okay.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

I mean you could potentially do some community-based studies with those numbers of samples.

PANEL MEMBER WILSON: But how big is that community?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

But if they're -- well, if we -- and it depends on if you're talking about like a geographic community or you're talking about a non-geographic community that, say, shares a common exposure or common health condition, something like that. But that would be a more appropriate number of participants for doing some of these smaller scale studies, which is what I was trying, I guess unsuccessfully, to convey before.

But if you're trying to have, say, well, a thousand or 500 participants that this is going to be representative of the state, no, that won't work.

PANEL MEMBER BRADMAN: Well, I think that necessary that -- at the lower level of funding we can't really fulfill the wish of the legislation. And if we can't fulfill that mandate, you know, I think that needs to be raised.

PANEL MEMBER WILSON: I think, yeah, we just need

to recognize that up front, as you've done very well here, that -- and I'm just trying to get sort of confidence bounds around the population size. And I guess we don't really know at this point, but it's a small population, something like that.

OEHHA DIRECTOR DENTON: Could you do a straightforward calculation. You had 2,000 for the statewide samples of what, 30 million people. So if you have 500 participants, then could you say it could be very representative of five million people? I mean you couldn't do that -- okay, so you can't do that kind of a --

PANEL MEMBER WILSON: I wouldn't think so.

It's probably specific to this technology.

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: I guess if we viewed this as Michael suggested, focus studies on community or some -- or piggybacking and collaborating on someone else's study. So that was another thing we thought as a pilot. Maybe the laboratory can benefit by using samples that someone else has already collected.

PANEL MEMBER WILSON: Okay. Thank you.

PANEL MEMBER QUINT: I have one sort of specific question.

Peter, you said in your panel that -- I think in

your -- the wish list with full funding, some volatile organics. But I think the CDC is measuring those in blood. And you could measure those in urine only or that include blood?

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: No, no. No, we would do it in the best specimen. We're going to do metals in blood. If we got to doing VOCs, I think we would discuss that, because there is -- there are different opinions. But a lot of VOCs have been done in looking at urinary metabolites. But I think blood would be the place, if only because CDC's doing it and they could help us.

PANEL MEMBER QUINT: Right, and we could compare.

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: And there are good reasons to do it in blood too, as you heard from John yesterday.

PANEL MEMBER QUINT: Right, exactly. Okay.

CHAIRPERSON MORENO: Dr. Denton.

OEHHA DIRECTOR DENTON: Just a quick question.

It seems like a real show stopper if you have no operating expenses after July. So what about that? I mean how does that happen?

(Laughter.)

OEHHA DIRECTOR DENTON: No operating expenses and yet we're going to do a pilot program? I mean how does

that work?

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: I don't know how it works.

(Laughter.)

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: Well, basically I'm still in denial.

(Laughter.)

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: We're all in denial. We can't imagine that that will happen. But we're half way through June.

PANEL MEMBER QUINT: Does that mean you're not in the budget in terms of operating expenses?

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: We're not in the budget as far as I know, certainly not through the BCP process. Things could happen in Sacramento.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Okay. I just wanted to explain a little bit why there are no operating expenses in the budget. And this is because we were instructed to submit serial sort of annual budget change proposals or recommendations for what the budget was. So for 2007-8, it didn't include operating expenses because the assumption was that it would take most of the year, first, to get obtain the equipment and to get it installed. Okay. And so we

didn't figure that -- the laboratories didn't figure that they needed to include additional operating expenses, you know, assuming that in 2008-9 that those would be available.

PANEL MEMBER QUINT: But you don't have guaranteed funding?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: Right.

PANEL MEMBER QUINT: But there's no funding?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: But that's why they're not -- they weren't included in the base budget, because we wanted to, you know, save money for 2007-8 and not include them, because we didn't think we would use them in '07-'08.

PANEL MEMBER QUINT: Right.

CHAIRPERSON MORENO: I have a question.

Is there any discretion within your department to move revenues for operating costs at the expense of another program? Is that an option?

Not something that staff wants to hear. But looking just for options, trying to --

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: Right. We'd have to look up for that, because there's nothing that we could do in the laboratory. We're already in the red in the rest of the lab. So we couldn't

take over here and move it over there in the lab.

CHAIRPERSON MORENO: All right. Any other questions?

If not, I want to thank our presenters. Thank you very much for the enlightening presentation.

And we're going to go ahead and break now at 10:15. And we're going to resume at 10:30.

(Thereupon a recess was taken.)

CHAIRPERSON MORENO: Welcome back. I'm going to resume the meeting.

I'd like to take the opportunity to ask Michael Lipsett to provide a little bit of clarification on one of the last questions asked before the break.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Yeah, thank you, Dr. Moreno.

This is with respect to the question that Mike Wilson had asked about the representativeness of what population with, say, a sample of 500. And I heard a comment from the audience as well that there was a lack of clarity with respect to whether we had actually done some additional calculations about whether with the current budget we could only sample 500 people or if that was based on the laboratory calculations alone. And it would be the latter. We haven't done any estimates about the sample size that we could get with the current budget.

But the other issue too is whether -- you were asking whether that could be representative of the state of, say, 500 people or -- and the answer to that for practical purposes is still no. But theoretically the answer is yes. You could have an estimate of -- you can develop statewide estimates with 500 or 200 or even 50 people. But the error bars around those estimates would be so immense that it would be -- for practical purposes it would be meaningless. And, in addition, you would have to be lumping together all the different kinds of age groups and race and ethnicity groups.

So for the purposes of trying to fulfill the legislation, it would not really be a very good representative sample. But theoretically the answer is yes. Practically, no.

PANEL MEMBER WILSON: Right. I guess the place where I get hung up is that the sample size is -- you know, the extent of power of the sample to represent the population is going to depend on the ability of the test to detect -- you know, if it's epidemiology, to detect the disease. And this is where I'm not clear in the science of biomonitoring how representative samples are developed. And so I guess it's something we have to work our way through. But what I'm struggling with is that's going to determine the framework for the direction that we go on

chemical selection. I mean it may be that we can really only do one or two counties if we can only do 500 subjects. Maybe we should focus on two counties, and that might determine the selection of chemicals.

But thank you for your comment.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Okay. Or we could think about other non-geographic communities such as a population of workers who are highly exposed or pregnant women or cord bloods or something like that.

PANEL MEMBER WILSON: Exactly.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Okay. Thank you.

CHAIRPERSON MORENO: All right. Thank you.

I also want to remind individuals in the audience that if you want to provide comments, which will be coming up shortly, please find the purple cards -- there's some up here at the table -- and fill them out and give them back to our staff. There's Robbie over there on your right.

All right. Let's see. At this time, we're going to have presentations on -- or, I'm sorry -- the next item on the agenda is: Possible Chemicals for Biomonitoring in California; in particular, Framework for Chemical Selection.

And I'd like to introduce Dr. Lauren Zeise. Lauren's with the Office of Environmental Health Hazard Assessment. And she is the lead for OEHHA on the California Biomonitoring Program.

And Lauren is going to give some additional information to this Panel for consideration. And Lauren is going to introduce additional staff for this presentation.

So thank you.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Thank you.

(Thereupon an overhead presentation was Presented as follows.)

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: So I guess we've just heard a budgetary framework for chemical selection. And I'm going to focus on the legislative aspects of it, and to set up the talks of the following presenters, who are going to reflect a lot of work that we've done to follow up on some of the suggestions from the Panel on this issue.

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OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: So, just to remind us of the selection process and legislation. There's a pool of chemicals called designated chemicals. And the

legislation establishes the CDC set as designated chemicals. But also additions can follow according to designated chemical criteria. And then from that designated chemicals pool, we have selections that follow criteria for priority chemicals for California. And then depending on feasibility and resources, we have the biomonitored chemicals.

And so these stars indicate where the panel comes in to make recommendations regarding designated chemicals and priority chemicals. And then also the Panel can choose, can agree to additional criteria for the priority chemicals.

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OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Now, in the legislation, the language around designated chemicals, in addition to some public health language, it says that it consists of only those substances including chemical families or metabolites that are included in the CDC list as well as any other substances, which that part of the language addresses those additions.

So I think it's useful to think in terms of, since we're getting these huge number of suggestions, to think in terms of chemical families and metabolites. And you've heard from the laboratory that that's also a

convenient way to think about how to design the sampling strategies.

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OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Now, at the last meeting there was a good deal of discussion about how do we get at what chemicals should we biomonitor for. And we talked about two tracks.

The first track was to ask and get opinions about what the important exposures are in California from the public, from industry, from state government.

And the second track was to really think pretty broadly about what we're exposed to, and to find lists and begin to methodically work through those lists to identify bad actors.

And we had a lot of discussion about that at the workshop yesterday as well in terms of this broader universe.

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OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: So action items coming out of the meeting -- the Panel's December meeting was one on Track 1 activities to get input on which chemicals to biomonitor:

We held a public workshop yesterday with major biomonitoring programs - the CDC's, the German, and the

Canadian programs.

We were asked to hold some public workshops, which we did. We held three workshops and three teleconferences, as you heard, in Fresno, Oakland, and Los Angeles.

And then also to ask other state programs. And we've had inquiries to programs; interviews with program staff, and you'll be hearing about that.

And then we also conducted a survey to ask industry and the public about what they thought should be biomonitored. And also as part of the workshops and teleconferences we did get a lot of input from various sectors.

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OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Now, with respect to Track 2 activities. I think we're seeing that this is a very difficult, large task; and that I think, given the resources, we really do need some further discussion on what does it make sense to do.

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OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: We were -- just go back. To remind myself coming out of the meeting last time, we had suggestions to ask the counties about their CUPA list.

But those lists aren't organized in any good way, and they're not electronic, many of them, and they're focused on emergency releases.

TRI chemicals, a long list. A bit of the same thing we're getting in terms of keys under the lampposts with some of these existing lists.

We have the CDC list; the DPR lists of chemicals through their use reports, which you have a copy in there; and the Prop 65 lists.

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OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: So we have started working through -- Sharon Lee at DPH has started working through the CDC list and categorizing the chemicals and looking up health values and so forth and indicating the endpoints. And this could potentially be expanded to other lists or lists of suggested chemicals coming out of our workshops, the Panel meetings, and so forth. And as we discussed at the last Panel meeting, we could add categories of persistence and bioavailability and other categories. But this is -- to really do this in a comprehensive way, it would be very difficult to do with current resources. And it's unclear how this expanded table would be used. So really further Panel discussion on this would be helpful.

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OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: So to return back to the chemical selection presentations, we're going to focus on the inquires from the public and from state staff through our workshops.

So we're going to have a presentation by Diana Lee at the California Department of Public Health, to my left, who's going to tell us about the workshops, teleconferences, Email and survey input on specific chemicals and chemical families that have been suggested.

And then Gail Krowech, next to Diana, from OEHHA, is going to update us and inform us about the input she got during interviews and other inquiries with state staff.

And then this afternoon, we'll get into criteria and ways of selecting that we heard about from the public and state staff.

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OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: So just a couple caveats. One of the things that the state programs and public where the focus was served: "What do you think should be biomonitored?" And we didn't really make clear distinctions between designated and priority pools -- chemical pools. That was

a little bit hard for people to take in, so we just wanted to focus on, you know, asking them clearly, "Well what do you think makes sense to biomonitor? What would you like to see biomonitored?"

And the next thing is I think, as you've heard from the resource discussion -- as you see with the resource discussion and from the presentations yesterday, we're talking about a phased program. And what we envision is coming back many times to the Committee and to the Panel to talk about chemical selection, that we expect this to be a recurring item on the agenda at Panel meetings.

So now I'll turn to Diana to make her presentation.

Diana Lee, Department of Public Health.

(Thereupon an overhead presentation was Presented as follows.)

CDPH RESEARCH SCIENTIST LEE: So I'll be basically providing an overview of what we've done with respect to public participation activities, and specifically the chemicals that could be included in the designated list.

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CDPH RESEARCH SCIENTIST LEE: So the activities that we've conducted, as Lauren has indicated, is in

response to the information we received at the December meeting. And we did do in-person workshops, teleconferences; we accepted public comment via Email and FAX; and we conducted a web-based survey. And all of this is in keeping certainly with the legislative mandate that we have to secure public input and participation in program design and implementation.

So the information we've gathered hopefully will help inform the decision-making processes of both the program staff as well as the Panel members.

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CDPH RESEARCH SCIENTIST LEE: Our objectives for these sessions included:

To receive input from the stakeholders on the selection of chemicals to be included in the California Biomonitoring Program; and

To disseminate general information about the program; and ultimately

To increase the understanding of biomonitoring by the public, thereby hopefully enabling them to become better involved in the program design and implementation. And, again, this is in keeping with the legislative mandate to provide opportunities for public participation and community capacity building.

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CDPH RESEARCH SCIENTIST LEE: So the content and the format of these workshops and teleconferences are actually provided in Tab 2. You have an agenda for the different workshops. But basically we provided a program overview and reviewed the legislation, program organization and framework, and a little bit about provisional timelines and milestones that the program hopes to accomplish.

We had a component -- a presentation by the lab staff in the workshops, and unfortunately we did not have that in the teleconferences because we had abbreviated time for the teleconferences. But the lab staff, Dr. Flessel and other lab staff, covered building laboratory capacity, for instance, in steps in developing chemical testing methods. We also, again, went over the process in the legislation for chemical selection, describing different classes of categories of chemicals possibly and again discussing how selection criteria could be used. A large purpose of the -- or a large part of the discussion of chemicals is really to orient the participants and others to taking the survey, the on-line survey, which I'll discuss in a few minutes.

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CDPH RESEARCH SCIENTIST LEE: So a little bit more detail about these workshops and teleconferences.

We've had -- the workshops were roughly four hours in length in three places in the state. And then the one here in Oakland was the best attended. And Dr. Quint and Dr. Solomon actually attended the Oakland one, and Dr. Moreno was able to attend the Fresno one.

We also had teleconferences. And this was certainly to enable people who could not travel to the workshops to participate. And you can see that we had 32 lines. More than one person was usually on these lines. So we don't really know for sure how many participants actually participated in the teleconferences.

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CDPH RESEARCH SCIENTIST LEE: From the teleconferences and workshops we had extensive note takers, who recorded mention of any chemicals, et cetera, that came up during discussion and were individually provided. So, as you can see here from the workshops and teleconferences, pesticides and metals came up most frequently. And the types of pesticides that came up were those included often in spraying of different communities. And certainly with light brown apple moth high in the news, for instances, and West Nile Virus and so on, we've received several comments related to pesticides used in those kinds of sprayings.

Also pesticides in relationship to different

kinds of health effects such as for children came up.

Metals came up often, certainly the heavy metals, lead and mercury. But also hexavalent chromium was mentioned several times. Again, metals often in relationship to the effect on children's health.

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CDPH RESEARCH SCIENTIST LEE: Several comments -- actually several comments of concern came about related to site-specific contaminants, and some in southern California as well as northern California. And, again, the chemicals were metals, radioisotopes, persistent organic compounds such as dioxins and pentachlorophenol.

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CDPH RESEARCH SCIENTIST LEE: When the lab session came up in the workshops, we received quite a few comments about detection methods, for instance, for specific kinds of chemicals. And certainly different kinds of biomatrices and kinds of chemicals that could be monitored in, say, cord blood, for instance, or breast milk or saliva or in hair and nails were also raised.

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CDPH RESEARCH SCIENTIST LEE: Overall we felt we accomplished our workshop objectives. And as you can see here, the bars -- the dark purple bars indicate strongly agree by the participants and the pink bars indicate

agreement overall. And for the most part, workshop participants found the content interesting, relevant clear, where they were able to make suggestions. And it certainly helped them understand the purpose of the program and overall biomonitoring in general.

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CDPH RESEARCH SCIENTIST LEE: We also received comments about chemicals or products via Email. I believe we received 12 submissions. And these are actually provided in full in your briefing binders under Tab 3. So this is a listing of the chemicals or product suggested that came out from these comments and submissions via Email or even hard mail.

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CDPH RESEARCH SCIENTIST LEE: So thirdly, the web-based survey. This was done through SurveyMonkey. And it was on line for roughly a month, during April and the early part of May. People wanting a hard copy could request that and was so provided. We also had hard copies available for participants at the workshops even. It was available in both English and Spanish. And there are mainly two parts that related specifically to chemical selection: One on criteria the program should use to select priority chemicals; and then categories of chemicals where they were asked to indicate their

importance.

And both open-ended responses as well as multiple choice responses were categorized.

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CDPH RESEARCH SCIENTIST LEE: So just kind of to put the perspective of who took this survey. Obviously this was not a random -- a representative population of respondents. And it was totaling by convenience. And we really truly thank every single individual who took the time to fill out the survey and indicate their preferences.

As you can see here, roughly a third of the respondents were from government, roughly 25 percent from nonprofit or community-based organizations, and a little less than a fourth just represented themselves as individuals.

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CDPH RESEARCH SCIENTIST LEE: There was a three-step process to filling out the survey. And we listed chemical categories rather than specific chemicals by name. We felt that this would be more familiar to people who chose to take the survey rather than listing specific chemical names.

For each category of chemicals, we asked which chemicals should the biomonitoring program measure in

Californians. And they were asked to rate them by importance. And then step 2, if they so chose to do so, they could list or describe specific chemicals for those that they indicated as being important or somewhat important. And step 3, they were -- respondents were asked to indicate their foremost important categories.

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CDPH RESEARCH SCIENTIST LEE: So an example might be, for instance, more pesticides used in or around the homes or schools, for example, to control flees, ticks, weeds or insects in the home or yard. So kind of a general description. Or chemicals found in personal care products such as, for example, cosmetics, nail polish, or shampoo, was how we worded the chemical categories.

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CDPH RESEARCH SCIENTIST LEE: So for those chemical groups rated as important or somewhat important, you can see that metals came up pretty important, as well as farm or agricultural pesticides and so forth down the line.

I believe chemicals from burning coal or gasoline, chemicals from industry or hazardous waste, they were rated not quite as important as chemicals in drinking water and chemicals in food. Obviously there's overlap in some of these categories.

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CDPH RESEARCH SCIENTIST LEE: With the open-ended response category, if they rated a chemical category important or somewhat important, they were invited to list or describe below in a box any specific chemical, for instance, in personal care products that the program should measure. Overall for all 14 categories, we received over 300 different chemicals or chemical types that were specifically named. And there were frequent repeats such as over 50 mentions of lead, mercury, phthalates and Bisphenol A.

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CDPH RESEARCH SCIENTIST LEE: For the most frequently mentioned chemicals, those in red listed on this slide here, are already included in the 2003-2004 CDC list, which is also included in your briefing binders. So the ones listed in blue were currently not included in that list but could be on future lists, for instance, that CDC is considering.

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CDPH RESEARCH SCIENTIST LEE: And for chemical classes, again the ones in red are currently on the 2003-4 list.

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CDPH RESEARCH SCIENTIST LEE: And, again, general

types of chemicals, these were the ones that were listed most frequently.

We are still summarizing much of this information. We hope to be able to have this to you in a formal report soon.

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CDPH RESEARCH SCIENTIST LEE: Okay. So the survey asked the respondents to "please tell us your foremost important categories." And this is exactly how it was listed in the survey, with number 1 being listed as the most important and number 4 being of less importance.

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CDPH RESEARCH SCIENTIST LEE: So rated in terms of all respondents listing number 1 -- their chemical categories under number 1, or most important categories, metals came up and chemicals in drinking water, chemicals in food, farm pesticides, et cetera.

Again, these are only looking at all chemical categories listed as number 1, most important category of importance.

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CDPH RESEARCH SCIENTIST LEE: If we take top 4, or the four most important categories cumulatively, it shows a somewhat different profile of chemicals in drinking water, chemicals in food being listed,

agricultural pesticides, and then followed by metals, chemicals in plastic, et cetera.

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CDPH RESEARCH SCIENTIST LEE: In summary, we feel that the public participation activities yielded very valuable information and contacts for the program, and we will definitely be continuing the dialogue with members of the public as we pursue other areas of program design and implementation.

I also want to comment that because the public workshops or teleconferences provided really the first opportunity for the program staff to convey information about the program, we received lots of very relevant comments also with other -- with relationship to other aspects of the program, such as sampling, for instance, or field operations. And they will be summarized as well. We chose to just restrict our reporting at this time to chemical selection. But many of those summaries will be again discussed at future meetings.

Common themes with respect to suggestions for chemicals again included metals, pesticides, chemicals that affect children, pharmaceuticals, hormonally active agents, and certainly chemicals that are persistent or bio-cumulative.

CHAIRPERSON MORENO: Thank you very much, Diana.

I also want to thank Lauren for her introduction to this part of the meeting today.

And at this time we're going to take a few minutes to invite the Panel members to ask some questions to clarify any of the information that's been provided to this point before we move on to the next presenter.

Yes.

PANEL MEMBER WILSON: Sure. Thank you, Diana. That was really interesting and informative. And it seemed to be focused primarily on the sources of exposure and substances of concern. But you did mention that there was some questions related to adult versus children or infants as the receivers of exposure.

Could you elaborate on that a little bit.

CDPH RESEARCH SCIENTIST LEE: Sure. Those kind of issues actually came up as we talked about criteria for selecting priority chemicals. And that will be further expanded upon this afternoon by Amy Dunn. So if you can hold on for that part of the summary those results.

PANEL MEMBER WILSON: Okay. Thank you.

PANEL MEMBER QUINT: Along those same lines, were there any questions, or did you query people about their health -- you know, chemicals as related to health concerns? Like were people concerned about cancer or developmental damage or reproductive effects. Or are they

just unknown effects of chemicals were basically their concern?

CDPH RESEARCH SCIENTIST LEE: We didn't ask a particular question about health effects. They could certainly raise it in kind of an open-ended kind of response. And when those things were raised, we took note of that. And certainly they came up in discussion, as we know again, like children and the effects of certain pesticides on neurodevelopment, for instance, came up several times. And certainly on pregnancy and reproductive development.

PANEL MEMBER QUINT: Let me sneak in another question here too.

I notice that you had one response in -- you said Spanish, 1.

CDPH RESEARCH SCIENTIST LEE: Right.

PANEL MEMBER QUINT: So did that indicate that only one person --

CDPH RESEARCH SCIENTIST LEE: -- one person chose to take the survey in Spanish.

PANEL MEMBER QUINT: Okay. Because when Michael presented statistics of what's different about California, the foreign born, 40 percent, really stand out. So I'm wondering what, if anything, we can do to tap in to people for whom not only our chemical names, you know, are kind

of foreign to everybody, but to sort of, you know, find out what's on the minds of people for whom English is not as comfortable a first language.

CDPH RESEARCH SCIENTIST LEE: We definitely want to do that. And for the workshops and teleconferences we actually indicated that translation in Spanish could be made available, but we had to have prior notification to make arrangements. And in Fresno we were able to do that.

PANEL MEMBER QUINT: Right.

CDPH RESEARCH SCIENTIST LEE: But, again --

PANEL MEMBER QUINT: And, plus, there's a lot of Asian languages --

CDPH RESEARCH SCIENTIST LEE: Oh, yeah.

PANEL MEMBER QUINT: You know, we just -- because we're different and we want to just kind of exploit those differences where we can through this process.

CDPH RESEARCH SCIENTIST LEE: Right. Again, these were some of the resources that we've been continually highlighting the need for.

PANEL MEMBER QUINT: I know, I know.

CDPH RESEARCH SCIENTIST LEE: And we definitely recognize the value of doing that.

PANEL MEMBER QUINT: Exactly.

CHAIRPERSON MORENO: Others questions?

Yes.

PANEL MEMBER SOLOMON: The radionuclides were rather a curve ball, and certainly would be from a laboratory perspective. And so I was wondering if you could elaborate a little bit on what the concerns seem to be around those substances, which ones in particular? Is this a community-specific issue or what?

CDPH RESEARCH SCIENTIST LEE: They came up mostly in respect to certain specific sites of concern for certain individuals, like Rocketdyne, for instance, or some other sites that are currently under investigation and cleanup. And it was kind of a laundry listing of chemicals or contaminants found at particular sites that have been submitted to the program for consideration.

I think specifically ones included -- Robbie, help me here since -- oh, Strontium 90 came up. Cesium I think was another one. Uranium.

Any other particular ones?

Radon came up. Radon came up a little, yeah.

Another one I think was highlighted as under "other" that I thought was really interesting was nanoparticles.

PANEL MEMBER QUINT: Was what?

CDPH RESEARCH SCIENTIST LEE: Nanoparticles.

Again, we didn't limit it to existing laboratory capacity. Although I felt very much though that the

presentation on laboratory capacity and so on in terms of methods development was very helpful to participants. And the comments that we received during that session were -- led people to ask very interesting questions about laboratory methods and kinds of things that could be done potentially. So stay tuned.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: If I could add. In the survey, just getting back to Julia's question with respect to particular endpoints. Asthmagens, mutogens, carcinogens endocrine disruptors, developmental and reproductive toxicants all came up multiple times.

CHAIRPERSON MORENO: Any more questions?

Okay. Lauren, you have another presentation?

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Yeah. So now Gail Krowech from OEHHA will make a presentation on what we heard and what she heard through interviews with state staff about what chemicals they think are important for this program to address.

(Thereupon an overhead presentation was Presented as follows.)

OEHHA STAFF TOXICOLOGIST KROWECH: Well, this was not a formal survey in any sense. And because of shortness of time, we decided to have informal interviews

and identified individual staff based on knowledge and experience in their fields who we could ask for input on chemical selection.

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OEHHA STAFF TOXICOLOGIST KROWECH: This is a list of the programs that were originally contacted. For the boards and departments I contacted several programs in each one. And often one contact in each program led to another. I also contacted through the Water Resources Control Board's recommendation two of their contract research institutes.

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OEHHA STAFF TOXICOLOGIST KROWECH: Contacted staff were asked if they'd be willing to receive a document by Email that explained chemical selection and -- the process of chemical selection, and asked for input on eight issues. And we also sent a list of chemicals that were biomonitored by the CDC.

This is the list -- approximate list of the questions. We asked what was of most concern to the program, what chemicals their program saw as an emerging concern, what chemicals addressed by their program did they think had higher exposures in California, were there chemicals that they felt important to biomonitor to assess program effectiveness, what chemicals as a public health

scientist did they think it was important to biomonitor. And we asked for information on exposure -- if they had any exposure data and any information on chemical markers.

We also asked questions about criteria for selecting chemicals to biomonitor. Amy's going to talk about question 8 this afternoon. And I'm going to talk about the three highlighted questions. I'm putting them together. In some cases I'll explain more what one program saw as an emerging concern. But many chemicals of concern were emerging concerns to one program and not to another. So it made sense to just put them all together.

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OEHHA STAFF TOXICOLOGIST KROWECH: Okay. The input from state staff. Most, but not all, contacted staff or colleagues from their program participated.

Input was primarily from telephone interviews. In some cases, contacted staff sought input from others in their group. And so what I -- what was reported to me was result of a group discussion or their pooled responses.

Some interviews were with two or three staff members where the initially contacted staff brought in one or two colleagues to talk.

I also received responses in writing. Some staff who I interviewed by telephone also sent in written comments. And some passed along the questions. And so I

might -- I received sometimes just a list of chemicals of concern, or one or two chemicals that they thought were important or in some cases a chemical marker.

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OEHHA STAFF TOXICOLOGIST KROWECH: So some general comments on the input.

Staff answered the questions in several different ways: Some in terms of CDC categories, some in general categories, some as classes of chemicals, and some as individual chemicals.

The chemicals groupings that are presented here reflect this input. And so there are many overlapping categories. Some chemicals could have been in more than one category. But in the interests of time and space, they're just in one space -- one place right now.

I've highlighted chemicals -- or categories that were mentioned by multiple programs but also tried to include suggestions from individual programs.

The final report of this will be comprehensive. But because of time factors, it's edited. Not every chemical that was mentioned is presented here.

And also in presenting the chemicals that were reported to me, the technical feasibility of biomonitoring is not taken into account.

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OEHHA STAFF TOXICOLOGIST KROWECH: This is the list of the frequently mentioned CDC categories. And they were frequently mentioned. Phthalates, polybrominated diphenyl ethers, perfluorinated compounds, pesticides, metals, and polycyclic aromatic hydrocarbons were all mentioned by a wide range of programs. And I'll be coming back to most of these categories with the detailed input that was received.

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OEHHA STAFF TOXICOLOGIST KROWECH: There were other frequently mentioned categories: Endocrine disrupting chemicals, air contaminants, solvents, and nanoparticles.

Nanoparticles was again an area of great concern. It was mentioned repeatedly. And nanoparticles in personal care products were mentioned often as well.

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OEHHA STAFF TOXICOLOGIST KROWECH: A few specific chemicals were emphasized by several departments. So I wanted to put them out here. The diamond indicates that it's a chemical -- a class of chemicals on the 2003-2004 CDC list.

Bisphenol A and perchlorate were both mentioned. It's important to biomonitored by staff from a wide number of programs.

Triclosan and triclocarban were both singled out by respondents who didn't necessarily offer many chemicals that they thought were important, but they offered these as well as other staff who included these. And basically they wanted me to know that they were important products in hand soaps, carpets, and clothing.

And also as part of the comments that I received, there was a summary of a report on triclocarban that showed that it is not removed in wastewater treatment. So it's accumulating in municipal sludge.

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OEHHA STAFF TOXICOLOGIST KROWECH: Okay. So I'm going back to the classes that I previously mentioned now.

These are the phthalates that were recommended to us. The ones that are prominent in indoor air were primarily prominent in car air. Of the other phthalates, DINP and DIDP are replacements for -- they're substitutes for DEHP. And their use in production has been increasing over the last few years.

Several staff expressed great concern about the non-phthalate plasticizers and the phthalate replacements. So I've just included two examples of non-phthalate plasticizers, the class of adipates. And that's DEHA. And it is used in the PVC film. It's a food -- you know, food contact film.

And DINCH, which is a new phthalate replacement, just approved by the EU. And apparently it's -- you know, it's purported to be very safe. But there aren't any publications in the open literature on it. So some staff were concerned about that.

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OEHHA STAFF TOXICOLOGIST KROWECH: Now, PBDEs were mentioned just about by every staff member providing input. And this was the list that we received of PBDEs found in indoor air and dust

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OEHHA STAFF TOXICOLOGIST KROWECH: There was also a lot of concern about other flame retardants and PBDE replacements. As most people here know, penta and octaBDE were banned. And so there are new flame retardants taking their places.

Among the ones that were suggested for biomonitoring are tetrabromobisphenol A and hexabromocyclododecane, which are high use brominated flame retardants.

Bis(2-ethylhexyl)tetrabromophthalate is the primary replacement for pentaBDE in polyurethane foam, and does not appear to have any toxicity information available on it.

Chlorinated flame retardants were also mentioned

of concern. And I'll just mention that the bottom one on this list, which has been called chlorinated tris, it is also a primary replacement for pentaBDE in polyurethane foam, and it's been shown to cause cancer in animals.

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OEHHA STAFF TOXICOLOGIST KROWECH: Metals were again prominent on most people's lists. And most of the chemicals of greatest concern are being monitored on this CDC 2003-2004 list. Those that weren't were manganese and chromium VI. A lot of people were concerned about chromium VI. And I guess with that there's the question of difficulty in trying to biomonitor it.

Other suggested chemicals, some of them are included here. And I just want to point out two things. One is that when I do finish the report, I'll include the reasons that people nominated them. And some people submitted, you know, small, you know, basically reasons why they felt it was so important. So I want to include that.

Vanadium was suggested by the CDPH Drinking Water Division and also ARB. And I thought this was interesting, that ARB basically told me that vanadium pentoxide, which is a Proposition 65 carcinogen, is now being used as a catalyst for diesel admission control technology. So there might be more exposure through that.

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OEHHA STAFF TOXICOLOGIST KROWECH: Pesticides were very, you know, of concern to a wide range of programs. Of the organochlorine pesticides, all of the legacy pesticides on the first line were nominated by various staff members.

The DDTs I was told are one of the four prominent contaminants in fish in southern California. So still very important.

The current use organochlorine pesticides that were nominated -- or suggested are endosulfan and dicofol. Both were shown to have an association with autism in a recent study.

There were many concerns about organophosphate pesticides and pyrethroid pesticides. Pyrethroid pesticides are coming into greater use now because the organophosphates are no longer available for home use or yard use, and so there are many more pyrethroid pesticides.

Fumigant pesticides were the greatest concern of DPR. And I was told that California is one of the two states with the highest use of fumigant pesticides. The other one's Florida.

The first one on -- the first pesticide on this list, DBCP, is banned. It's been banned since 1979. And

it was mentioned as a water concern.

The other ones on the second line here are current use pesticides.

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OEHHA STAFF TOXICOLOGIST KROWECH: And here are some more pesticides, fungicides, herbicides, other pesticides that were suggested for biomonitoring.

Two pesticides were mentioned as possible emerging concerns, the fiprols and neonicitinoids. The fiproles -- let's see. Fipronil, which is in the flea and tick control in I guess FrontLine is of that class. And neonicitinoids are used -- or gaining use as household pesticides.

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OEHHA STAFF TOXICOLOGIST KROWECH: Okay. Many staff from multiple departments named endocrine disruptors as chemicals that would be important to biomonitor, without naming specific chemicals.

So just to sort of pull everything that I mentioned before together, below is a list of chemicals that I've already mentioned that are endocrine disruptors.

And this is a list of some of the other endocrine disruptors that were named by staff, not necessarily named as endocrine disruptors, but in general they were named. And I was told that they were endocrine disruptors.

PCBs were suggested by several staff. And one staff member basically told me in terms of fish, it's one of the two most important contaminants in the state.

Parabens, widely used as preservatives in cosmetics and toiletries and pharmaceuticals, were mentioned.

Artificial musks in fragrances.

Methyl siloxanes were mentioned by several staff. I think it was mentioned yesterday that they were used in plastics. They're also used heavily in consumer products. And D5 is either being used or considered for use as a replacement for perc in dry-cleaning.

Sunscreen.

Nonylphenols and nonylphenol ethoxylates, which are surfactants, were mentioned.

And phytoestrogens.

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OEHHA STAFF TOXICOLOGIST KROWECH: Staff from many programs were concerned about contaminants in air. And traffic-related air contaminants were mentioned repeatedly, as were PAHs. I'm just going to mention three PAHs now:

Naphthalene, in addition to being a product of diesel and gasoline consumption, was nominated because it's a significant component of paving and sealing

material for parking lots. And over time it is released into the air.

1-hydroxypyrene, it's been mentioned before, was suggested as a marker for PAHs.

A nitro PAH was suggested. 1-nitropyrene is a good marker for diesel particle exposure.

A number of volatile organic compounds were mentioned.

And others: Asbestos and crystalline silica were of concern.

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OEHHA STAFF TOXICOLOGIST KROWECH: There was, as I said, wide concern about diesel exhaust, including particulate matter, and gasoline exhaust and vapors.

These are individual fuel-related pollutants that were suggested. There are multiple sources for many of these pollutants. I'm just putting them all here as a place to put them.

And also a biodiesel exhaust was suggested as an emerging concern.

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OEHHA STAFF TOXICOLOGIST KROWECH: Indoor air concerns.

Okay. I've mentioned the phthalates and the PBDEs. We also received a list of PAHs that are of

concern in indoor air and a list of VOCs that are of concern in indoor air. And cotinine was on a list earlier.

Of the others, acrylonitrile is a concern in indoor and outdoor air and was mentioned both by indoor air and by several people working in outdoor air concerns. Preliminary information on this suggests that it comes from car interior materials, possibly hoses and other products under the hood and some household products and building materials.

Formaldehyde and acetaldehyde are also of high concern in indoor air. And it was suggested that formaldehyde might be decreasing, basically because of some new regulations and push towards more green building. Acetaldehyde has been increasing. And no one is quite sure where it's coming from. It's suggested that perhaps it's used more as an alternative to other chemicals that's being used in a wide array of products right now.

Triclosan and other antimicrobials were mentioned before.

Also terpenes were suggested as chemicals to biomonitor. These are used in degreasers and have that nice orange and lemony smell. And they react with ozone present inside to form formaldehyde and ultrafine particles.

And, again, nanoparticles are a concern. And it was suggested to biomonitor for titanium dioxide and silver oxide as a marker for them.

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OEHHA STAFF TOXICOLOGIST KROWECH: This is a combined list of solvents and VOCs. Some staff named solvents as a concern. There are solvents that were respiratory solvents. Solvents in household goods were mentioned. Some staff named VOCs and some suggested individual chemicals. So they're all on this list here.

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OEHHA STAFF TOXICOLOGIST KROWECH: Other suggested suggestions for biomonitoring were water disinfectants and disinfectant by-products.

I'll just point out that chloroform was also one of the indoor air problems or concerns mentioned from filling up the bathtub, from showers, from dish washers.

Also haloacetic acids and NDMA and chloramine.

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OEHHA STAFF TOXICOLOGIST KROWECH: Other concerns in water and food. Pharmaceuticals and personal care products were mentioned by a number of staff.

Nitrates were of concern, particularly to the birth defects monitoring unit.

1,4-dioxane was mentioned. I think it was

mentioned yesterday how it's in some personal care products. I was told something entirely differently, that it actually is a solvent stabilizer. And so it was used in a small amount with some of these other solvents like perc and TCE. And so it contaminated the soil. As they've been cleaned up or basically have disappeared, you know, somewhat, 1,4-dioxane is concentrating. And so it's a groundwater problem. And in some areas -- I don't think in California, but in some areas it's a drinking water problem at this point.

MTBE and microcystin were also mentioned.

In food, concerns were dioxins and furans.

Growth hormones and pharmaceuticals from animal sources. It was commented that nobody really is paying any attention to what is -- you know, basically what we are receiving from them.

Acrylamide. Again, acrylamide also some information from indoor air people. Acrylamide was seen in indoor air in a couple of studies.

And caffeine was also suggested.

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OEHHA STAFF TOXICOLOGIST KROWECH: So, in conclusion, some chemicals -- certain chemicals or classes were a concern across many programs. Some staff identified chemicals that may be emerging concerns. And

that includes exposures to chemical alternatives such as PBDE and phthalate replacements and methyl siloxanes.

There's new data pointed out about persistence, bioaccumulation, and toxicity.

And I will be putting together everything that I've heard on some of the other questions as well in the report.

And, lastly, I would like to acknowledge and thank state staff who very generously offered their suggestions, thoughts, and time.

CHAIRPERSON MORENO: All right. Thank you, Gail, for that presentation.

And on behalf of the Panel, I'd like to also thank all the state staff that are here. And if you can go back and share with the people -- the agencies you come from. Thank you for your participation and the time you're taking to help us.

All right. Questions from our Panel members.

Let's start here on the right.

PANEL MEMBER McKONE: I'm curious that out of all these people, nobody mentioned the perfluorinated-type compounds, PFOS, PFOA. Or were they --

OEHHA STAFF TOXICOLOGIST KROWECH: Yes, they did. And it was --

PANEL MEMBER McKONE: Because they certainly were

of interest --

OEHHA STAFF TOXICOLOGIST KROWECH: No, it was on my list -- the first list I had of CDC categories that were mentioned most frequently. I didn't come back to it, because I didn't really get specific information from people. I mean sometimes people said PFOA or PFOS or fluorotelomers. But I didn't get the names of specific chemicals. And I should have mentioned that was the only one of that whole class that I didn't come back to.

PANEL MEMBER McKONE: And then the other -- the people who mentioned biodiesel, what did they have in mind as a biomarker? The additives --

OEHHA STAFF TOXICOLOGIST KROWECH: I don't know.

PANEL MEMBER McKONE: -- that might go into it or some comparable --

OEHHA STAFF TOXICOLOGIST KROWECH: I can go back and ask those people --

PANEL MEMBER McKONE: I mean biodiesel it's hard to think of a biomarker then anyway.

Well, there are some diesel particle biomarkers. But biodiesel particles might be quite different, so I don't know if anybody's even posed a biomarker.

OEHHA STAFF TOXICOLOGIST KROWECH: There were a couple of people, and I can go back and ask them.

CHAIRPERSON MORENO: Have a few more questions on

this side?

PANEL MEMBER SOLOMON: I'm really impressed. That was really -- I think that's super, super helpful. So thank you and thanks to all of the staff that participated. It's amazing. Because it sort of does a lot of our work for us. We've got a lot of options laid out here.

I don't know if my question is best right now or if it should be saved till later, because what I'd actually like to do is ask some of the lab staff to comment on some of the chemicals that are sort of more emerging ones, particularly triclosan and triclocarban.

Where's Myrto?

Whether -- oh, there you are.

You know, whether there is a method available for those, how difficult it would be to add them. Same for some of these interesting flame retardants like tetrabromobisphenol A and the phthalate-like flame retardant and the chlorinated tris, all of which would seem to be a good sort of fit for the direction that the DTSC lab, you know, is going and sort of for some California leadership on some of these issues. So I want to know how big a reach it is from a laboratory perspective.

But should we hold that until a little later on

or --

CHAIRPERSON MORENO: We're going to Try to break at 12. We still need some time for public comment. But it's fine if the Panel wants to get a little more information right now.

CDPH RESEARCH SCIENTIST LEE: Triclosan is actually on the 2003-2004 CDC list. So they must have a method, and probably that --

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: Yes, Diana. I said many of these are already on the CDC list and their methods. Many of them are similar to things that we already do, so it would be an easy expansion towards them. But we haven't done it yet. It is possible with resources.

(Laughter.)

CHAIRPERSON MORENO: Dr. Quint.

PANEL MEMBER QUINT: I had a question. Some of the emerging and replacement chemicals, it's not clear to me whether or not we have toxicity data. You mentioned in some cases that we didn't know anything about them. So I think one of the limitations possibly for us would be -- I guess the question is whether or not state staff have recommended to NTP or anybody that these chemicals be tested if that's, you know, appropriate. I don't know if they're considered reproductive developmental toxicants or

what. You know, because it is a valid concern, you know, to question whether or not these replacements are safe. But in terms of biomonitoring before we engage in lab procedures or stuff, I think we'd probably want to know a little bit more definitively what the tox data are for some of these things.

So that's a question I'd have about some of the new replacement and emerging chemicals.

OEHHA STAFF TOXICOLOGIST KROWECH: Okay. Of the ones that I mentioned, the new replacement for penta -- (2-ethylhexyl)tetrabromophthalate is the one where there's nothing -- there's no information about it. Tetrabromobisphenol A and hexabromocyclododecane, there's a lot of toxicity information. For hexabromocyclododecane there are studies that are very similar in terms of developmental -- neurodevelopmental effects in animals, the same as PBDEs. And I know that tetrabromobisphenol A also has thyroid effects. So I think those two are pretty well known. They've been around for a long time. They're not necessarily really replacement chemicals. They're just I think coming into higher use right now in the United States.

PANEL MEMBER QUINT: Okay. And none of these are we familiar -- are any of these on the OEHHA list of any kind, any sort of notice for these, do we know?

Anyway, you don't have to answer that.

Tris is.

OEHHA RESEARCH SCIENTIST HOOVER: Gail, isn't it -- this is being tracked as a carcinogen. There's evidence of -- Sorry. Sara Hoover, OEHHA.

They're not listed. But that one is being tracked and is definitely I think a reasonable candidate to be listed. And we'll see.

PANEL MEMBER QUINT: Right. And of course native paraffins, which is a replacement for PBDEs, which is being used in Europe. And there's a lot of concern in Europe about chlorinated paraffins. And I know you have one chain link type on your Prop 65 list.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

I also wanted to respond briefly to your comment about the lack of toxicity data.

If you have a compound like tetrabromo DEHP where we have plenty of reason to be concerned about the non-brominated compound. And we have -- I think the halogenated flame retardants in general, virtually every one that's been tested for any kind of toxicity has shown some sort of effect in terms of developmental toxicity, endocrine disruption, carcinogenicity that the lack of toxicity data for a specific chemical where you have a lot of reason to be concerned toxicologically I think should

not be an impediment actually trying to look for it -- to --

PANEL MEMBER QUINT: No, I'm certainly in agreement with going with chemical classes. That would have saved us a lot of time in the past. But I just want to make sure that we have that before we start down the path. It's harder to argue for if you don't have the data.

CHAIRPERSON MORENO: Dr. Wilson, you had a question?

PANEL MEMBER WILSON: Yeah, a question and a comment.

First, question was if the CalOSHA Research and Standards Unit and/or the HESIS staff were interviewed as part of this on the occupational health side?

OEHHA STAFF TOXICOLOGIST KROWECH: The Occupational Health Branch discussed the questions as a whole, as a group. And then one person got back to me. So it was -- I received a group discussion -- a group report.

CDPH REPRODUCTIVE EPIDEMIOLOGIST FENSTER This is a --

CHAIRPERSON MORENO: Could you introduce yourself.

CDPH REPRODUCTIVE EPIDEMIOLOGIST FENSTER: Laura

Fenster from Occupational Health Branch in the Department of Public Health.

CHAIRPERSON MORENO: Okay.

PANEL MEMBER WILSON: So that included CalOSHA?

CDPH REPRODUCTIVE EPIDEMIOLOGIST FENSTER: No, not CalOSHA.

OEHHA DIRECTOR DENTON: You need to use the microphone. Our court --

CDPH REPRODUCTIVE EPIDEMIOLOGIST FENSTER: We weren't charged with asking for CalOSHA input. But we certainly could work on that I think. There are physicians, as you know, in the Occupational Health Branch that do serve on the Standards Board, and people are active. But we didn't do that formally. We could do that.

OEHHA DIRECTOR DENTON: Would you re-identify yourself.

CDPH REPRODUCTIVE EPIDEMIOLOGIST FENSTER: Hi. I'm Dr. Laura Fenster. I'm a reproductive epidemiologist and I work in the Occupational Health Branch in the California Department of Public Health.

PANEL MEMBER WILSON: Thank you.

Yeah, it seems to me that would be really important.

And the second is a comment. If it's possible --

I'm interested in sort of the weighting of how the staff from the different departments, how many of them identified endocrine disruptors, for example, as a problem, or any of the other ones listed here. And I don't know if it's possible from the way that you gathered the information to tabulate that.

OEHHA STAFF TOXICOLOGIST KROWECH: It's possible to look at it that way. I think the problem was that sometimes people said endocrine disruptors. Sometimes people name specific ones. So I'd have to, you know, figure out the best way to handle that.

PANEL MEMBER WILSON: Yeah. Do you see the -- my intent here is to try to weight some of the responses.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

And it might be possible to do that. I guess I'm a little concerned about taking a lot of time to go through this effort. Because, as Laura just mentioned, some of these were the results of group discussions of quite of number of people, where one individual comes back to Gail for that. So she doesn't really know how many people were involved in coming up with a specific recommendation, say, for endocrine disruptors. But they were mentioned very frequently by the staff that were contacted in almost all the agencies.

PANEL MEMBER KAVANAUGH-LYNCH: I think related to

several of the questions that have been asked, these were great summaries and really helpful. But -- and I think what would be very helpful to me -- and some of it is, in terms of understanding weighting or understanding more of the issues behind each of them, is actually seeing reports that are more detail of the actual comments that were collected. Do have an estimate on -- I assume that's in the works.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: We worked very hard to get you the reports for this meeting. But we just weren't able to accomplish it. So that we hope by the next meeting you will have reports. But, again, it really takes a lot of staff work to do this. And we are affected by resources along with the lab. So we are trying. But we hope by the next meeting to have reports.

And you do have materials in your binder as well. But, again, we are looking forward to getting you reports.

CHAIRPERSON MORENO: Yeah, go ahead.

PANEL MEMBER SOLOMON: I actually just wanted to comment on what the -- you know, sort of how we will potentially be using these reports as a committee. Because I see them as a really, really useful way of sort of casting a wide net and bringing in lots of ideas and input. I'm not sure that we want to, you know, get -- how

much we can really squeeze out of these surveys in terms of detail, because in the end we're going to be having to make the decisions. We're not actually looking to the folks who are surveyed to make the decisions. And so it's not really a vote or, you know, we're not going to be going, well, it was actually 74 percent of people said that this is more important than that, you know, where only 68 percent said it's important, so therefore we should put this on the list and not that.

So I think we've got a lot of what we need right here. It will be interesting to see the written reports. But I do want to sort of put a little caution about like weighting, you know, not going ahead with what we've heard so far and postponing too much for more details.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Yeah, I do want to say that that is sort of what we had in mind as we undertook these processes. We would have done things differently if we wanted to come up with weights. It would have been a different process.

PANEL MEMBER QUINT: I think one of the things, having worked in the state, that's important that you did in the first phase of this or what you've collected already is tapping into the minds of state folks who deal with these public health issues surrounding these

chemicals. So for me what's important is not only what they listed and said was important but what -- do they think some public health action they took has not -- you know, they want to know if that's been, you know, successful or whether or not they have proposals for public health actions around some of these chemicals, because that's really important too. That will help us decide if we're trying to be strategic with little resources or, you know, the dwindling resources as to what to focus on. It would be very nice to get the wisdom of the state staff who participated as to what they think could be done, what they would like to see done, or what they've been disappointed that hasn't happened in addition to concern about the emerging replacements, which I think is a real big concern.

So I don't know what you were planning to put in the report. But just something simple about why they put it on and what they think was important about it would be really helpful to me.

CHAIRPERSON MORENO: If I may. It sounds like what I'm hearing here is that you've been working on a report and there's some information that would be I guess in a summary format for the Panel but there's also some information that the Panel members would like to see in the report. So maybe just -- could you take a minute and

tell us how you plan -- your intention for formatting that report for our use.

OEHHA STAFF TOXICOLOGIST KROWECH: Well, the way that I was actually putting this together was basically a summary of the chemicals that were suggested and basically going by program, not the individuals in the program, but the program, for instance, Occupational Health Branch as one program that thought X chemical is important and sort of -- just to give a sense. But I really felt that many of the people that I talked to -- and I didn't mention this before. But altogether I talked to or got written input from over 50 people. And some of those were, you know, group responses. So I think there were a number of people who were involved in this. But I didn't give them a list of chemicals and say this is -- you know, "which ones do you think" -- "if you chose biomonitoring, which ones are really important?" And so I think I got something about what was on their minds. But I didn't -- you know, I don't think that a certain chemical should be less important because it wasn't mentioned by, you know, one program, because maybe others were on their minds much more at that time.

So I think it's -- it's a little tricky to write a report, you know, as what was most -- you know, in total what was most important.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Yeah, all this meant though -- this may be stating the obvious. I mean when she talks to somebody from the Air Resources Board, they're not really going to be too concerned about personal care products from a programmatic standpoint, surprisingly, I mean from the cosmetics -- from cosmetic -- for dermal absorption. I'm sorry. But they're interested from the -- each one of the programs is going to be focusing on different things depending on what their program mandate happens to be.

Yeah, so that makes it difficult to try and think about weighting them about, well, how come everybody didn't mention X or how come everybody didn't mention Y, is because it may not be part of their jurisdictional mandate, and they're looking at it from a programmatic standpoint

PANEL MEMBER WILSON: So, yeah, I sort of framed my question around if the data were collected in such a way that they could be weighted. And it seems that that's not really the case, that you have sort of an impressionistic sort of assessment and that will be valuable -- I mean we can use that. It will be valuable.

So I don't mean to put you into a box that you can't climb out of.

PANEL MEMBER KAVANAUGH-LYNCH: But I'll say

that's in a way why this summary is a little difficult, because of the awareness that there is a certain element of haphazardness about it. And so what interests me more is some of the background behind why some of these were mentioned rather than sort of a summary of, okay, here's the list of every chemical that was mentioned by anybody.

OEHHA STAFF TOXICOLOGIST KROWECH: No, I was writing a summary that included why it was mentioned and any details -- for instance, what I said about vanadium, that, you know, someone had taken the time to tell me this might become more important in the future and this is why it's of concern.

CHAIRPERSON MORENO: Well, it's ten till. And I understand we'll have a little bit more time after lunch to discuss this topic -- continue this discussion or any other topic of interest. And with the last ten minutes I wanted to go ahead and open this up for public comment.

And I have, is it two cards? Maybe a few more?

Okay, thanks.

Okay. We have a few.

All right. We're going to go ahead and take the 30 minutes.

There's two -- on these cards you provided your names and then there were -- there was number 1 you could check, that you wanted to give comment for possible

chemicals for biomonitoring in California; and number 2, approaches for identifying priority chemicals for biomonitoring in California.

And, Lauren, if I understand this, this morning we'll take comments of those who checked number 1; and we'll hold on to the purple cards that they checked number 2 for comments this afternoon.

So we'll go ahead and start taking a few.

Is Davis Baltz here with Commonweal?

MR. BALTZ: Dr. Moreno, members of the Panel. Thank you for the opportunity to comment. I'm Davis Baltz. I work with an NGO called Commonweal in Bolinas, California, with a long-time interest in biomonitoring.

I want to start and just offer also my congratulations to all the staff who worked on this program. I've talked with many of them over this first year of funding. And I think you heard from the reports today there's been great strides made in hiring staff, purchasing equipment, and involving the public in getting involved in this important program. And I can say that I've really detected excitement and enthusiasm.

I think the staff who are working on this program really are going to see it reach its full potential. And it sort of ties in with Dr. Bradman's comment about hear's an opportunity for California to actually build some

laboratory capacity which will of course benefit us in and of itself, but could also perhaps be a revenue generating stream to help defray expenses in the future.

I was struck yesterday when we heard about Canada and Germany's programs about the robust infrastructure that support these programs. Canada, for example -- and I'm happy to see Doug Haines in the audience again today. The Canadian Health Measures Survey, the biomonitoring program there is able to piggyback on this existing structure in the same way that CDC can tap in to NHANES.

And Germany as well. We were surprised at how inexpensive it seemed to be to run Germany's program. And then that's in large measure because they have this infrastructure in place to support many of the tasks that the biomonitoring program does.

So all this is to say that, you know, here in California we don't have that, and we're building a program from scratch, which is all the more, you know, reason to be concerned about the budget, but also to acknowledge that great progress has been made.

I want to remind everyone on the Panel and in the audience that the statute gives pretty wide latitude to the program to select chemicals. The CDC list is sort of the first batch of designated chemicals. But a criteria that the Panel and the program can also consider are quite

inclusive; the first one, for example, if there is exposure -- or potential exposure to a chemical, that can be added. So I hope that you will, and I know that you will, keep your antenna up and a broad view of any chemical concern that you think would be important to biomonitor.

And although the survey -- the SurveyMonkey didn't specifically ask questions by -- a question by health effects, I think that's another important sort of overarching question to look at in terms of what chemicals could enter the program, because obviously we want to promote public health and ultimately save money with this program also in terms of reduced health care costs and potential environmental remediation as well.

Both Canada and Germany seem to put a focus on the child. Canada expanded to the pregnant woman as sort of the population that was to be protected the most. And it's going to be very difficult to zero in on a specific list of chemicals for this program. But one thing I just would like to, you know, put out for your consideration is: Would we want to sort of make fetal contaminants a high priority for this program and explore biomonitoring chemicals that we find in umbilical cord blood?

I know we have other comments, so I'll stop there for now. And thanks very much.

CHAIRPERSON MORENO: Thank you very much.

I forgot to mention we're going to try to limit our comments to about three minutes per person. We've got seven more comments -- people who want to share their comments.

Sumi Hoshiko. Are you here?

MS. HOSHIKO: I actually have a handout.

CHAIRPERSON MORENO: Welcome.

MS. HOSHIKO: So my name is Sumi Hoshiko. I'm a research scientist and environmental epidemiologist with the Environmental Health Investigations Branch. I'm submitting these comments not as an official representation of the branch, but as a researcher in the branch with an interest in some areas.

I want to thank the Panel for allowing me to speak and also for your emphasis on inclusiveness and participation.

I guess today I'm hoping to just raise some ideas. I think the Panel members here are selected to not be inside-the-box thinkers but outside-the-box thinkers, and we can all maybe, you know, together think outside the box.

The issue that I'm interested in is radionuclide and monitoring.

You probably all read that the U.S. Government

used to monitor for radionuclides. We tested human vertebrae in adults and children, milk, precipitation, drinking water. Most of those programs were discontinued. Some have continued.

And then more recently, after 9/11, U.S. EPA has resumed some environmental monitoring. They're now doing hourly air measurements for radionuclides, you know, part of homeland security.

One of the best sources we have historically of in vivo measurements or for human biological measurements comes from a study that was done sort of in the late fifties and went to 1970 of human baby teeth that was collected as part of a large collaborative effort of community organizations, boy scouts, girl scouts, YMCA, unions, and academic institutions, which measured Strontium 90 and showed the dramatic rise and fall of Strontium 90 during the era of atmospheric testing.

More recently a small NGO in the New York area has started collecting baby teeth and analyzing it for Strontium 90, you know, along the lines of the original baby tooth study, but with better methods so they could they test individual teeth. In the past they had to, you know, grind up a lot of teeth together to get averages.

Their data suggests -- you know, also show the rise and fall. Because when you take a tooth, you know,

you can adjust the measurement back to the time of birth based on the half-life of Strontium 90. But they're also -- we're seeing the beginning of a rise again in levels in late 1990s. They suggest that this is also paralleled by environmental monitoring. I haven't been able to verify that, but I think it's an area we need more data.

And, you know, some other points about monitoring using baby teeth. You know, it's a noninvasive type of medium. It can be collected and stored for later measurement. And the fact out of these 300,000 teeth in the nineties they found 85,000 unmeasured teeth in the basement of Washington University, which have now been given to the -- this NGO is the custodian who's trying to find the funds to test these teeth.

But we have obviously a lot of potential, you know, reference data if we collected now. It's a marker for in utero exposure because teeth are formed in utero. You know, we also need to remember that there could be multi-generational effects because human ova are formed in utero at the same time.

And, you know, we know from these measurements and other studies that the peak of exposure was in the early 1960s, and so there was a whole generation of us -- my tooth was in the original St. Louis study -- who are

now reaching the age where we're, you know, more at risk -- higher risk for different cancers.

And, you know, the question of -- I think most of us have sort of accepted, you know, environmental radiation, which in the past was from atmospheric testing, and now may be from various nuclear facilities, you know, potentially at some other minor sources and whatever is residual in the environment. And really thought that it's negligible, we can't distinguish -- you know, it's something so small, we can't tell any difference, and there's natural background radiation anyway and it's not a concern. That may be, but I'm not sure we've verified this.

A recent meta-analysis of childhood leukemia near nuclear facilities showed a consistent significant association with childhood leukemia. You know, other studies of cancer near nuclear facilities have been pretty negative. But I think it's different when you look at a childhood cancer. And this association was stronger in the younger age group.

You know, Americans move a lot. In the 2000 census only 54 percent of the people actually lived in the same house five years previously. So the idea that we can actually see associations in small areas with cluster-type investigations without looking broadly, you know, I think

those studies are likely to be negative. But for young children, it's possible you can see that type of association. Obviously a study like this, even a well conducted meta-analysis, doesn't show causality. But, you know, it's of interest. And I was interested to hear that community members near nuclear facilities have some concerns probably having something we should establish reference values maybe of use.

What else can I say? So I guess I invite your thoughts on exploring this further. California Biomonitoring Program may or may not be the right place to conduct this kind of investigation, but I thought this would be a good group to bring it up with. I think it's something to consider. We could -- I think there's an interest -- you know, there would be value in monitor trends, you know, understanding the variability, trying to understand have levels really returned to baseline or are we living with a certain level of exposure currently.

I guess that's about it. Thank you.

CHAIRPERSON MORENO: Thank you.

We have LaDonna Williams, People for Children's Health and Environmental Justice.

Are you here?

MS. WILLIAMS: Good morning -- or afternoon. And I'll keep it to the three minutes. But I wouldn't be here

later this afternoon, so I wanted to kind of comment on both.

Yesterday I appreciated the comment that Ms. Denton made about the Panel focusing on trying to ensure that this program is reflective of California and its issues. But when I look at the Panel for me as an African American and a community that's been affected by these toxins and knowing that we have all fought very hard to get a program like this in place to begin to address this issue -- wait. One question I wanted to ask Ms. Quint, were you originally on this Panel? Because I saw the agenda --

PANEL MEMBER QUINT: No, I was sworn in today. I was a replacement for Dick Jackson.

MS. WILLIAMS: Oh, okay. So you just pretty much joined the Panel?

PANEL MEMBER QUINT: Officially today. But I was invited a couple of months ago by Senator Perata.

MS. WILLIAMS: Okay.

PANEL MEMBER QUINT: So I'm his representative.

MS. WILLIAMS: So my question being -- and not to offend anyone -- but this Panel does not reflect California in my opinion. With all the -- and I know you have all worked very hard for your titles. I know it was mandated in the statute that it would be a technical panel

scientifically put together. But I think one major part that has been overlooked is community expertise and environmental justice expertise. If you really want to get to the meat of what we need as Californians here and addressing this issue, I think real value would have been added to this Panel had we respected the expertise that comes out of our communities working with you all, to really be able to get a real effective program going. We've got doctors. We've got, you know, various people here. And, again, that missing component are those of us that have dealt with this from ground floor up. So I want to add that.

And I'm hoping -- because I want you to know from the EJ perspective, we are pushing that EJ and community perspective be included in this Panel. So if we have to go, you know, get an act of Congress to do it, that's what we should do. But I'm hoping that you all as Panel members will recognize that and help us with that so that we can add that element here.

As far as the selection for the possible chemicals that should be selected here, again, just, you know, from a community perspective and working on EJ, I don't really see the chemicals of concern for our communities - Hunters Point, Midway Village, refinery -- the communities in Oakland that are exposed to the

refineries. You know, I'd like to see some real concern or at least believe that you guys will include some of these community members who have been exposed in this proposed -- what is it? -- selection of people that will be representative of California when it comes down to the testing.

And also I wondering, is there any focus -- and I think I asked that question yesterday, if there's going to be any focus on changing the Reference Man, that goes back to -- as I remember as a community member having to understand what environmental exposure and contamination was all about, we had to go to ATSDR's Superfund -- I think it was a thousand page Superfund manual. And it listed all these chemicals in there. And then it told us how they came up with the measurements and things like that. And they referred to this reference male model, which is a white male, 170 pounds, exposed in I guess a work setting. And they use it as a guideline. And I'm thinking, okay, if we're going to be using this 100-year outdated Reference Man included in this materials -- I mean this project, those materials are outdated, so, you know, we'd like to know as they begin to move forward with this and they start to label these chemicals, will we really get an effective analysis in reading?

Because, again -- and I can only refer to my

experience with DTSC and OEHHA. We have worked with these agencies since the early nineties. And as a community that is living on a Superfund site -- and I'm referring actually to my former community, Midway Village. This community has been built on a Superfund site. They are still living on this Superfund site that has many of those chemicals and many more. And when DTSC engaged and OEHHA engaged, they've all admitted that this site is contaminated, that there is current exposure. But then their final analysis is it's not enough to be concerned, and these people can continue to live on this site.

That's is a huge environmental injustice. It's racist. And I'd really like to know -- you know, not that we expect biomonitoring is going to be the only tool and the end-all, but there's got to be a beginning somewhere. And I keep hearing, when we talk about biomonitoring, what not to expect. Well, why wouldn't we expect it? I mean somebody else made a comment of being an out-of-the-box thinker. Well, we've been in the box for too long, and it's time to really jump out of that box and start doing some protective health measures. We haven't gotten that from DTSC. We haven't gotten it from any of these agencies including CDC and ATSDR.

Trust me when I say Midway Village has interacted with all of these agencies. And we have come back with

the same analysis from these agencies who results is the fact that they believe it's okay for people to live on a toxic dump. And because it's happened for many years and nothing has been done, then they can continue living that way.

I'm hoping that this Panel recognize the need to change things. And, that is, starting with that community, they need to be a part of this biomonitoring as well as others. But if biomonitoring is not going to help change the way we've done business within the world of exposures an contaminants, then what's the use? This is just another shell of a project that's put together where millions are spent and we're coming up here making these comments time after time again thinking we're going to get in change and we don't.

I'm hoping this is the beginning. From the process so far, I don't really feel that, because this has to me again been more of a bystander sort of setup to where we're listening to the Panel when the staffs and the agencies interact, while we who are living this nightmare is sitting on the side hoping to give comments. And I know in here it says meaningful participation. But "meaningful" so far has been, "Come, give comments. Thank you," pat you on your head and go on, we can ignore your comments and your suggestions.

I'm hoping this is a different process.

Thank you.

CHAIRPERSON MORENO: Thank you for your comments.

We have a few more.

Scott McAllister with CalOSHA. Did you wish to comment at this time?

MR. McALLISTER: Thank you very much.

CHAIRPERSON MORENO: Come on down, please.

MR. McALLISTER: No, I don't think I'll have any trouble being heard.

CHAIRPERSON MORENO: We need to --

MR. McALLISTER: Oh, for the reporting? Okay.

CHAIRPERSON MORENO: Did you also wish to speak this afternoon as well.

And Mike Horowitz.

Do you guys want to come down together? Yeah.

MR. McALLISTER: Hello. Thank you very much. And it's good to see there's -- that's wonderful.

Hi. My name is Scott McAllister. I'm the Senior Industrial Hygienist for CalOSHA in Northern California Region 1.

Now, this is Mike Horowitz. He's the Senior Industrial Hygienist in the Research and Standards Division of CalOSHA. And we also have a couple of our colleagues in the audience here. And we're very happy to

be here.

CalOSHA - that would be the chopped liver agency. And I just wanted to remind some folks here very briefly that -- and doing a little quick math -- that within the CalOSHA industrial hygiene community, we have approximately somewhere between 7 and 800 collective years experience -- person years experience in evaluating chemical exposures to Californians. And that's just right now. That doesn't even count all the years of experience of industrial hygiene work that we've been doing here since 1974 and our own Occupational Safety and Health Act was passed.

So that was Mike's question and comment.

Mine, however, is --

(Laughter.)

MR. McALLISTER: -- a little more practical. And it's a quick one.

As a regulatory person, when we measure any exposure to a California worker -- and that includes a medical removal level for, you know, different contaminants in the workplace -- we make sure that those folks are medically removed.

Now, your participants -- about 80 percent of your participants are going to work for a living. They're going to have exposures that result in diseases and

physical conditions which you're going to measure with your biomonitoring.

And I think we're interested as to what will happen there. Will there be referrals to the Division of Occupational Safety and Health if you find individuals who are identified as most likely, you know, being exposed at work and having a blood lead level that's over 50 and for which they should be medically removed from the workplace? And that would involve a number of expanded standards that we have. Question. Have you considered this?

CHAIRPERSON MORENO: Well, Dr. Lipsett.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Yeah, the law requires that participants who request their results may receive all of their results. And one of the practices that we would be following for sure even apart from that, and would be similar to what the CDC does, that for specific toxicants where there are clinical action levels, for example, if the blood level, say, blood leads exceeded those, the individuals would be notified like virtually immediately or shortly after that the results were known.

But for analysis, say, of some of the like PBDEs or if that were one of the chemical classes that were chosen, ones that take a longer period of time, people would have access to that information themselves. But

there are issues of confidentiality results, for example, that we would have to work out in conjunction with the State Committee for the Protection of Human Subjects. We've started our interactions with them, as Dr. Petreas has said this morning, for our pilot projects.

But in terms of the specific aspects of notification, say, of CalOSHA, this is something that would -- it would be a delicate issue with respect to confidentiality, that we would have to, you know, make sure that there would be something in the consent form, for example, that if a person consented to have their results analyzed and they -- say, of a blood lead or some other occupational exposure were found to be above a particular level, then they would have to consent also to giving that information to you. Okay, it's not something that's mandated that we would do by law. And we'd have to respect patient confidentiality and get their permission to do that.

MR. McALLISTER: Of course.

CHAIRPERSON MORENO: We have another possible response before, if you don't mind.

OEHHA DEPUTY DIRECTOR ALEXEEFF: George Alexeeff with OEHHA.

I thought we should also mention that we could look at the Occupational Health's literature, of which

there are action levels for specific chemicals that include that in our analysis. So that if there are chemicals of which there's suggestions that biological levels would trigger removal or some sort of action, we could include those in our analysis and make sure they're included in the list of information we give you.

MR. HOROWITZ: My name's Mike Horowitz, and I'm with the CalOSHA Research and Standards Unit. And may I say that we're not here representing our agency. As interested individuals.

What I wanted to point out is that many times when there's an environmental concern and a public health concern, the occupational relationship that may be contributing to the manifestation of disease or effect is overlooked to the detriment of finding a solution. I've attended a number of sessions recently on brominated fire retardants, and many, many talented people, as here.

And, by the way, this is not a criticism of the work of the Committee. There was really fine quality and quantity. But just to make sure that any survey instrument -- and this was something I noted yesterday, that it seemed like the occupational -- possible occupational connections are not necessarily delved into in the survey instrument. And so it's kind of a wasted opportunity to not include some level of -- an input in

the survey instrument so that somebody, for example, who maybe is exposed to naphthalene or, as I read today in a list serve, there was an association of diabetes with an exposure to chlorinated pesticides -- if we don't make the connection between the possible work connection of individuals, the small number of individuals that we're surveying, we may wash out that occupational connection and it may not be as apparent as it could be.

And that really is my point about the importance of including the occupational considerations in choosing these -- both choosing the chemicals initially and then developing the eventual survey instruments.

CHAIRPERSON MORENO: All right. Thank you very much.

I have two more. Andrea Ventura with Clean Water action.

Are you here?

MS. VENTURA: I will try to keep this brief.

Thank you. I'm Andria Ventura. I'm with Clean Water Action. And we did fill out a survey, so you have a lot of our specifics. Though I kept wanting to write paragraphs after each answer.

And I think that this is a really thorny problem. I don't envy this Panel. The job you have to do is, you know, how do you weigh the different factors. And the

truth of the matter is is you're going to have to look at several things at once, you know, whether it's the health impacts or the amount of a chemical that's out there or what people are being exposed to, et cetera.

Naturally, given the work I do, you know, the first thing that jumped to my mind were the big, you know, toxic chemicals that we know are out there, particularly in water, that being our expertise, and that we know communities that we work with are impacted by. So, you know, I'm thinking about initially the mercury, the PCBs, the pesticides, the perchlorate, those kinds of things -- nitrates.

But I'm also glad to see, because I work on this as well, you know, the emerging contaminants out there. Because in some cases they're ubiquitous and we don't know the impacts. And that's the comment I wanted to make.

I believe you, Dr. Quint, asked about toxicity data. And I think we have to recognize that as we're making decisions, one of the biggest problems is we don't necessarily have that data on a lot of things that are impacting us. Dr. Wilson has talked about that a great deal with the data gap regarding chemicals. And there are efforts, as some of you are involved in, you know, to try to rectify that through efforts around chemical policy and green chemistry initiative.

But, you know, I think that we do have to remember that we may be needing to look at chemicals for which we don't have either the toxicity data or the hazard data or even the use data in the state, and we still need to include them on this list, and as hard as you're trying to whittle down, you know, and look at your resources. But that, you know, if the information's not out there, that may be all the more reason to look for these chemicals and see if we need to be collecting that data and protecting our communities from that.

One other very quick comment. I know the worst thing to do when you're trying to make a comment and, you know, get people to listen to you is to contradict yourself. And I'm about to do that, because sometimes we live in a paradoxical world. So I agree wholeheartedly with Ms. Williams' comments that we do need to engage with our communities, because they do know sometimes what they're being exposed to, what the health problems they're facing are, and that is an important expertise that we need to capitalize on.

On the same token, your expertise is going to become very important because there are things out there that are ubiquitous that people don't know are problematic. If you go -- I was thrilled to see glyphosate on that list. But if you go into, you know, to

my parks department in the city where I work or if you go into my neighborhood and talk to my neighbors, people think Roundup is safe because it's on the market. People don't know that the cosmetics -- the parabens in the cosmetics they're using or the phthalates in the cosmetics they're using may be a problem for their health. So there's also a degree of ignorance that's out there that I'm hoping your expertise will be able to help fill in and consider.

So we do have to both capitalize on our communities and the public, but also look beyond that to where they may not be as important at this point.

So I'll leave it at that. Thank you.

CHAIRPERSON MORENO: Thank you.

One more person. Rebecca Sutton.

Are you here?

And, Rebecca, you're with the Environmental Working Group?

DR. SUTTON: Yes.

Thanks to the Panel for this opportunity.

Can you hear me?

So, yeah, my name is Rebecca Sutton. I'm a scientist with Environmental Working Group. We're a work research and advocacy nonprofit, and we do our own biomonitoring studies on a small scale.

So two chemicals that I wanted to highlight for you guys as candidates for biomonitoring are ones that you've got a good bit of background by now. But they are the alternatives to the Teflon chemical, and alternatives to the PBDE fire retardants.

So you probably know that U.S. EPA pressure has led Dupont and seven other companies to promise to phase out PFOA, the Teflon chemical, by 2015. The EPA Science Advisory Panel found this one to be a likely human carcinogen. And there are a lot of great studies now on people showing that there are risks for health effects for this particular chemical.

So industry is now touting a new substitute for perfluorohexanoic acid, also known as C6, as a safe green alternative.

Now, there's very little toxicity data on this chemical. But we do know that it's definitely very persistent in the environment. And one of our studies on umbilical cord blood found that this chemical can cross the placenta and therefore contaminate children before they're even born.

So we would definitely encourage you guys to take a look at C6 and other Teflon alternatives because production is going to increase dramatically over the next few years and so we would expect exposure to as well.

Now, the other chemicals that I wanted to talk about are the ones that were just highlighted in the OEHHA presentation on expert advice. Those are the alternatives to PBDEs.

Now, as PBDEs are starting to be used less, in part because of the California bans, we're expecting a lot of these other alternatives to get used more. And we know from biomonitoring data that already exists that PBDEs tend to be in higher concentrations in young children as opposed to adults, and that's perhaps because young children are more exposed to household dust, which is contaminated with these chemicals. And then they got the more hand-to-mouth contact.

So we'd like you guys to consider the PBDE alternative chemicals as really important ones to start biomonitoring, because we want to see if we start to accumulate those chemicals in bodies with greater use in our consumer products.

CHAIRPERSON MORENO: Well, thank you.

All right. With that, I believe we're going to adjourn for -- well, it's 12:25. And so does Panel have a recommendation?

PANEL MEMBER BRADMAN: Do we respond at all to any of the comments?

CHAIRPERSON MORENO: That's up to the Panel.

Does the Panel mind sticking around and responding to some of the comments then?

PANEL MEMBER QUINT: I feel like I should defend myself against wanting toxicity data.

I truly am of the mind that chemical process that show toxicity -- you know, my whole career has been built on early warning of chemical hazards. So I don't want you to misinterpret my question about, you know, do we have toxicity data for Gail's list as being that I need to have hard core-data on every chemical. That certainly is not my -- have no fears. I am not of that mind-set. So I just wanted to make that clear.

CHAIRPERSON MORENO: Okay. Other comments?

PANEL MEMBER BRADMAN: I just have a couple of responses or comments or thoughts.

One, Davis's comments about the important of looking at pregnant women and children. It seemed like one of the priorities that came up in several of the surveys was neurodevelopmental toxins and reproductive toxins. And that kind of behooves sampling, you know, around those age points during pregnancy and prenatally and early postnatal. So I'm going to keep harping on that, I think, on my participation here.

And then also his emphasis on the fact that this is a public health initiative and that there's an

opportunity here to address potential health issues if we just looked at the neurodevelopmental issues that are going on. And with children in our society right now, you know, even a small reduction in cost that might be related to environmental exposures is going to dwarf the cost of a program like this.

So I think we should really be thinking ahead and what those benefits may be, even if they're difficult to quantify.

And then just to underscore -- is it LaDonna --

MS. WILLIAMS: Yes.

PANEL MEMBER BRADMAN: -- Williams' comments. You know, I think what she's saying is so important, that there can often be a -- you know, if you were an anthropologist coming down and looking at this room or often how decisions are made, you would come up with a different understanding of what public participation is than if you perhaps read the words in our paper. And I experience that in our own research studies and, you know, outside of this forum or outside the many forums. And I think your comments are really important about how to engage communities and how to have that input.

And just to emphasize too that this kind of formal Panel meeting is a one-day event. But I think there's going to be other opportunities for people to

provide input. And in an eight-hour day often we only have three or four minutes to address these issues.

And then also, on a specific comment, you had some concerns about some of the chemical lists not reflecting the exposures that you felt are being -- occurring in some specific communities. And if you could pinpoint chemicals that you think should be there that aren't, you know, I think this whole process is meant to gather that kind of information.

That's all I have to say.

CHAIRPERSON MORENO: Yes.

PANEL MEMBER McKONE: A quick follow-up.

I agree. I think this -- there are two dimensions I think we're working in. One is to capture sort of large trends. But I think the other challenge is not to miss things that happen, like we say, at the tails of events, that there are -- I mean the case study we always use in risk assessment is you'll never see people being killed by grizzly bears. Although they are. If you just look at national data, you have to go into where grizzly bears interact with people. And I think the same thing comes up with toxic waste and other of these issues. We miss those if we just look broadly. So we have to figure out how to get into these two dimensions.

I do want to mention, you know, on the radiation

issue, there actually are -- in addition to teeth, a number of years ago there was an excellent biomarker of cumulative radiation exposures developed. I believe Lawrence Livermore Lab there were a team of scientists that showed that you could use chromosome aberrations. And they calibrated it to be a lifetime dosimeter. So rather than look for one radio nuclide, you could look at cumulative dose from a blood sample. So if somebody wants to explore a radiation biomarker, there was -- and this is right now the best there is, and it's been improved I think since about ten years ago this first came out.

I should comment -- you know, on the Reference Man, I know that's a terrible name, to call that document the Reference Man. But I've spent a lot of time working with that document. If you look inside of it, they actually -- it was put together by the International Commission on Radiological Protection. And they did a world survey of the human population to develop that. And it includes women and men and children, and it has distribution of all attributes of the human body - organ mass, breathing rates - for both -- you know, both men, women, and children with age variations. It's actually quite a remarkable document. It's just a terrible name. We're trying to get them to change it to the reference human.

MS. WILLIAMS: When did you last read it? Because my understanding, we've been working on a national initiative to change Reference Man because it does not include pregnant women, infants, even --

PANEL MEMBER McKONE: Yeah, the CDC -- but the CDC, then that's something they should work on, because there is the -- what's called the Reference Man manual was actually issued in 1975 by the international body that looked at the entire human population, you know. As a matter of fact, one of the complaints about applying it in the U.S. is that it was biased towards smaller people for some things because it looked at the world average instead of looking at a nation.

But in addition, the U.S. EPA has an excellent document, which also -- the Exposure Factors Handbook, which again looks broadly across ages, genders, different racial and ethnic groups.

So no one today should be focusing on the wrong person as a default. There really should be broad characteristics of the population.

MS. WILLIAMS: Well, when agencies use it, they do use it within that small parameter of comparison and that's where the problem lies.

CHAIRPERSON MORENO: Dr. Culver, do you have a question?

PANEL MEMBER CULVER: Maybe just wanted to reassure our colleagues from CalOSHA that their interests and concerns will certainly be important to me. I began in 1953 in California Department of Public Health doing biomonitoring of worker exposure to organophosphates. And I have continued in a career in occupational medicine and environmental health ever since.

CHAIRPERSON MORENO:

MR. McALLISTER: Good.

CHAIRPERSON MORENO: All right. Other comments from the Panel?

No?

Okay. Well, it's 12:30. And we could break for 45 minutes or an hour. Does the Panel have any preference? If we break for 45 minutes, we get back a little sooner.

Okay, an hour. We'll be back at 1:30.

I also want to remind the Panel members that we are still operating under the Bagley-Keene Act. So please refrain from talking about business during your lunch. I think you'll have a better lunch if you talk about the weather or sports or something else anyway.

(Laughter.)

(Thereupon a lunch break was taken.)

AFTERNOON SESSION

CHAIRPERSON MORENO: Let me get started again. Welcome back.

Before I move into the afternoon portion of our agenda, I just want to request that anyone that has a PDA, some people call them Blackberries, if you have one my suggestion is that either turn it off or reset it so it doesn't synchronize for the rest of the afternoon, and we'll have less disruption of the microphone system. I think I was guilty of that this morning. But I just turned mine off altogether.

(Laughter.)

CHAIRPERSON MORENO: All right. We have a couple things on the agenda that we had planned for this afternoon till 2:30, 2:45. One was to continue discussion regarding the comments from the public from this morning, but also to actually begin discussion among the Panel members of considering recommendations to the program to add chemicals to the designated chemical list.

And I'll ask the Panel members now if there are any further comments or need for a discussion on public comment that was offered this morning? Any additional comments or anything you guys want to share from public comments that were provided this morning?

Okay. There doesn't appear to be so.

Okay. So we can move into -- what we would like to do now is to begin a discussion on recommendations including chemicals to add to the designated chemical list.

A couple of goals here. One goal would be to provide the Panel members an opportunity to discuss recommendations to add to the designated list. And those would be recommendations that would need to be consistent with criteria established through California statute. And then the other opportunity would be to have a discussion over what additional information the Panel feels they need before they can make recommendations.

Did I get that right?

PANEL MEMBER SOLOMON: Also, can I ask a question, maybe? Or after --

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Well, I mean here at this point if you would like us to do -- if you wanted to suggest some action items or follow-up work to help with this discussion. Another possibility with respect to designated chemicals, if you find you need to postpone actually any recommendations till after discussing what we heard back on criteria, that's fine too.

The final thing is that we expect that this agenda item will be recurring on agenda. So if you find

you don't feel comfortable about making a recommendation today for adding to the designated chemical list, we can certainly consider it at your next meeting.

CHAIRPERSON MORENO: Okay. Thank you.

Gina.

PANEL MEMBER SOLOMON: And so just a clarification. Are we then not talking about which of the designated chemicals we would pull out as priority chemicals that's not part of this agenda item, it's just adding to the designated chemicals list?

CHAIRPERSON MORENO: Right, that's the purpose of this discussion.

Who would like to begin?

Sure.

PANEL MEMBER LUDERER: I would just like to kind of just sort of to say that since the designated chemicals list really -- this is sort of the universe of chemicals from which the priority chemicals will be chosen, that I think that it's important to be broad and inclusive with the designated chemicals list, and that this is really -- I think that in the future that this list may really be used as kind of a watch list. So even those chemicals that do not end up on this list being chosen to be monitored immediately and become part of the priority list, these in some ways is the opportunity for the Panel

and the public to provide input about chemicals that we think are important now and maybe becoming more important in the future and that agencies and public health practitioners need to be keeping an eye on kind of as we go forward.

So I guess I'm sort of making a plea to be inclusive and broad in the designated chemicals list.

CHAIRPERSON MORENO: Dr. Culver.

PANEL MEMBER CULVER: It seems to me that for any chemical that we recommend we should also recommend that a documentation be prepared for that chemical that would have the information available, so that we have a starting point for communication with the general public.

CHAIRPERSON MORENO: Thank you.

What kind of information would be in that documentation?

PANEL MEMBER CULVER: The chemistry, physical properties including the vapor pressure. Whatever biological information there is that might be toxicokinetic in nature. If there are animal studies or in vitro studies that have been done. So that one can take a look at the chemical and really know as much as possible about it at the time it goes on the list.

CHAIRPERSON MORENO: Gina.

PANEL MEMBER SOLOMON: I think that's a great

idea, and would also add that it would be helpful to have as much information as possible about the chemical's use and what it's used in and what it -- perhaps what industries it's used in, anything that we can find out about that, so that we might begin to think about predicting patterns of exposure, who might be sampled for that. And sort of maybe, if possible, sort of a brief justification for why the chemical was added to the designated chemicals list. In other words, this chemical was chosen primarily -- you know, for the principal reason that... whatever.

PANEL MEMBER KAVANAUGH-LYNCH: I might suggest -- well, I actually have a question about the criteria and the legislation, because it's a little unclear to me. The last three criteria it seems to me we can't even use at this point. Well, some of it we can. But the availability of adequate biospecimen samples and the incremental analytical cost to perform the biomonitoring analysis, we don't have the -- you know, we don't have any specimens at this point. We don't have information on costs. And I think even the fourth one is a bit problematic.

But to the extent that we add things to the list, I think we should be referencing which one of these criteria we're using.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: The criteria you're referring to are under Tab 2, just after the -- because there's a second page, if people want to refer to them.

PANEL MEMBER KAVANAUGH-LYNCH: Yes.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: So --

CHAIRPERSON MORENO: Could I just make one comment.

I believe the way the statute's written is that -- let's see, it says, "The Panel may recommend additional designated chemicals" just in the following criteria. It doesn't say we had to meet all those criteria though, correct?

So there may be some problems with number 4 and some of these -- there is no currently available biomonitoring analytic assay mechanism, but it does meet several of the other so we could include that.

PANEL MEMBER QUINT: So we don't have to use all of these criteria; it's just it can meet any one of these criteria; is that correct?

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: That's our understanding.

PANEL MEMBER QUINT: That's your understanding? Okay.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Right.

PANEL MEMBER QUINT: I read that differently.

PANEL MEMBER BRADMAN: Also, with respect to number 4, I forget the actual number, but isn't there a law that would give the state the authority to ask for a method from a producer? So just a reminded that if there aren't analytical methods, there can be a request to develop that method with the cost burden not on the state.

PANEL MEMBER WILSON: And it was AB 289.

PANEL MEMBER BRADMAN: AB 289.

PANEL MEMBER WILSON: Yeah.

CHAIRPERSON MORENO: I'm sorry. Which bill was that?

PANEL MEMBER WILSON: AB 289.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: This is from several -- I guess a couple years ago that this bill passed.

OEHHA DIRECTOR DENTON: Just to clarify. Isn't it if there's an existing method that you could make the request. Because you were saying if you want to develop, that could be required.

PANEL MEMBER BRADMAN: That's my understanding. Maybe we should get a copy of that bill at some point.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT

BRANCH CHIEF ZEISE: We will follow up and get a copy of that out to you all. And we'll also ask for our counsel to take a look at it.

Could I just ask with respect to documentation. We have a small staff. And I know how much time it is to do a really detailed hazard identification document. So I want a little bit of guidance on parameters. And perhaps if you could let us be a little flexible over how much information we get, because it can be very time consuming to get both exposure and use information as well as put together a good description of the toxicological data. So if we could do it in more summary justification form, I think we can prepare that kind of documentation, as well as getting the kind of physical, chemical attributes that it sounds like you would like in there, like vapor pressure and so forth.

PANEL MEMBER CULVER: We have to remember that you're going -- once a chemical gets put on that priority list, it's going to cost a lot of money to do the study -- or to do the sampling and the analysis. We ought to be prepared to spend a little bit of money to put together the rationale for putting that piece of chemical into the system. This has to be -- the selection of chemicals, the identification of the chemicals that are going to be -- has to be done thoughtfully. It should not be

cherry-picking. It's just got to be according to identifiable rationale.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: I agree completely. And I think I'm just asking -- because sometimes for a single chemical our assessments can take of order two person-years to put together per chemical. So it doesn't sound like you're looking for that detailed; is that correct?

PANEL MEMBER CULVER: As much as is available. As much as you can.

PANEL MEMBER SOLOMON: Can I clarify what I was looking for. Because what -- what I was actually requesting might even be met with a table with the listed chemicals and then some columns with some information about those chemicals. Or, you know, if it were to be a document on chemical, I was thinking about, you know, something quite brief that would more just provide the justification for why this chemical as opposed to others.

And then, you know, obviously if we do our -- you know, potentially moving a chemical up to a priority list status, I mean at that point, I agree that there might be need for a more in-depth analysis of it. But certainly, you know, I think that there is this sort of rational step-wise fashion, whereas it gets on the designated chemicals list, we should know something about it and why

it's there and have that justification available, and then more if we put it on the priority list obviously.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: And then again, I also wonder if you're also considering putting families of chemicals on in addition to. And if there would be an identification of a family, that we perhaps could consider the family together as part of a justification.

PANEL MEMBER CULVER: It depends on what you mean by family.

PANEL MEMBER McKONE: Well, like if you said siloxanes, that could be -- there's thousands of them. Because, right, there's an alkane chain and there's -- I mean how many alkanes can you combine on a ring? It's going to be huge.

Dioxins sort of -- dioxin-like PCBs, maybe that works. And PAHs. But I do worry there are families of chemicals that get very large.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: So that's up to the -- in terms of what your recommendations are, when those kinds of situations are at hand, you might want to be clear about the particular family you're recommending.

PANEL MEMBER QUINT: I think that most of the things that we are thinking of designating, you know, for

most of them there's established toxicological data. So I don't see recreating a document on that necessarily as being something that we would need. I think referencing, you know, documents that exist that support the endpoint of concern or, you know, for that part of it. But I think other things are of concern, you know, how many people are -- is it in consumer products? Some of that information for our purposes is much more important, and maybe more difficult to find. We find use is the most difficult piece of information among the CalOSHA Health Advisory Committee for setting PELs. And in the process right now developing these types of documents. And use is the limiting factor for most of this. And I think it's probably one of the leading factors for us, because we want to choose things that people are actually being exposed to.

So I think the emphasis is a little different than the hazard identification documents that we're used to seeing from OEHHA in that respect, where the use is small and the tox data part is large, you know.

CHAIRPERSON MORENO: Dr. Wilson, do you have a comment?

PANEL MEMBER WILSON: I think I'm just picking up on that, Julia.

And so thinking about, Lauren, your presentation

just this afternoon, possible chemicals presentation, and then from Peter's comments yesterday.

So what I heard -- what I heard you say in your presentation was that sort of addressing this problem that Julia is raising of really getting good information on what's actually used in the state through CUPA, the toxic release inventory through DPR, Prop 65, these various mechanisms we have, there are huge data gaps. And there are, you know, problems like with the CUPA, it's all in you know, shoe boxes basically in 57 of the counties. And so we have really very poor information on just basic public health information on the chemicals used in processes and products, I think is those two main categories.

That means that we have huge data gaps on occupational exposures in the state. So that says to me we have to do some basic work on fixing those -- you know, closing those gaps to get a sense of how to prioritize occupational exposures, perhaps as something that happens before we do biomonitoring work around occupation, fixing those basic sort of -- you know, tracking industrial chemicals and chemicals used in products that are used professionally, for example. And that's the majority of products actually. In many cases they're used professionally.

Where we do have information, and as you put here in the binder, is through our Department of Pesticide Regulation. We have good information on use, on volume, on distribution, and on -- or dispersion I guess is what came up yesterday from John from CDC. You get good information on use and dispersion, volume. That's a really good place to start.

And so it seems to me that if we're going to rely today on information that we have today going on your track 2, which is, you know, identify -- broadly find out what we're exposed to, work through chemical lists and identify bad actors as the basis for biomonitoring prioritization. We really can only do that on the pesticide side of things. So I'll put that out there. Because our other -- our Prop 65 lists and some of the others don't track actual volume and use.

So that's a comment, if you want to respond to that. And then I'll follow up.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Well, I think what we'd want to do is to try to spend a little bit more staff work seeing what other kinds of information sources we might have on that. You know, some other things do come to mind, like the USGS survey information on water contaminants. We could check with ARB with respect to certain product uses. There's

some additional staff work that could be done to see what other kinds of information sources we might have. We did a start on that. But our main focus was getting their opinion about things. And if they also identified other references, we provided them to you.

But there is more leg work that can be done. And I don't feel comfortable actually answering the question now.

Michael.

PANEL MEMBER WILSON: Can I follow that up?

CHAIRPERSON MORENO: Yes, go ahead.

PANEL MEMBER WILSON: I think -- thanks for that. I think, yeah, there are other things that could be done there. And it's possible that California will have some form of product or, you know, registry of some kind. So it's possible that in the next couple of years we may have better information on that. But I think it's -- you know, the information that you provided from DPR was illustrative in that it showed that the -- almost without exception, the large volume pesticides used in California are not included on the CDC list, and might be candidates for us to think about. And that may occur as well on the industrial and product side when the information gets better.

CHAIRPERSON MORENO: And there's a couple

comments over here.

PANEL MEMBER SOLOMON: So, just to build on what Mike just said. You know, I think that it's helpful to think about the purpose of the designated chemicals list. And we're starting with the CDC list as sort of the foundation. And I actually for one think the CDC list is pretty darn good. It's got a lot of good stuff on it. When you look at it through -- I'm sort of looking at it through two lenses where -- and, you know, from our conversations yesterday and today, I think other people are too -- where we're seeing some gaps. One is if we look at it through a California lens where we start seeing, just as Mike said, you know, the pesticides, for example, glaringly -- you know, a lot of things that are heavily used here in California are missing from the CDC list.

And then from the perspective of sort of looking around the next curve at the emerging contaminants that are known replacements of some of the known, you know, bad actor chemicals, for want of a better term, that are, you know, already sort of being watched by a number of the state agencies, NGOs and others, scientists.

And so, you know, if we could sort of look at those two categories, the, you know, what is it that's different here in California as opposed to nationally on

the pesticide front and maybe on the sort of industrial front. Though I think there might be fewer differences there. And then what are the emerging chemicals that we might want to add. And I think we actually heard about a lot of those in the presentations this morning. And my suggestion might be that we could make some -- you know, consider as a committee making some recommendations around really looking through the PUR, figuring out which of the high-use pesticides in California are missing from the CDC list, doing that sort of systematically. And then, you know, we'll have to come up with some cutoffs, but adding as a group, you know, a number of pesticides.

And then as a second group considering adding some of the flame retardants that we talked about this morning, and perhaps some other categories of chemicals that also have been coming up, like some of the siloxanes and others, that we really think are -- you know, if this thing is starting optimistically in 2011, what are going to be the big things that we need to be thinking about in 2011? And in my mind those are the ones that should be on the designated chemicals lists now.

CHAIRPERSON MORENO: Okay. Before we go on, just a couple things that I want to point out what I'm hearing -- I heard a couple things. One is that Dr. Solomon recommended a table to try to put down the

criteria that we're using in each of those, for example, columns. And I'm trying to imagine each of those columns. Across the rows would be the chemicals or families, and the columns would be the criteria. It could be legislative criteria. It could be other considerations. But we can check off what's the criteria.

Also, the information that Dr. Culver was asking for, it could also be included in this table as well, with reference to the reports that are available and not having to duplicate all that.

And the other thing I was hearing was -- this is almost like a -- it sounds kind of like a framework which can help us get through this process, looking at gaps in the CDC's list, things that pertain to California that didn't make the CDC list. Then also the emerging, which wouldn't necessarily show up on either list, we have to really put some thought into that.

So these are the kind of things that I'm hearing so far.

Okay. There's a couple comments on this side.

PANEL MEMBER LUDERER: Just one thing that I wanted to kind of add I think that we should keep in the back of our minds in thinking about the PUR might be that this is -- these are the high volume pesticides that are widely, you know, used either in terms of acreage or

pounds that are applied. But one thing we might miss if we focus solely on that is household uses. And particularly since we're talking about exposure to the general population, I think that's something that we need to try to get information about, you know, things like treating pets for fleas or spraying in the house. So what are the chemicals that are most dominantly used in those kinds of applications, which might not necessarily be the high volume ones.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Sure. And we can take a look at that. And in terms of the survey, we received many comments on that particular issue. So there is a lot of concern out there. So we can follow up and try to see if we can get information on extent and volume in specific chemicals.

PANEL MEMBER LUDERER: Particularly because of concerns about children and exposure to pregnant women, I think that's very important.

And then one other, I think in terms of the data gap, a separate class of chemicals, which I think did come up in the surveys that you presented data about this morning and that also came up in the conversation yesterday, was the issue of pharmaceuticals as environmental contaminants and whether we would want to

recommend adding some of those to the designated chemicals list. And, you know, I think some of the categories that were talked about yesterday that are particularly important are some of the antibiotics that might be used in the agricultural industry, hormone reactive compounds, things like oral contraceptives.

PANEL MEMBER WILSON: I'd like to pick up on that. I think it's a -- I was about to comment similarly that the thing that makes me uneasy about simply using volume is that it isn't necessarily the most toxic substance that's highest volume. And it maybe not -- it also may not get at the question of exposure, which I think you're addressing.

And so the ARB did publish a consumer products survey that they conducted in 1997. And at that time they reported about six million pounds of non-selective herbicides and defoliants used in consumer and commercial products every day in California. It was the second highest consumer and commercial product sold in the state; so certainly a pertinent issue. And the first was general purpose cleaners, at 147 million pounds per day.

There was also something like eight tons of hair spray in here too, but --

(Laughter.)

PANEL MEMBER WILSON: So they have a -- there's

a -- actually, no, there's 52 tons. Sorry. So they have information -- I think you know ARB does have some information there that could be really useful. But they gathered that information really for its VOC content, you know, for the VOC cap rules. I don't know to what extent they really catalogued other active ingredients aside from VOCs. And it is ten-year old data now.

Here's another thought. I think, you know, in terms of just throwing something out there, that in terms of -- I think what's useful would be, you know, doing something that's unique to California and contributes in a useful way as much as we can to this whole -- to the science of biomonitoring. And I think it was raised in the public comments earlier around whether we should consider focusing on umbilical cord blood as the medium that we use, as compared to trying to conduct a representative sample of adults if we can only do 500.

So I'll put that out there for discussion, thoughts.

PANEL MEMBER BRADMAN: Just one -- you know, I've been trumpeting that we pay attention to pregnant women and young children. One technical point though is that, especially for lipid soluble compounds, you can sometimes have non-detects in cord blood because of low lipid levels, even though the fetus is getting exposed, because

there is transfer going across the placenta and then it's getting reabsorbed in lipid tissue in the fetus. So just -- you could look at umbilical cord and miss exposures to the fetus. That would be more apparent if you were doing a pregnant woman or an adult of child-bearing age.

But I think that's an interesting proposal though to consider, if we're limited, what population will we focus on and what would have the most meaningful impact on health --

PANEL MEMBER WILSON: Yeah, I guess the question is: Would that make it of very little utility, those limitations that you described? Would it not be worth pursuing that?

PANEL MEMBER BRADMAN: I think it would depend on the compound you're testing. That would be a real rewriting of the program.

But I mean I'm intrigued by the idea of, if we can only do 500 people, what's the best way to do that. That may be a separate question though of what chemicals to designate.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Could I just add a comment with respect to the discussion that you've been having here.

It seems pretty clear that the quality and

quantity of data that we're going to have regarding exposure is going to be really different for different chemical classes. And I think it would be useful for us to be able to work with maybe two or three of the Panel members between now and, say, the next meeting on trying to provide the data that you're requesting here in a form that would be -- you would find useful as a panel. And I don't know if the Panel members -- or, Dr. Moreno, if you want to see if there are any volunteers among the Panel that are interested. But we would find that very useful to be able to work with at least two or three Panel members on this process.

You know, for instance, like, you know, with the flame retardants we know there's universal exposure. It's ubiquitous here. We banned PBD -- we banned penta. But because we have these flammability requirements for furniture and polyurethane in California, we are going to continue to have the highest volume of flame-retardant substitutes of any state. And this is -- you know, unless that flammability standard is reversed, this is something -- we will not have quantitative data, but we know everybody -- virtually everybody in the state will be exposed to these new flame retardants, anybody who comes into contact with furniture sold after 2005.

CHAIRPERSON MORENO: I think that's a good idea.

The work group would -- or this Panel would -- I hope it would be clear to the work group what it is that the Panel needs as a product and what responsibilities the work group has so they can actually make some decisions to bring back to the Panel.

So how does that sound?

PANEL MEMBER KAVANAUGH-LYNCH: You know, it seems to me that we maybe need to have the criteria discussion. Because generally when you're collecting information to help you make decisions, you collect information that are relevant to the criteria you've selected. And, you know, I hate to have people running around collecting information that then we end up not using.

CHAIRPERSON MORENO: Which criteria?

PANEL MEMBER KAVANAUGH-LYNCH: The criteria for choosing priority chemicals.

CHAIRPERSON MORENO: Okay.

PANEL MEMBER KAVANAUGH-LYNCH: Either designated or priority?

PANEL MEMBER SOLOMON: Designated.

CHAIRPERSON MORENO: Michael, were you talking about a group that would focus on gathering information for the purposes of coming up with a designated list?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Well, I think it would be for both -- for both

adding to the list of designated chemicals and also to, you know, make sure that the quality and extent of the information we provide that meet the criteria for priority chemicals would be appropriate as well.

CHAIRPERSON MORENO: Okay. Well, I think this Panel would need to come to some agreement as to how much we expect of the work group.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Well, what I'm wondering is -- I mean I think we basically need a group that we can just reflect ideas against, rather than having any kind of a formal work group. It's useful to be able to have a group -- and maybe, Michael, if this isn't what you were thinking, let me know -- but to have a few Panel members that we could send some ideas to, have them reflect on it and get back to us, so that it wouldn't be something that would require, say, a series of work group meetings but more be a peer review -- informal peer review mechanism for us. I don't know if you were thinking of something --

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

I was thinking that that would be useful. But also just to make sure that when the information would come back to the Panel, that the Panel members obviously would be able to speak amongst themselves in a small group in terms of what might be reasonable to bring back to the

full Panel, something that would be within the bounds of the Bagley-Keene Act, but nonetheless I think -- I would agree with Lauren initially that we'd like to be able to have some informal peer review. But the Panel members themselves may want to talk about these issues as well.

PANEL MEMBER WILSON: You know, I mean as we've had the discussions over the last two days, this is -- this same thought has occurred to me, that this is something that we need to do. And that sort of getting Marion's point, it's an iterative process in a way, in that we're trying to meet the criteria, one of which is a question of exposure. We then go to try to identify exposure data and find these huge gaps, and find that we can only meet the criteria in one particular subsection of substances used in the state.

So as we explore it, I think this does need to happen, that we need to have -- it's going to be an iterative process. And that sounds like a very useful proposal to me

PANEL MEMBER SOLOMON: I'd like to see us really grapple with how far we can push some real decisions today in our group in the full Panel discussion, because I do think that even just having -- you know, even just really trying to see if we can come to some decisions will make us grapple more -- you know, in more depth with the

criteria, and I think will be useful, whether or not we succeed in making decisions.

I actually have a question about exactly how we make decisions, like whether I should be making formal proposals or whether we're going to be taking votes or looking for consensus, exactly how we do this. So I apologize.

And then I also -- Mel, in response to your comment, which I think is a really important one about the criteria, I'd sort of tried to propose that we look at the criteria and the legislation and add to the one being -- you know, are there chemicals that are not on the CDC list that are -- where we have good information that they're used, you know, to a significant -- you know, and I don't quite know how to get the words right -- but, you know, heavily used in California. And that would specifically apply to pesticides, where we have the PUR to go with. And so I really wanted to look at the pesticides that are missing from the CDC list and try to backfill that.

And then the second criteria and that I was proposing to add would be emerging chemicals where we have good information that they are coming on to the market to replace other widely used chemicals and where, you know, we have some reason to believe that there may be a problem with that category of chemicals. And there I was thinking

mostly about the flame retardants. But there are other -- obviously D5 in dry-cleaning is another example where we know that because of regulations specific to California, the market is going to be driven toward a chemical that has some known health issues. And so, you know, to be trying to get ahead of that.

So those two criteria about the chemicals that are heavily used in California and the ones that are going to be emerging in California would be maybe ones to add to the existing.

PANEL MEMBER QUINT: Well, those seem to be covered in number 1, aren't they? Potential for exposure?

PANEL MEMBER SOLOMON: Yeah. But it doesn't talk about places like emerging or California-specific exposure.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Well, that -- that potential -- I thought that, you know, if we look at the designated criteria, they're pretty broad. And so if we can focus on these specific issues that are a concern, I do think that the criteria cover them. But we'll keep in mind that that's what you're really concerned about, and try to work through some specific tasks that address your concerns with respect to the specific chemicals.

PANEL MEMBER SOLOMON: Assuming other Panel

members agree.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Yeah.

CHAIRPERSON MORENO: I would just add, I would agree with that. I think the criteria for adding to the designated list is set, and I think your concerns are addressed in one -- and that the potential exposure could be interpreted as to emerging chemicals. The public and specific subgroups would refer to a special consideration for California. And I think the spirit of the law was for California. And so I think you're covered there.

But I think it's important to keep that as a special consideration that we need to continue to bring up as we go through this possess. Because we can't prioritize something that's not on the list. So we first had to put it on the list -- on the designated list.

PANEL MEMBER BRADMAN: I think, Gina, you were just saying though as a first crack, let's say, 1) I use pesticides that are not on CDC, 2) likely emerging compounds. And you're asking the staff to make a list of those. Is that what you're asking for so that then we can evaluate them? Or are you just proposing we put them on the designated list right now?

PANEL MEMBER McKONE: Let me just add another thing. I actually think we should go ahead and try and

suggest at least some -- and, again, in the spirit that Gina was suggesting. And not that this would be the final list of designated chemicals. But let's say some very specific things. I think -- there's been a lot of agreement that we will see, you know, a new flame retardant's coming in to Cal -- unless somebody repeals the rule about furniture that California has that's unique, we're going to be the place where there will be the highest use of flame retardants in furniture. So we could even begin to make a list of possible chemicals that you might want to --

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: That's already happened. And we do know what the two top flame retardants are. It's FireMaster 550 and chlorinated tris. And there are a bunch of others that could be used as well. But for sure those two are used in large quantities in California.

PANEL MEMBER McKONE: And of course we're not prioritizing. So we could in a way just suggest those beyond the list as a designated chemical.

An additional -- and then the pesticide that we agree on, that's easy to do. You just go through the PUR and see where we're higher. So we could do that one.

The other one -- another one I would add to this though is plasticizers -- the new plasticizing agents,

because phthalates are going to be pushed out.

And possibly changes in building materials. We know that some construction -- now, that I'm -- I don't think the Panel is -- I'm not personally. I know that there are some changes in -- there's a lot more use of the market -- one thing I'm aware of is the market in building materials has gone from plywood to oriented strandboard And there's just different compositions. That actually could be something to look at, what comes out of oriented strandboard that would be different. Clearly there's less -- there's less formaldehyde in oriented strandboard, but there is some sort of an oxyresin that's in there. So if we know what's being used, that would be...

The other thing is how to get a handle on consumer pesticides. And, again, there's certain areas where we know California would stand out. We have a bigger problem with termites than a lot of the country. I mean some parts of the country don't have problems with termites because until the climate changes, they have a cold enough winter that termites don't survive. So whatever treats termites is more of a problem here and in the southeast than it is in the north.

PANEL MEMBER WILSON: You know, on the pesticide side that you raised, you know, I looked at that just from this -- you know, just the PUR data. And it was -- you

know, there's a set of about 12 or so that are half a million to a million pounds applied per year. And the total applications haven't really declined or gone up over the last ten years apparently according to what you gave us in the packet. And so that seems like a good suggestion in that only two or three of those appear on the CDC list.

And with respect -- but what we don't know from the PUR data that would be useful, and I don't think too burdensome, would be to sort of have a basic sense of the toxicity of the -- you know, substances applied at half a million pounds or more in agriculture, you know, for agricultural pesticides from this PUR list. And that information -- I mean DPR collects that information, but it's not here on these tables. This is just the use and dispersion kind of information. But it would be important to know I think if there's a high volume substance that's also -- like metam sodium, for example, I think is a good example -- a high volume substance that also has unique toxic properties. It's on the Prop 65 list and it's showing up in water; as a good example of something where we have a little bit more information than what DPR provides on these tables would be helpful. So just getting -- trying to be more specific about that issue, Gina.

And then the second one, I think, Tom, on the -- getting at this information on -- and that we've talked about before -- on consumer use of, and maybe also more casual use by workers of pesticides around homes and commercial buildings, I think in requesting from staff to follow up with the Air Resources Board on their consumer products survey, if that has been updated since 1997. And to what extent did they include information in that survey on active ingredients aside from just the VOCs? I think those would both be useful points of information.

PANEL MEMBER SOLOMON: On the pesticide issue, we may actually have a little bit of a wrinkle, which is if you use volume as a cutoff, the things that will pop to the top are the herbicides and some of the fumigants.

When you actually look at the CDC data, they actually have looked at quite a -- and a number of herbicides. And the herbicides have tended to not appear in a very high proportion of the population in biological samples. But I think that there -- that was actually a hugh surprise to me. Atrazine in the Mid West, you would think it would be in everybody's urine. And, in fact, it's not. It's barely detected. And I think there may be a couple reasons for that. One has to do with biological half-life and the other has to do with food residues, which I think Asa might be able to help here because he

knows this better than I do. But, you know, food seems to be a fairly significant exposure driver. And it's the insecticides and the fungicides that tend to be the fodd residues. The herbicides you really don't find as food residues.

And so you actually -- the correlation between volume applied and likelihood that it will be found in biological samples is not totally perfect. And so there may be some that are actually not used in, you know, huge amounts but still used more in California than in the rest of the country that we might want to focus on. And they wouldn't necessarily appear in that like top tier on the use list.

And so we'll have to grapple with that a little bit. I'm not totally sure how to deal with it. I'd love input from Asa.

PANEL MEMBER BRADMAN: It's true. I mean more and more there's a greater understanding that diet's probably one of the primary pathways. I mean even in Salinas where we're working, we're seeing a diet probably being responsible for 30 or 40 or 50 percent of the total exposure.

That said, you know, we find agricultural and home-use pesticides in every home we look at. For example, one is dacthol, relatively nontoxic. It's in

every home in the house dust. And it's not that heavily used.

It's complex. I mean we think we know why it's there because it's persistent. And some of these chemicals are actually -- when they get indoors, they're more persistent than what you would expect based on field data.

So you start to see a picture that's complex where you could have, you know, different layers of information in terms of use, vapor pressure, you know, likely to transport, environmental persistence, persistence in the home. So it does get messy.

But, yes, I would agree that diet is a very important source. And there actually might be an easy source of data that wouldn't be too time consuming to look at would be to look at USDA food residue data. And -- Tom's shaking his head.

But that's not to be specific to California.

PANEL MEMBER McKONE: We're laughing because at lunch we were talking about the terrible quality of the food residue data. It's not representative and it has neither longitudinal nor cross-sectional characteristics sufficient to capture either kind of variations.

CHAIRPERSON MORENO: I might kind of share with the Panel my thoughts so far what I'm hearing.

One is a question of how we make decisions. And we do need to have that discussion. But for the time being, one of the things we might consider would be some consensus on a process as we go through this.

So for discussion I'd put out there that we might consider a simple conceptual framework just to get us focused and move forward, which would be two important considerations. One is that we would give special consideration to chemicals that are unique to California that don't already exist on the CDC's designated list. And then we also give special consideration to emerging chemicals in the State of California, of course following the statute criteria.

And then perhaps what we could do is look at -- I'm just throwing this out there -- is three groups of chemicals. And one would be a tentatively designated list of chemicals, which means the group today, for example, if the group so decided -- the Panel decided that it would want to throw out one or two families or chemicals, there could be a tentative distinguished chemical list. And that would be a tentative because we'll have other opportunities to come and meet and review additional information. But that would be the tentative list. And that list requires more data that needs to be collected from the work group. And would also begin working on

creating the documentation that was suggested on that -- on those chemicals. And that documentation included the qualities, properties, where it can be found, what it's used for, was it the toxic or otherwise public health threat. And that would be the tentative group of designated chemicals.

And then there would be chemicals of interest. There's certain chemicals that continue to be brought up here. But the group may not be ready to put it on a tentative list that we want to suggest that would be the chemicals of interest; again, requiring the work group to come back with additional information and, if time allows, start working on that documentation that describes that chemical and why it's a chemical of interest and why the group -- the Panel should consider moving it into the tentative list of designated chemicals.

And then there's a third group, which is chemicals that really are not of interest to this group, for whatever reason. And we're not going to put too much effort into that. And that really is every other chemical in the world that we haven't discussed today.

So I'm just trying to throw out some ideas on how we can move forward and accommodate all the -- I think the ideas that were thrown out today.

Dr. Culver.

PANEL MEMBER CULVER: To what extent does this process that we're going through need to be constrained by our knowledge of the limitations of the laboratory and the budgetary constraints? If we come up with a long list of chemicals, is this relevant in view of perhaps problems of carrying the laboratory determinations through?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

I don't know how long this list is going to be. And we certainly are subject to constraints in terms of trying to provide documentation. As Lauren indicated earlier, we don't have a lot of non-laboratory staff working on this.

But with respect to the designated chemicals list, the lab constraints are less of an issue than when you actually make the recommendations for priority chemicals from the designated chemicals list. So you could add, you know, four or five families of chemicals that might be -- may be ones that we could provide some general information on that meet the criteria that you were asking for in terms of physical-chemical properties, general patterns of exposure, this sort of thing.

But in terms of the specific numbers of chemicals, as Peter I think and Myrto alluded to earlier today, it's likely to be on the order of somewhere like two to three dozen at least initially chemicals that will

be -- that they're going to be looking at, chemicals or chemical classes.

So, again, for the designated chemicals I don't think you have to be so concerned about the laboratories. But for that specific priority chemicals, that does become much more of an acute issue.

PANEL MEMBER BRADMAN: So the designated chemicals are a wish list and the priority chemicals are a shopping list?

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: Right.

PANEL MEMBER KAVANAUGH-LYNCH: My inclination would be to throw anything on the designated list that anybody anywhere has any possible interest in, and then really start talking about the criteria for moving things from designated list to the priority list. I mean that's -- it seems to me that's where the bulk of our work should go.

CHAIRPERSON MORENO: I have just one comment too.

Again, from the perspective of the wish list, I think that would be appropriate. I'm wondering if -- is it -- is there some drawbacks to creating such a large wish list? Because we're going to be providing recommendations to staff based on that wish list for more information.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Again, we are a limited staff. So it depends how big you're talking about. So I could see us gathering information on specific families or -- but once you start trying to get information on specific chemicals if we have a long list, that could be a tremendous amount of work.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

And you are constrained I guess also by these specific criteria, that we do need to be able to at least provide documentation on one or more of the criteria that will allow it to fit on the designated chemicals list.

OEHHA DIRECTOR DENTON: From my perspective -- you know, this is a very important element of this whole project, is the selection of the chemicals; and it's a unique period of time and I don't see it being recreated down the road, in that this effort will result in a product and then we'll move on from there. And, you know, at the state we are committed to seeing that this biomonitoring program lives. And we are under fiscal constraints, and that's a whole another thing. But what I really look to this Panel for is your best expertise and guidance to us about which chemicals you think are the most important for California -- for California and for this effort. And then we winnow it down to what exactly

that we can do.

But I don't want to diminish -- I don't think that cost should be the first sieve that we go through. We really -- in this initial phase we're looking for your best recommendations and judgment as far as what you think is the most important.

CHAIRPERSON MORENO: Well, then maybe as we're moving through, kind of creating our -- if we do this, the tentative list and then the chemicals of interest, instead of the list of things that just don't wind up on the list, this is -- we'll put that as the wish list, meaning that we want to add it to the designated list. But be clear where staff's at. Don't go looking for new information because you don't have the time and resources. And then when resources allow, we'll go back and look for information to supplement what was created in this process, because we need to get it on -- it sounds like we need to get it on the list -- if this Panel feels it needs to be on the list, get it on the list. And we'll go back later and, as resources permit, start looking at the toxicology, the properties and developing that. And then from time to time it could be -- I'm wondering actually if from time to time what is the process for moving items from the designated list in to the priority list? Maybe in two years from now, four years from now whose

responsibility is that?

OEHHA DEPUTY DIRECTOR ALEXEEFF: I just have a comment also -- this is George Alexeeff. That I think as we go through this exploratory process it's good to be open minded about what might work, especially as we think of what's important to California. So, you know, we may find something, we may, you know -- but we won't spend -- the simple point was it will be sort of a first cut of information, and then we'll decide if we want to get more.

And when we get to the prioritization stage, at that point we can follow up and give you -- get more information and documentation as to why it might be really important as we're trying to make decisions based upon cost.

I had one other point though. And, that is, just getting back to the comments before on the pesticides. And there was discussion about, you know, consumer pesticides that were brought up, pesticide use reports, you know. And then just to clarify, the pesticide use reports don't cover the consumer products. So they only cover those used agriculturally. But I think we could query DPR, because those consumer products have to be registered. So that -- I don't know what the status of the information is. But we'll a query and try to find out what they might know about that information and how we

might be able to get some information back to you about consumer products -- consumer pesticide products and how much might be used either by volume or something like that.

PANEL MEMBER WILSON: And that was also -- it's also collected by ARB. But it's old. It's 1997. And it was for their VOC. It was a -- but it's -- they also had -- they had data in consumer products on chlorinated substances also. They collected that. But I don't know the extent to which they collected active ingredient on consumer products pesticides.

OEHHA DEPUTY DIRECTOR ALEXEEFF: Yeah, we can also touch base with ARB as well. We work closely with them in the consumer products group.

PANEL MEMBER BRADMAN: The PR data also includes structural pest control and right of way. So there's actually three categories there. But I think right of way use is relatively low and mostly herbicides. But structural pesticide use includes a lot of insecticides and fungicides.

CHAIRPERSON MORENO: Yes.

PANEL MEMBER SOLOMON: So I was sort of jotting down a list of chemicals that have come up that various people have mentioned or that have come up in the surveys. And so should I just sort of toss it out and then we can

look at it and decide if that's sort of any kind of a starting point for discussion?

There were two metals that have come up. One is chromium, which has some speciation issues. And the other was vanadium pentoxide.

Then there was in terms of radionuclides, Strontium 90 at a minimum. Some others were sort of briefly mentioned.

Then -- well, we've had some -- a fair amount of discussion about the pesticides. And so we'll have to sort of figure out how to hone in there.

The flame retardant chemicals, which include the replacements for the PBDEs and also DecaBDE because that's not on the CDC list.

The methyl siloxanes. Some kind of -- this also will involve some research -- antibiotics came up, especially when it's used in animal operations such as dairies in California.

And estrogenic chemicals, presumably ethynilestradiol or other estrogens used in pharmaceuticals.

Others that were mentioned include some of the musks -- the artificial musks. That was only I think mentioned once. And the parabens were mentioned a couple of times.

And then the other category that I just put with a question mark is VOCs, because they kept coming up. Some -- you know, it's very tough to talk about them as a group and hard to figure out how to deal with them. But there are quite a number that are not obviously on the CDC list. And we'll have to decide how high a priority that is.

But I don't know if I missed anything. But those are the ones that seem to be at least potential candidates to the designated chemicals list.

Did I -- ah, I missed something.

Oh, manganese, right.

Okay. So a third metal.

MNT isn't used in California, thank God. But I guess there are a lot of manganese operations, yeah.

PANEL MEMBER WILSON: Gina, was that from the state survey. Is that where you --

PANEL MEMBER SOLOMON: I was actually pulling from both the public survey and the state survey and the notes that I had. But I still might have missed stuff.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

The commenter from DWG also mentioned the substitutes for the perfluorinated --

PANEL MEMBER SOLOMON: Oh, yes. I thought I'd got -- yeah. Okay, so the PFOA substitutes.

Triclosan's on the CDC list. Oh, triclocarban is not on the CDC list.

Okay. Triclocarban then should be added to that.

PANEL MEMBER McKONE: The animal antibiotic, or is that the one used in --

PANEL MEMBER SOLOMON: Triclocarban is actually also used as triclosan is in personal care products and soaps.

PANEL MEMBER McKONE: That's an issue.

PANEL MEMBER SOLOMON: And so I guess this raises the question of, you know, should we sort of take Mel's approach and put them all on the designated chemicals list? That would be fairly lengthy should we try to prioritize among these. You know, some of these are sort of nebulous groups, like the VOCs, so it's a little tricky. We don't want to just sort of toss them all in.

PANEL MEMBER QUINT: You said VOCs. Do you mean solvents?

PANEL MEMBER SOLOMON: I'm sorry. Yeah, they're solvents.

OEHHA STAFF TOXICOLOGIST KROWECH: I have one more. Nonylphenols and nonylphenol ethoxylates, that I think I found in the bay.

CHAIRPERSON MORENO: You want to repeat your name for the record, please.

OEHHA STAFF TOXICOLOGIST KROWECH: Oh, Gail Krowech.

PANEL MEMBER McKONE: What are those used for?

PANEL MEMBER SOLOMON: Nonylphenols and nonylpheno ethoxylates are used in detergents.

PANEL MEMBER McKONE: Okay. Oh, those are surfactants --

PANEL MEMBER SOLOMON: Surfactant, yeah. They're also used as inerts in pesticides and --

PANEL MEMBER QUINT: They're everywhere.

PANEL MEMBER SOLOMON: Oh, and sorry. The terpenes - limonene and pinene. That's the other one I forgot.

I actually didn't include formaldehyde and acetaldehyde. I sort of self-censored that just because they are -- those would be really not -- they're biologic -- they're produced on their own bodies, and so it would be very -- probably not a good candidate for biomonitoring.

PANEL MEMBER McKONE: The limonene, as I understand the concern there is the secondary products. They interact with ozone to form ultrafine particles. So, you know, what would you learn by looking at those in blood, other than somebody was in a situation where they might have been exposed to ultrafine particles. And it

makes more sense to measure the --

PANEL MEMBER SOLOMON: They're contact allergens. But, again, biomonitoring may not be the way to get at that.

PANEL MEMBER McKONE: Yeah, I mean I can't imagine you're going to get much. This is where we have to think chemically whether they're going to show up anywhere and what it means.

PANEL MEMBER SOLOMON: Sorry. One more. NDMA. That actually might be a good candidate.

And how could I have forgotten that. The EPA Science Advisory Board Drinking Water Committee was actually talking about NDMA. And that's now on the -- it's on the candidate contaminate list that just came out.

OEHHA STAFF TOXICOLOGIST KROWECH: Sun screens. Oxibenzone was mentioned by a couple of people.

CHAIRPERSON MORENO: Thank you, Gina.

At this time maybe I could ask the other Panel members if they have some chemicals that they've noted in these discussions that they want to put out there for consideration.

PANEL MEMBER KAVANAUGH-LYNCH: I think we should talk about nanoparticles.

CHAIRPERSON MORENO: I'm sorry?

PANEL MEMBER KAVANAUGH-LYNCH: Nanoparticles.

PANEL MEMBER McKONE: Yeah, I was just -- if we're getting into sun screens, then we could really get into the titanium dioxides.

And then the other thing is the silver nanoparticles that are going into a lot of clothing, the odor-killing agents and -- does that mean you should look at silver? I mean I --

PANEL MEMBER QUINT: Silver iodide was on the list, I think. Under nanoparticles you had two, titanium dioxide and silver dioxide and silver -- okay.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: But, Gail, was the -- I'm just wondering with respect to nanoparticles, if the concern is to look at them actually as nanoparticles rather than the way that we treat bulk chemicals, because of this distinct issue -- the distinct characteristics of the particle itself.

OEHHA STAFF TOXICOLOGIST KROWECH: But this would be some idea of the extent of exposure to certain ones. That's what you need

PANEL MEMBER McKONE: Yeah, if it's a silver nano -- and it depends upon I guess the salt they're using, the silver iodide. That's being used a lot in clothing. And the question is: Should you look for silver? Probably not going to find silver iodide that's

to your system. But would you see it? I mean, again, we may not decide this today, but it's an interesting question. Is that an effective way -- if we suddenly -- if somebody could match the rise in blood silver with the use of silver iodide in the market side, that would be a very interesting study. Again, it's something we should look at -- we can't do that right here. But that would be a way to really confront a very important issue that a lot of people are very concerned about.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: On the survey we also did receive some suggestions for the nano -- carbon nanoparticles as well. And so I guess for different kinds of nanoparticles you'd have different indicators that you'd want --

PANEL MEMBER McKONE: Well, the carbon tubes, I don't know what you look for.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: But there you're concerned about, you know, the kind of particle damage that --

PANEL MEMBER McKONE: Right. You could look for a biomarker of damage.

The other one -- and, again, it -- you know, there's titanium dioxide is going to be used in a lot of applications. It is already. But it's being proposed for air cleaning, putting it in systems with UV light because

it destroys microorganisms. The Japanese are already promoting self-cleaning windows. You coat them with titanium dioxide and then the UV interaction, it forms a reactive surface that keeps your windows clean. They're even talking about clean wall surfaces.

So, you know, we're going to be filling our residential environments with titanium dioxide. Should we be looking for a marker of whether that's causing a change in the composition of blood or urine? Is it showing up in some way?

CHAIRPERSON MORENO: I'm wondering if some of the questions that are coming up since Gina put forth this list are questions that could go to a work group to try to find additional information. And I'm saying that because it's 10 to 3. And I also heard -- I think Tom had mentioned that -- at least two of you had mentioned that you thought maybe you could try to make some tentative agreement on some initial chemicals to add to the designated list. And I'm wondering if there's still interest among the panel today to do that. And we don't have to do that today. We can go with this list and in the next minute or two any other chemicals that the Panel members feel are important, and then hold off in making any tentative recommendations to the list and get some further information from staff.

Yes.

PANEL MEMBER LUDERER: Just one other class of compounds which I think came up in the survey was -- and I don't think you mentioned. It was the drinking water disinfection byproducts like the trihalomethanes and those things.

OEHHA STAFF TOXICOLOGIST KROWECH: All of them are on there.

Are they?

Okay. I was looking just now and it didn't --

PANEL MEMBER WILSON: I appreciate the interest in trying to populate a list in the interest of sort of moving forward and doing something. And yet the idea of naming specific chemicals might make sense in some cases, I think like the emerging PBDEs, the PFOA issue that was raised, these are clearly going to enter commercial circulation. But, you know, in my mind looking, for example, just at the PUR data, I really feel like we need to have another layer of information to flag specific substances. And that would apply in these other arenas as well. I think -- I need to have some more information before we flag a substance that's of public health priority in the State of California. And it might be that we're -- yeah, I'm proposing that we have a little bit more iterative process to do that.

CHAIRPERSON MORENO: Okay. Thanks.

Others?

Oh, before Panel members.

Go ahead.

OEHHA DEPUTY DIRECTOR ALEXEEFF: I just wanted to summarize sort of what the request was, because there's been a couple of requests for addition information on some chemicals. For example, Dr. Krowech was going to look at -- provide a report sort of summarizing the interviews with the staff, so you'd get a little more information about why certain chemicals were suggested. So that could answer your question.

It came up earlier, the issue from CalOSHA staff about where they have some actual measurements that are required for certain chemicals. We could look into that and see if those chemicals are there. And then also the pesticides.

So what we could do is we could compile all these chemicals or this list of information, chemicals and the ones that have been brought up, compare it with the CDC list to make sure there's not the overlap. And then we could provide that information back to you so you could see how many chemicals have been already brought up for discussion at this point. That precludes making a decision right now. But at least this gives you the list

of all the different things we've talked about so far.

So that was going to be like a suggestion that I might have as a follow-up for a subsequent meeting.

CHAIRPERSON MORENO: Okay. A couple comments over here to the right.

PANEL MEMBER SOLOMON: Well, I'm not sure which one of us was first.

Well, just sort of to build on this longish list that we just came up with of potential candidates for the designated chemicals list. When I actually looked down this list and applied the screens that we were thinking about in terms of are these chemicals that are particularly an issue here in California as opposed to say, you know, sort of a national issue? And are they ones that we think are emerging issues? There are really four that pop out of this rather long list, though I may be missing others. And maybe five, depending on how you argue it.

One is vanadium pentoxide because of the -- well, I guess that's a national issue too, because of the diesel catalyst. But that we do have a lot of major diesel hubs around the Port of L.A. and the Port of Oakland. And so that issue was sort of an emerging issue from the diesel catalyst perspective, and the very significant air quality issues we have regarding diesel would sort of pop out to

me.

The Flame retardants, as Michael has previously stated, because of our unusual flame retardancy standards here in California, we're going to be dealing with the flame retardants probably at much higher concentrations, and earlier than the rest of the country will be. And so again we could justify moving those forward.

The methyl siloxanes, or particularly D5. Due to the Air Resources Board's ban on Perchloroethylene, perc, in dry-cleaning, D5 is coming on as one of the major replacements. This is again a California-specific issue and an emerging issue where, you know, we might do well to sort of be on the forefront of it.

And then we've talked about the pesticides, where there's, you know, sort of specific use patterns here in California. Probably less so, frankly, with the household pesticides as with some of the agricultural pesticides, where we could justify that these are particular issues we're facing here in California that aren't just universal nationally.

The one that I put as maybe question mark are some of the antibiotics and hormones that are used in agriculture. We do have an enormous dairy industry in the Central Valley, with very heavy use of certain types of pharmaceuticals in animal husbandry. And we actually look

at the numbers in terms of pounds of antibiotics sold for human use in pharmaceuticals versus animal use. It's unbelievable, the differentials. So that the animal use is huge.

So there again, I think we could justify saying that there's an issue here in California that we should be tracking.

The others -- there are a lot of other chemicals here that I care a lot about. I'm really worried about triclocarban. Or, you know, really concerned about NDMA. I'm not sure if it's more of a California issue than anywhere else, so I'm not proposing that we add those at this point.

PANEL MEMBER WILSON: I think those are all reasonable, Gina. And they also have a -- there's a regulatory driver that would suggest that they are going to grow in California. So I think that makes sense.

And the high volume pesticides, over the half million pounds or so, makes sense. And they are -- that are unique to California, most of which don't appear on the CDC list. Does that make sense? And I would agree that we could add those or propose those.

And the only other category that I think that I would propose that we consider is in the consumer product sector because of our VOC regulations, that we do have

unique VOC caps unique to other states. And so we've created unique formulations here. And the consumer products are primarily driven by general purpose cleaners. And, in fact, non-selective herbicides, defoliants, and lawn and garden insecticides, those are the high volume consumer products.

And so I would I think like to add that category of -- you know, the consumer-product side and also, you know, call for more information on those from the two that you've suggested, George, from DPR and from ARB. And also because they are likely high exposure, being consumer products.

CHAIRPERSON MORENO: Okay.

PANEL MEMBER SOLOMON: Just one point -- oh, sorry.

Go ahead, Tom.

PANEL MEMBER McKONE: Along the same line though. I think a question before we -- I mean we're trying to narrow this down, which is good. But maybe we don't have to. I mean one question that comes up is: How big is too big, in terms of the screening list? Screening is a real art, right, where -- I mean if you make it too large, then it's no value. But if you start cutting it too early, you risk losing something that's important. I'm a little worried about, you know, whether we should come in with

our chopping knife and be, you know -- or should we kind of work around the edges and just narrow it down?

So I guess the question is: Is 100 too big? I don't know if we could come up with a hundred substances or if that's too many to begin taking a chunk out.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: I guess I've kind of heard now four categories. So maybe I've got this wrong. We've got the we've got our priority chemicals, we've get our designated chemicals. But then we have these tentative designated chemicals. And I think listening to Mike and Gina, if we take that set, there are five different categories.

And then we have chemicals of interest that we need to do more work in. So I see it sort of this big funnel. And at the very top is everything, right? We're trying to get a handle on everything -- that's important in everything. But I see that. And I think we can do -- we can put our sets at different levels of effort for each of those tiers.

For something to make it into -- from a chemical of interest into a tentative designated is one thing. But to go from tentative designated into designate seems that you might want a little more information on pharmacokinetics, on persistence, on maybe some issues around lab feasibility to see whether or not there are

existing methods, whether or not an existing method is in reach. So we can apply different levels of effort to these different categories.

So as long as it's understood that that's the way we could approach it, I think we can move ahead with --

PANEL MEMBER McKONE: Yeah. Well, actually my question is -- I mean how far down the funnel do we want to go today? Because some of it gets to be a little bit irreversible. And, you know, we threw out a lot of suggestions that I want to make sure we know that we're taking -- that we purposely know we're throwing them out. And we could do some of that. But I --

CHAIRPERSON MORENO: Can I make a suggestion?

If we did narrow it today, come up with -- agree through a consensus that this group of five chemicals would receive most of the Department's efforts to gather more information, the other thing that we might learn from that is how much time and effort does it really take. So if it takes you a month -- if it takes you five weeks to get information on these five classes, we'll have to know that. And the other thing would be we could have a handful of Panel members participate in trying to gather this information so we know firsthand before we come back at the next meeting and say we want to add -- go get information on the next 50, we have the good understanding

on how much effort it takes. But not that it would limit us from adding things to the designated list. But it would provide us some guidance on really what's reasonable to direct to staff to.

So being that it's 3 o'clock, is there -- I'm going to assume now at this point that there's no consensus that we want to designate chemicals today to the list -- to the statute.

Okay. Correct?

PANEL MEMBER WILSON: Correct.

CHAIRPERSON MORENO: Okay. But there maybe is enough interest among this Panel to commit to five -- these five groups of chemicals to work with staff to focus efforts to try to get more information, with the intent that we'll learn from this process and be able to make I guess more informed decisions and directions to staff following the next meeting.

PANEL MEMBER McKONE: Could we repeat the five just to make sure we're all --

CHAIRPERSON MORENO: Gina.

PANEL MEMBER SOLOMON: So what I had proposed was:

Vanadium pentoxide, which is not a class, just one chemical.

The flame retardants. That would include

pentaBDE. And then the others that are coming in as replacements for the tetra and penta-BDEs -- sorry -- decaBDEs. And then the replacement for tetra, penta, and octa.

The Methyl siloxanes. Or, depending how we want to do it, we could just narrow it to D5.

And then -- well, it's actually two categories, so maybe we should split it into six. Because I'd lumped together the antibiotics and hormones used in animals. And actually -- well, ethynilestradiol wouldn't fit as being California specific, though it's a real interest.

Anyway, so some of these pharmaceuticals --

PANEL MEMBER McKONE: Gina, have we rejected the plasticizers?

PANEL MEMBER SOLOMON: Good question. Because then the last category was pesticides.

The plasticizers and the PFOA alternatives don't meet -- well, actually plasticizers could meet the category of being California specific because of the ban on phthalates in kids' toys, which is specific to California. And so, presumably, we could argue that some of the phthalate replacements will be coming into use in child care products and kids' toys before anywhere else.

PANEL MEMBER McKONE: This is the first signal.

PANEL MEMBER SOLOMON: So one could make a good

argument for adding the plasticizers.

PANEL MEMBER McKONE: Right. But then I mean we're not -- we may find that their elements are possible. I mean it will -- whether they make the final list has to do a lot with issues of feasibility.

PANEL MEMBER WILSON: And there were the high volume products. High volume consumer products identified by Air Resources Board.

PANEL MEMBER CULVER: I think vanadium pentoxide is sort of out of place in that, well, first of all, it's a pulmonary irritant, but not a very powerful systemic poison. It's major source is from oil-fired boilers, not from its use as a --

PANEL MEMBER QUINT: -- catalyst.

PANEL MEMBER CULVER: Yeah. So the option for exposure is two groups of people who work with oil-fired boilers, and especially those that clean them out.

PANEL MEMBER QUINT: I think it's also on the Prop 65 list, if I'm not mistaken, as a carcinogen.

PANEL MEMBER CULVER: Well, it's a carcinogen in mice but not in rats.

PANEL MEMBER QUINT: Well, it meets the definition of known to the state. And I think there's probably some use a that we collected during when we did the OEHHA report or when Sara did that. So we can ferret

out whether or not -- how substantial the uses are.

OEHHA DEPUTY DIRECTOR ALEXEEFF: Can I make a suggestion, that we broaden it a little bit to vanadium. It's mostly vanadium pentoxide, of which there's information. But I think this would be useful. Because I think in the end they probably measure vanadium, and I think vanadium pentoxide would be measured anyway.

PANEL MEMBER QUINT: Okay. Got it.

But what's listed as the pentoxide?

OEHHA DEPUTY DIRECTOR ALEXEEFF: The pentox.

CHAIRPERSON MORENO: All right. So I'm hearing seven now, is that right?

You split out the estradiols from the main -- and added plasticizers.

PANEL MEMBER BRADMAN: We should just emphasize this is an iterative process. I mean there's probably important chemicals that CDC doesn't measure that should be. And CDC may put new stuff on their list, which I think would put it on our list.

So I think this is a reasonable suggestion what Mike and Gina are suggesting. But this is a first cut, you know, if this is going to be a multiyear program. So --

CHAIRPERSON MORENO: Okay. Seeing that it's 5 after 3, we still have a break and we have another

presentation and we have public comment, all before 5 o'clock.

Could I please ask that we achieve consensus on these seven chemicals of families, and also direct staff to work with a few Panel members. So then we can ask for volunteers at this time.

PANEL MEMBER WILSON: I would like to make sure that Asa's qualification is stated for the record in calling for consensus.

CHAIRPERSON MORENO: I'm sorry?

PANEL MEMBER WILSON: That the qualification that Asa just made is included in your call for consensus.

CHAIRPERSON MORENO: Okay. Thank you.

Noted.

CHAIRPERSON MORENO: Okay.

Yes.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Really think it's important that we walk away from here being absolutely clear about the seven. So I was wondering if you could just go through the list one more time. Because I think some of us might be counting these a little bit differently. So I just want to make sure we've got a real clear understanding.

PANEL MEMBER SOLOMON: Okay. So number 1 is now vanadium. And the rationale for that is because of this

new use in diesel engines, not because of boiler use. But then the concern about wider exposure because of diesel engine exhaust.

So number 2 is a category of flame retardants that actually is, chemically speaking, heterogeneous. But from a use perspective -- you know, it's pulled together from a use perspective. And so what we're asking staff to do here is to pull together a short -- you know, short list of what are the main flame retardants that we should be looking at for addition to the designated chemical list with, you know, some -- we won't know, we won't be able to predict how much they're going to be used, but which ones are likely to be coming in as replacements. And we sort of already have a list --

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Excuse me, Gina. Just to clarify. Are you asking that we look at flame retardants, like the halogenated flame retardants generally, or was it deca, penta, and then possible replacements?

PANEL MEMBER SOLOMON: That's a good question.

PANEL MEMBER WILSON: My sense it was the emerging ones, right?

PANEL MEMBER BRADMAN: I thought it was the emerging and those not on the CDC list.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Because there may be a number that are currently being used that we're not -- I mean that are not necessarily being biomonitoring for.

PANEL MEMBER BRADMAN: Like deca.

PANEL MEMBER SOLOMON: Right. So I think we should include -- since the driver for this is the fact that we've got a more stringent set of flame retardancy standards and therefore potential for higher exposures to flame retardants in California, we should be looking at flame retardants, both ones that are in current use and ones that are replacements. But I would recommend that we exclude for purposes of this discussion -- well, obviously the ones that are already being biomonitored by CDC are also the same as the ones that are being phased out in California. So those are not on this current list.

Then the third category is -- I guess let's keep it if people are okay with this -- is methyl siloxanes, but with a primary focus on D5. But I think there's some interest in whether it is reasonable to group some of the methyl -- you know, group the methyl siloxanes or whether we should be separating them out. So that would be a question that we'd need to think about.

The third category is pesticides that are -- the fourth category. Sorry. Fourth category is pesticides that are high use on the PUR list in California. And

we're going to have to figure out -- Mike has proposed a pound cutoff threshold, which we should consider. But we also might want to look at what different thresholds would give us, and just look at which of those chemicals are not on the CDC list. And there I think the main questions are going to be around some of the physical-chemical properties of those pesticides to help us predict which of those might end up being biological contaminants.

So we'd be interested in any half-life information or KOW type information, volatility, et cetera.

And then the antibiotics. There we're looking for any kind of information we can on antibiotics, particularly used in confined animal feeding operations. If we can get any California-specific information, that would be fabulous. But I'm not sure that there is California-specific information. And whether there are biological markers for -- in ways for biomonitoring those.

Then the next category is hormonal chemicals again used in animal operations. But also sort of looking at pharmaceutical hormones, both anabolic steroids, presumably in estrogens -- boy, there's a lot of work. Is this too crazy?

And then the final is the plasticizers that are likely replacements for the ones that were banned recently

in children's toys and child care products. And --

PANEL MEMBER WILSON: That's seven. The one you keep forgetting is substances used in high volume products in California -- high volume consumer products. ARB calls them consumer and commercial products.

PANEL MEMBER SOLOMON: And just a clarification, because I guess part of why I haven't included it is I didn't totally understand. Are you driving there at what are some of the lower VOC -- I mean what are some of less volatile chemicals that are replacing some of the VOCs in consumer products as Air Resources Board regulations are coming in? Because that's actually -- that's one interesting question, is sort of -- in terms of emerging chemicals in California, you know, are we looking at, okay, so there are now regs coming in place about low VOC paints.

PANEL MEMBER WILSON: It's --

PANEL MEMBER SOLOMON: And you're talking -- actually Ulrike and I had a conversation about this yesterday. And some of the chemicals that are now used in these low VOC paints include a number of long-chain -- or medium-chain glycol ethers, and that could be of interest. They're much less volatile than solvents -- VOCs that used to be used in paints. But they have some potential toxicity.

PANEL MEMBER WILSON: Maybe I could tell you what I was thinking on that. Again that there -- we have about 164 million pounds used every day in the state. And about 85 percent of that is in two or three categories of consumer and commercial products. Some general purpose cleaners, fungicides, insecticides, and one other -- carpet and upholstery cleaners. It's about 85 percent. So those products are being regulated by ARB, and with respect to their VOC content. But I don't know specifically what that is today. But there's certainly high -- you know, the substances in those product categories are candidates for high exposure across the state. And I think it's possible to get reasonable information on those in terms of the constituents, the chemical constituents.

I understand your confusion, because it may be that there's 50 substances in there, or a thousand substances for all we know. My hope is that we have -- there are key ingredients in general purpose cleaners, for example, which I think there are, that will be of interest, both for consumers and occupationally. That was the rationale.

PANEL MEMBER BRADMAN: But they're not necessarily unique to California.

PANEL MEMBER WILSON: Well, maybe or maybe not.

Yeah, depending on the ARB's VOC -- we have a lot of unique formulations in this state for consumer products that are driven by the VOC rules.

But maybe you have something to add, Julia.

PANEL MEMBER QUINT: Yeah, having done projects on two classes of these: Auto aerosol products. And I mean you can be opening up a large number of substitute chemicals here, because in one given product -- first of all, there's several -- many different commercial products, which change, as Michael knows -- the formulations change a lot depending on what's cheaper to make, that sort of thing.

And they also can contain, you know -- instead of methylene chloride, for instance, they're adding ethyl benzene and toluene and those sorts of things. Certainly chemicals of interest. But if you factor in the number of different products times the number of different ingredients in those products that we might be interested in, you know, across the whole category of general purpose cleaners, you are talking about a lot of different chemicals and a lot of different -- you know, a lot of work.

So I think, you know, you might consider it sort of an embedded sort of pilot and look at kind of a general use category -- you know, like auto aerosol products have

been stringently regulated by CARB to remove the chlorinated hydrocarbon solvents. So you might just start looking there and some other categories that you might. But not -- you sort of have to really break down the general purpose cleaner category and see how much work that is. Because it is true that there are California-specific products, but they're all over the map. D5 is one of those. It's an auto parts cleaners now.

CHAIRPERSON MORENO: I've heard --

PANEL MEMBER WILSON: Yeah, I mean I see it sort of falling into this sort of pesticide category that we're -- we're prioritizing sort of high volume pesticides. But we really need more information to identify which ones are of real public health significance, yeah, like you said the physical-chemical properties and what have you. So it's a product category. And I think it's true, it could be infinitely complicated. But it's possible that we could -- that it can be narrowed in a reasonable way.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Why don't we do some -- just as a suggestion, do some exploratory work, let you know what it's beginning -- how it's beginning to shape up, and get some feedback from you as we try to get a handle on that

particular one. We can treat that again as sort of higher up in the funnel in terms of level of understanding. So we'll try to get some more specifics about what that might look like and how we might sort through those chemicals.

PANEL MEMBER WILSON: Yeah, and I can help with doing that as well.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Good. Great.

PANEL MEMBER LUDERER: And certainly a big part of that is going to overlap with the pesticide category too, since you mentioned that some large percentage of those consumer products are fungicides and insecticides, right?

PANEL MEMBER WILSON: Right, as consumer products.

CHAIRPERSON MORENO: All right. So we've gone through the list of seven with some consideration for the high-use chemicals.

Back to staff. Is this a reasonable list that you think we could get some outcomes on, getting more information, then working with some of the volunteer Panel members?

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Yeah. We look forward to having some volunteer Panel members to help.

CHAIRPERSON MORENO: Okay. I can't help -- do you have a question?

Can you come to the mic.

CDPH BIOCHEMISTRY SECTION CHIEF SHE: Jianwen She, biomonitoring program staff.

I'd like to make one comment, from the list which as proposed found we are very far from all the CDC list, so that we have difficulty to compare with national levels, something we need to consider.

From a chemical view, all these chemicals which is proposed are organic chemicals. We forget all the big inorganic heavy metals. So consider those two factors, and I ask Panel to consider this is for program even as a data point to ask -- to provide information. I think it is good, like Gina said, we starting in 2011. We want to be ahead of it. But on the other hand, we needed to continue on our foundations.

Thank you.

CHAIRPERSON MORENO: All right. Thank you.

PANEL MEMBER WILSON: Can I have a clarifying question about that, just quickly?

CHAIRPERSON MORENO: Certainly.

PANEL MEMBER WILSON: Are you suggesting that we should sort of stay within what CDC is sampling as a way to compare the State of California with the national

samples?

CDPH BIOCHEMISTRY SECTION CHIEF SHE: I suggest at the least we should include some traditional chemicals in this process. This is good.

PANEL MEMBER SOLOMON: No worries. We will.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT: Just, you know, for clarification, Jianwen, they're going to go through this two-step process. And we're starting with the entire CDC list, that that's a given. And they're looking at things that can be added to that list as possibilities for the kinds of things that we'll be looking at in the program.

CHAIRPERSON MORENO: All right. So in the interests of moving this iterative process forward, can I have up to four volunteers, which is less than a quorum, to work with staff to find a time to review in more detail the proposed -- this tentative list -- I won't call it priority, because that might confuse it with the other process -- so this tentative list of chemicals and groups of chemicals. And that's basically it. Leaving it up to the staff and the Panel members to develop their own timeline and decide when they're ready to come back and provide that information to the rest of the Panel.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: So, again, could you just reiterate

who the four people are that we'll be working with.

CHAIRPERSON MORENO: We're going to find out right now.

Any volunteers?

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Oh, I see. I'm sorry.

CHAIRPERSON MORENO: Anyone who's interested?

We have five folks.

Okay. We need four.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: You know, if we -- the thing that we can't do is have -- and we kind of need it here. So, yeah, we've got to be careful.

CHAIRPERSON MORENO: I don't want out there that there's five. Because if any of the five don't show up, we're going to look like we're planning to hold a meeting.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: One possibility is to have a smaller set and then perhaps schedule some conference calls that we could make available and open to the public.

Michael, I know that you had some ideas.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Yeah. One possibility -- and we talked about this briefly during the break -- would be instead of having, say, the next meeting be a formal meeting like

this sometime in October, you will be given an opportunity to have like a meeting via conference call or maybe via the web that's open to public, that's properly noticed, so that it complies with all the administrative requirements of the state, where you might block out maybe two hours or three hours to continue this discussion with some additional information that we will develop in the interim.

CHAIRPERSON MORENO: I think that's fine. I think we're probably willing to do that. What I was looking at was trying to find a group between now and then who could work with you on this end.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: I think that would be helpful.

PANEL MEMBER QUINT: I think I'll exclude myself.

CHAIRPERSON MORENO: Are you sure?

PANEL MEMBER QUINT: Yeah.

CHAIRPERSON MORENO: Okay.

PANEL MEMBER QUINT: I have plenty to do.

CHAIRPERSON MORENO: Okay. We have four.

The four are again?

Dr. Wilson.

PANEL MEMBER WILSON: Mike Wilson.

CHAIRPERSON MORENO: Who else?

PANEL MEMBER LUDERER: Ulrike Luderer.

CHAIRPERSON MORENO: Ulrike. Thank you.

Gina and Tom.

Okay. I'd like to recommend we take a quick break, ten minutes. That's 25 till on that clock back there.

Thanks.

(Thereupon a recess was taken.)

CHAIRPERSON MORENO: We're getting started. If I can ask the remaining Panel members to have a seat. We've got a presentation.

The next section of our meeting today: Approaches for Identifying Priority Chemicals for Biomonitoring in California.

I'm introducing Lauren again.

Is Lauren here?

OEHHA RESEARCH SCIENTIST DUNN: No.

CHAIRPERSON MORENO: Okay. Again, Lauren's with OEHHA. And she's lead for the California Biomonitoring Program with OEHHA.

Lauren, hi. I was just introducing you.

(Laughter.)

CHAIRPERSON MORENO: And you'll give us some more information on identifying priority chemicals for biomonitering and introducing your staff, right?

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT

BRANCH CHIEF ZEISE: Yes. And I'll be fast.

What we're talking about is this criteria. And up on the slide what we focused on are the criteria following -- basically following the priority chemical criteria. And Amy Dunn from OEHHA will be telling us both about the feedback we got from the surveys as well as from the public workshops, teleconferences, Email, as well as from the inquiries into state programs. So on your agenda you have two -- we had two different presenters. But it made sense to combine the talk into one.

So Amy will be giving the talk.

(Thereupon an overhead presentation was Presented as follows.)

OEHHA RESEARCH SCIENTIST DUNN: Good afternoon.

As Lauren mentioned, what we're going to switch to thinking about now is the question of once we have the list of designated chemicals, including whatever might be added to the Centers for Disease Control set, how do we decide as a program with your input what is going to be a priority chemical?

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OEHHA RESEARCH SCIENTIST DUNN: And I'll be going through input from the public on this point as well as from State public health and environmental health programs. And for each of these sets of input, I'll be

describing the process that we used to solicit input, the results in terms of who participated, what the preferences were that were expressed related to criteria that we presented, and also other suggestions of approaches that we got from people through these processes.

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OEHHA RESEARCH SCIENTIST DUNN: So with respect to the public and input on selecting chemicals to biomonitor in California, what we did initially as a program was that we developed a set of possible criteria. And I'll be going through what those were in a moment. And this was a set created to generate discussion and stimulate ideas. And these criteria were then discussed at the public workshops and teleconferences that were described earlier, and also were presented in the survey that was available online for people to take.

We asked the participants in the workshops and the survey respondents to consider their preferences among this set of criteria. And then we solicited their suggestions about other issues that the program should consider in selecting priority chemicals.

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OEHHA RESEARCH SCIENTIST DUNN: So before I go through this set -- and there's ten different criteria that we put together. The order is not significant. This

is just the order that they were presented in the survey. And as I mentioned, this was not meant to be an all-inclusive set, but it was with the idea that people would maybe get some ideas from these as to which directions the program might take.

So then I'll just go through.

The first one was to focus on chemicals that are widely used throughout California.

A second criteria might be to focus on chemicals that will help the government to decide how well environmental laws are working.

A third criteria presented was to focus on new or emerging chemicals or chemicals that are now becoming widely used.

A fourth criteria was to focus on chemical for which we know there's exposure taking place in the workplace.

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OEHHA RESEARCH SCIENTIST DUNN: A fifth criteria was to focus on chemicals that are part of the national program.

A sixth criteria, the opposite of that, to focus on chemicals that are not being studied nationally.

A seventh criteria, to focus on chemicals for which there may be higher exposures in California due to

state-specific activities such as farming, oil refining, or other regulations, such as we've talked about some today, stricter flammability standards, for example.

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OEHHA RESEARCH SCIENTIST DUNN: An eighth criteria that we presented was chemicals to which pregnant women, fetuses, and children are likely to be especially sensitive.

A ninth criteria, chemicals that are persisting in the environment and can accumulate in people's bodies.

And, finally, the criteria that the program look at chemicals that are found in communities where people may come into contact with more pollutants than the general population.

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OEHHA RESEARCH SCIENTIST DUNN: With respect to participation on this question, in the workshops and teleconferences we received 37 different comments. As was mentioned earlier, we had very attentive reporters at these meetings who were copying down people's comments. So the comments counted here include comments on the criteria that we presented as well as people's ideas about other kinds of approaches.

On the survey, 290 of the survey respondents answered the question that asked them to choose their top

four criteria from among that list of ten. And approximately half, a little more than half of the respondents also made suggestions on criteria. And many of these were suggestions of multiple ideas. So we got quite a bit of input on this point.

And through Email we had four individuals or organizations who made comments on criteria.

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OEHHA RESEARCH SCIENTIST DUNN: Turning to the question of the four top choices of criteria among that set of ten within the people who responded to the public survey. As you can see here -- and I'm sorry if it's a little hard to read on the left-hand side what is listed there. But I will be going through those top choices. There's a set of two that kind of stand out and then three more that were chosen by a significant portion of those responding. But I would also just point out that all of the criteria were chosen in the top four by some of the respondents. So there was a lot of interest in all of these approaches, some more than others.

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OEHHA RESEARCH SCIENTIST DUNN: So the criteria that were selected most often in the survey was measuring chemicals that persist in the environment and can accumulate. 63 percent chose that as among their top four

choices. And it was also of interest to people in the workshops and teleconferences, although in that situation it was mostly discussed in terms of the question of banned chemicals, although most chemicals which have been banned in the past but still are of concern are those that are persisting in the environment.

The other criteria that was of greatest interest, chosen by 57 percent in their top four, was measuring chemicals to which pregnant women, fetuses, and young children are likely to be especially sensitive. And this was the criteria that was mentioned most often by the participants in workshops and teleconferences. And a similar issue was raised in one of the Email submissions.

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OEHHA RESEARCH SCIENTIST DUNN: As I mentioned, there was kind of a set of five that rose to the top. And these were the other three that were of most interest to people answering the survey. So the first one being chemicals that are found in communities where people come into contact with more pollutants. And that was also a very strong interest at the workshops and teleconferences, although that criteria itself was not specifically presented at the workshops. In fact, people of their own accord raised the issue in the different forums that they're concerned about usually a specific community that

has a heavy burden of pollution.

Then the question of measuring new or emerging chemicals and chemicals that are widespread in California, both of those were also of strong interest in survey respondents and at the workshops.

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OEHHA RESEARCH SCIENTIST DUNN: So with respect to the additional suggestions on criteria, as I mentioned we had quite a large number of these, somewhere on the order of 200 suggestions. So what I did was group them into four categories to make it easier to understand what are the concerns that are being -- were being raised by the public. And what these groups are correspond to the three criteria that are in the legislation - toxicity related, exposure related, and laboratory related criteria. And then a category that didn't really fall -- of suggestions that didn't really fall into any of those groups.

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OEHHA RESEARCH SCIENTIST DUNN: Within each of those groups, there were different types of suggestions. And so what I'll do is I'll go through the different types and I'll give you some examples just to give you a flavor of the types of suggestions that people were making.

So with respect to toxicity, some people made

suggestions with regard to the severity of the effect driving the choice. So, for example, the more toxic the chemical, the higher priority should be given.

A different person suggests that less consideration is needed for chemicals that have been studied a lot and have been determined to be relatively harmless.

There were a lot of suggestions with respect to the type of harm caused by the chemical. And these are fairly wide ranging but include categories you may expect. For example, chemicals that cause cancer, endocrine disruption, neurological damage, and other types of systemic harm was one person's suggestion.

Another person suggests chemicals that have multi-generational effects. Suggestions regarding endocrine disruption are very common, as well as immune system toxicity.

Then a little less common, but also suggestions that the program look at chemicals that are causing allergic or asthmatic reactions such as fragrances.

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OEHHA RESEARCH SCIENTIST DUNN: In this category I also included some people suggesting -- suggested that the program look at chemicals that are causing environmental impacts on wildlife and plants.

Then the third category with respect to toxicity has to do with the potential for cumulative effects. With people suggesting that the program focus on chemicals that may have synergistic or cumulative impacts. Another suggestion, that commonly combined chemicals that together create additional adverse risks be a focus of the program.

Then, finally, there's a category of suggestions that really bring together toxicity and exposure considered in sort of a form of hazard evaluation. So one example might be that the screen be looking both by volume and commerce and structural propensity to cause harm. A different example, whether the chemical potentially could cause adverse effects to public health at likely levels of exposure. And then, finally, emphasize the potential risk to human health. So that was brought up a number of times.

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OEHHA RESEARCH SCIENTIST DUNN: Now, many of the suggestions have to do with exposure. In fact, the greatest number came up in this group. And I've broken it into six different types of suggestions. And I won't go through examples for all of them but just a few to give you the flavor.

So with regard to the extent of exposure, the suggestion -- one suggestion is the percentage of a

24-hour day that someone is inhaling the substance. For example, mattress or pajama flame retardants would be eight or more hours at close contact.

But then there's also alternative suggestions such as widespread exposure isn't a good criterion because exposures differ in different places. For example, people in San Francisco aren't exposed to some things that people are in the Central Valley.

So there isn't necessarily agreement

Persistence, as we've seen, was the highest ranked criterion of those that we presented. So people also made comments about that. But I won't go through those, except to note that there is a little bit of disagreement with regard to chemicals that have been banned -- have been historically banned versus looking at chemicals that have been recently banned. No real agreement on that. But, you know, some people favoring both and some people favoring neither.

Then with regard to specific locations or sources of exposure, this was in fact a category that had the greatest number of suggestions in terms of how the program might focus its resources. And there's a range of opinions but examples include chemicals that are entering our drinking water. Another person suggesting looking at levels of naturally occurring carcinogens, mutogens, and

teratogens present in fruits, nuts, and vegetables. A different person suggesting chemicals and vaccines in his food. Another person, common household products and garden chemicals.

So just to give you a sense. There's a lot of interest in maybe choosing some kind of avenue of exposure and focusing in on that.

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OEHHA RESEARCH SCIENTIST DUNN: Then the other set of exposure-related criteria really are in relation to different kinds of populations at risk, such as people who have a chronic illness or condition that will make them more sensitive to the effects of chemical exposures. Or a different set, populations who are at risk because of intrinsic factors such as age or genetic factors such as race.

Well, as we've seen, pregnancy and children is rising to the top of the concerns. So it's not surprising that there were also a lot of comments related to that.

With respect to race, however, we see comments about that. An example being, consider the disproportionate number of people of color who are exposed to different types of toxics. So as we've seen, that's also something that's come up.

However, we do have a comment on the other side

with urging the program to focus on generating a statistically valid sample of individuals representative of the state.

Then, finally, other types of populations at risk that people were bring up as a possible focus for the program are those who are at risk because of their location or particular exposures that they face such as communities exposed to high levels of toxic chemicals or exposed workers. And just a couple of examples: Fence-line residents, farm workers and farm worker family members, and low income communities that may be at higher risk of contacting these chemicals and have no knowledge of them.

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OEHHA RESEARCH SCIENTIST DUNN: With respect to laboratory-related criteria, there were much fewer numbers of comments on this regard. And there's just a few different types that I've pulled out from the set that were suggested. One includes looking at different types of biomarkers that are available such as biomarkers of effect, consider chemicals for which there are known biomarkers, i.e., cholinesterases for pesticides as an example.

With respect to the type of biomatrix sampled, there were actually comments only about cord blood. So

the suggestion that we look at cord blood was brought up a number of times.

And with respect to method availability, accuracy and sensitivity, suggestions that we focus on chemicals that can be measured with some precision, chemicals that are not highly variable based on the time of day and other suggestions of that sort.

With respect to cost, we have just a few suggestions. But on both sides, consider costs, don't consider costs

(Laughter.)

OEHHA RESEARCH SCIENTIST DUNN: Take your pick.

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OEHHA RESEARCH SCIENTIST DUNN: So with regard to criteria that didn't really fit into the categories of the legislative criteria, there are a few that relate to the criteria that we suggested such as focusing on chemicals where the results will allow for intervention or for the ability to assess the program's effectiveness, to look at emerging chemicals, to look at chemicals measured by the national program or not. With respect to the chemicals measured by the national program, like cost, people kind of fall onto both sides, whether they think that's the way the program should go or whether the program should choose to, for example, here's one, extend the CDC list instead

of duplicating it.

And then there are also suggestions of other issues that could help the program focus, such as looking at chemicals that have safe alternatives. There were also issues raised with respect to communicating the results that the availability of the information to -- of sufficient information to place what has been measured into a context of human health risk could potentially drive what we would choose to monitor.

And then there were other issues raised related to chemicals that are highly profitable to industry, versus other ideas about looking at chemicals that there's a lot of public concern about, and one suggestion that the program develop criteria for not only putting chemicals on the list but removing them.

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OEHHA RESEARCH SCIENTIST DUNN: So just to sum up with respect to the public input, we're definitely seeing a lot of interest in persistent chemicals, emerging chemicals, and specific sources of exposure such as drinking water, indoor air and consumer products. There's also a focus on populations at risk, including children, pregnant women, fetuses, and communities with heavy exposure burdens. And then with respect to toxicity, an interest in focusing on particular endpoints such as

endocrine disruptors, carcinogens, or reproductive toxins, and higher risk exposures.

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OEHHA RESEARCH SCIENTIST DUNN: So turning now to the process that was undertaken to get input from state staff. As it was described earlier, there were a number of agencies that were contacted and asked to provide input to a set of questions. And the set of agencies was described earlier. Just to remind you, it includes all the boards and departments within Cal EPA as well as a number of programs within the Department of Public Health and some regional agencies.

The possible criteria that I went through just a minute ago were the same criteria that were presented to state staff with just some variation in the language, but the same concepts were presented. And state staff, similar to the public, were asked to choose their top four criteria.

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OEHHA RESEARCH SCIENTIST DUNN: As was mentioned earlier, there were multiple programs for different boards and departments that participated. And these were primarily phone interviews but also some written responses. And with respect to criteria, there were approximately 35 different responses that were -- that

I'll be going through the results.

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OEHHA RESEARCH SCIENTIST DUNN: So, in terms of the criteria selected most often by state staff, the top choice was the focus on chemicals that affect pregnant women, fetuses, and young children, similar to what we saw with the public. And then there were also strong interests in chemicals that are widely used in California, new or emerging chemicals, and chemicals that persist and bio-accumulate.

Just to mention here that, not to detract from this at all, but that the survey responses -- approximately a third of the survey responses were from government participants. So that there is some overlap between the public -- what we're calling the public input and the state staff input. But it's our understanding that there's only a few actual individuals who overlap. There might be some people who filled out the survey who were also interviewed, but for the most part they're different individuals. But there is some overlap.

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OEHHA RESEARCH SCIENTIST DUNN: So I'm not going to go through the categories, but just to give you a flavor in the general groupings about other types of suggestions that we received from state staff with regard

to how the program might focus in terms of selecting the priority chemicals from this large set. So there was some suggestion that the program might focus based on biological effect, for example, as we keep hearing, focusing on chemicals that are endocrine disruptors, focusing on chemicals that disrupt signaling pathways important during development, chemicals that trigger autoimmune responses or affect thyroid hormone. Those were all effect-related approaches that were suggested. Also the idea of looking at chemicals for which there is a marker of effect such as perchlorate and thyroid disruption.

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OEHHA RESEARCH SCIENTIST DUNN: With respect to the exposure-related criteria suggestions, there was really an emphasis on the need for community studies and attention to environmental justice. So that's a concern within the government as well as the public input.

And to focus on chemicals that are important in all the relevant media. So media was a concern but not any one particular media coming out as most of concern.

And then again the question of whether to include persistent chemicals that have been banned for decades in the United States was raised.

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OEHHA RESEARCH SCIENTIST DUNN: With respect to laboratory, there were a number of different kinds of suggestions, some with an eye to making the most of limited resources. There are suggestions that the program might want to do some preliminary studies that would include broad investigative screening, looking at peaks in a sample instead of going in with just a set of chemicals that you wanted to find, but to look at what all is coming out in some set of preliminary studies to kind of get an idea about things that we might not have on our radar that might be showing up in people.

Then the idea of looking for -- looking at certain chemicals as sentinels for other groups. As was discussed earlier, this may or may not save as much money as some people would hope that it would.

And then the idea of foul-up tests for individuals with high levels, for example, of metals to do speciation rather than doing speciation for all participants, again as a way to save money.

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OEHHA RESEARCH SCIENTIST DUNN: Then with regard to criteria that didn't really fall into those categories, the idea of assessing regulatory importance was -- well, it wasn't really -- assessing the effect of regulatory programs is what that really is supposed to mean -- was

considered valuable but was seen as a difficult thing to do well, and that you couldn't just assess one time whether a program was effective. You'd have to repeat it over and over. So it's a good idea, but is it really worth the resources kind of question.

And then the idea of identifying chemicals where there can be some kind of intervention. And there's just an example of a comment. Do we know what to do with biomonitoring data? Do we have resources to take action? So just the idea of, what are we going to do with these data once we have them?

And then also the idea of looking at what other groups are doing, such as the European Union, which as part of our program this week. And then just urging us to be looking ahead to the future and anticipating emerging concerns, to have the program focus on the future in that sense.

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OEHHA RESEARCH SCIENTIST DUNN: So just to sum up the highlights from the state staff input. The top choices of the criteria were related to exposure, focusing on pregnant women, fetuses, and young children, looking at emerging chemicals and widespread exposures, and an interest in community-based studies.

Then with respect to toxicity, the idea that we'd

think about what the endpoints are, maybe focusing on chemicals that have particular types of endpoints. And with respect to the laboratory, maybe taking a somewhat more exploratory approach and possibility of choosing sentinel chemicals. And then an emphasis on focusing on chemicals for which there is a possibility for intervention.

And just as I mentioned earlier, there is some small amount of overlap. But in general I think what we're seeing is that this -- this is very consistent between the public and the state staff, the kinds of priorities that people see as, you know, preferable for this program. And that these are directions that the program might choose as a way to start to focus in on some subset.

And I just would like to emphasize that really what we've done is just start a dialogue with the public and also with state staff. As we've seen today, you know, there's people like CalOSHA who might have really worthwhile input that we haven't -- you know, we're just starting to become aware of today. And this is a dialogue that we need to keep going with and -- because there's valuable insights that can be gained from getting more people involved.

And that's the end of my comments.

CHAIRPERSON MORENO: Thank you, Amy. We have a few questions for you.

OEHHA DIRECTOR DENTON: Amy, I wanted to ask you. When you actually look, when we look at the statute, when we look at the bill that was passed by the Legislature and when we look at the bill that was passed by the -- that was signed by the Governor, the goals of the program -- there are, you know, four main goals of the program. But one of them is that there be -- there should be a feedback to the state regulations which involve environmental contaminants. So it's a clear goal of the biomonitoring program.

The other is the -- well, there's one that's establishing trends. But the other is to determine the levels of environmental contaminants in a representative sample of California. We'd thought of that so it was just statewide. And this doesn't seem to match sort of the top criteria that you derived from your conversations with the, you know, workshops and with state staff. So I'm sort of wondering how we mesh the goals of the program as clearly defined within the legislation and the criteria which seemed to be rising to the top from the public input.

OEHHA RESEARCH SCIENTIST DUNN: Well, I think one thought on those lines is that -- I mean when we went into

these, say, for example, in the public forum -- and just to clarify in case there's any confusion. I was not the person who talked to state staff. That was Gail Krowech, who presented earlier. And I just am presenting her results on that effort.

But with regard to when we went to the public, the idea that we had was that the program has limited resources and almost what kind of question should the program try to answer? I think -- you know, I could only speak for myself. But I think, you know, if we had endless resources, of course we'd want to do everything. We'd want to, you know, do this statewide sample as well as we could possibly do it with, you know, many thousands of people and also do focused community studies. But, you know, there's a reality check on that, and the question of, "Well, if we do have limited resources for the foreseeable future, what is going to be the most valuable thing for the program to do?" And these are the kinds of things that came out of it, you know, that people are really concerned about exposure to pregnant women. I mean I think that's clear. And I don't -- you know, it's not --

OEHHA DIRECTOR DENTON: Well, somehow we have to keep the goals as written into the legislation as part of, you know, as part of the final criteria.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

Yeah. And maybe this didn't come across quite as clearly as we would have wanted to. But that these -- I'm sorry. Can you hear me?

Yes, okay.

-- that with respect to this particular survey, we're looking at criteria that the Panel could use or that we could use to think about adding chemicals, like for either designated chemicals or thinking about priority chemicals. And so we weren't specifically asking about, say, the study design, for example, like looking at the statewide versus community. But the issue with respect to community studies came up, because there was some thought that, say, for some affected communities -- or community members who might be responding, it's the chemicals or processes in their communities that might influence the recommendations that they would make to us as well. And so we wanted to include an opportunity for members of specific communities to indicate chemicals that might be important to them, that that might feed back into the overall process of designating chemicals.

So that may be something that caused a little bit of lack of clarity here. But that was why that aspect showed up in this.

PANEL MEMBER WILSON: It seems to me -- I have a

question, Joan -- that it's consistent with the criteria related to exposure that the finding here on public's interest around persistence in bioaccumulation is a measure of exposure in -- you know, it's a physical-chemical property, but it would fall under the category of exposure, if you will, both over time and geography. Is that your sense? Or I'm not clear what the confusion is.

OEHHA DIRECTOR DENTON: Well, I guess I see sort of a mix in the public and then in the staff, that, you know, the focus on sensitive groups, which is so critically important, the sensitive -- you know, the focus on community monitoring which is so critical, the emphasis on persistence and bioaccumulative and all of these things. And then I kind of focus on, okay, reminding myself the goals of the program which we're responsible for. You know, we're responsible for the goals of the program, which specifically says that we need to give feedback to regulatory programs on, you know, the effectiveness of their regulations, which wasn't ranked so high or it seemed to be difficult -- good idea, the difficulty -- I mean that's really one of the goals of the program. And the other being, you know, the sort of the representativeness sort of -- we just have to keep it in mind as we forward that these are really the specifics

within the statute that we're responsible for. And however they can mesh and however, you know, we can build on this to address, you know, sensitive subgroups and all of that, that's going to be very important.

PANEL MEMBER QUINT: The legislation does have at the end I think resources permitting something about exposure groups or community groups. So people may have seized on that and through their work whether -- I mean the public, and then also people who are in the state agencies may -- that may be more important to them than a random sample such as the one that's been done by CDC.

So, yeah, I think, you know, the emphasis may be different, but it's not contrary to what's in the legislation totally. And the regulatory aspect of it, I'm not sure if it means -- I mean for lead, for instance, I mean if we -- you know, the CDC is shown this dramatic change in blood lead levels in children. So to me that speaks to the -- you know, the effectiveness of a regulatory program. So it may just mean one aspect of a regulatory program, you know, the fact that you banned -- we banned one form of the congener of the flame retardants that if we see, you know, decline in those, that that shows that it's effective. So, you know, it's a little bit confusing about program -- regulatory program effectiveness versus a chemical that's been regulated or,

you know, something's been done for that particular chemical by a program like the ARB or something.

OEHHA RESEARCH SCIENTIST DUNN: I think just to go back maybe one more minute to what you were saying, Joan. I think it might have gotten lost. I was trying to go fast through a lot of information because I know it's late in the day.

But one of the things in terms of being able to compare, you know, if we have a representative sample across the population, if we are going to use those baseline results to then look at subpopulations, you need to have looked at the chemical in the broad-based sample that you want to look at in the subpopulation. So that I think is one of the drivers. So it doesn't necessarily mean that we would only sample pregnant women. But if we look at chemicals in the broad population that are then going to be of interest in pregnant women, just to use that example, then we have the baseline that we need. So I think that that's part of the issue.

CHAIRPERSON MORENO: I think Gina has a question.

PANEL MEMBER SOLOMON: Well, I guess it's more a comment, which is that, you know, one of the things when you design a questionnaire and then, you know, you actually administer it and you get the results back, you sort of think then about how you asked your questions.

And one of the things that's a little tricky about criteria for priority setting is that there are criteria that are sort of, you know, more universally appealing perhaps for priority setting and others that are perhaps more effective for priority setting. And when you think about, for example, chemicals that affect pregnant women and children and you look down the CDC list, you realize that everything on the CDC list actually really fits that criteria. And so it's not -- and so in a way, okay, that's good because it means we could pretty much pick anything from the CDC list. But it actually is maybe a little less helpful than I would like to us as a panel.

On the other hand, you know, I think that there are -- I mean we should be looking at criteria that are sort of useful for helping us winnow down the CDC list, and at the same time keeping in mind are we still fulfilling some of these other criteria that we hear are being -- you know, as being important from the public. And so I think, you know, there are some other criteria. In fact, maybe criteria such as those that we talked about before around the designated list, about is there -- because fundamentally at least from my perspective, I don't want our program to be CDC light, you know, where we just sort of find exactly -- you know, look for stuff that CDC looked for and find exactly what CDC

found in California and spend a lot of money doing so and a lot of effort.

And so to my mind if we want this program to actually be something, we want to be really thinking about, well, what's different? You know, which chemicals do we want to look at where we actually are more likely to find either higher levels of exposure here in California or lower levels of exposure, and a contrast to what CDC is finding.

And so that was what I ended up more recently coming down to is maybe a useful funnel. And you can actually go through the CDC list, and I did, and come up with a pretty, you know, short list. Maybe not as short as it needs to be.

(Laughter.)

PANEL MEMBER SOLOMON: But a shortish list of chemicals that would potentially fit that criterion, and all of them actually would be problems for kids too.

CHAIRPERSON MORENO: Do you have a question?

PANEL MEMBER WILSON: Yes.

CHAIRPERSON MORENO: Okay, great.

PANEL MEMBER WILSON: Now, first a comment. One thing I found interesting is that the European Commission in going through a similar process but more in depth over a longer period of time came up with very similar findings

in their public survey process. So they -- the question primarily of substances that are persistent in biocumulative rose to the top of the priority list across the EU. And that is now reflected in their REACH regulation, where substances that are very biocumulative, very persistent, irrespective of toxicity, are now subject to authorization for specific uses if they are sold in more than one ton per year in the EU. And there's questions about how you define a vPvB that are problematic that we're going to have to deal with here in California about what are the technical criteria that we set for what is a persistent biocumulative substance.

But I think -- I mean the fact that you sort of came up with the same finding is interesting to me. And I think it's -- you know, it's consistent with what's been seen in other places from the public.

So then I had a question. And, that is, from the state staff it's an interesting suggestion that seems to be counter to where we're going here, that came up yesterday. And that was that rather than looking for bad actor chemicals or high volume chemicals or what have you and then looking for those in humans, what seems to be suggested here is that we do more screening and, you know, sort of in the scan mode on the GC mass spec, and then look for the peaks and identify a sentinel's chemicals and

go that route.

And I remember Peter having some -- Myrto having some discomfort with that. But I'm just wondering if there's -- if you can say any more about that as an approach. And is it something we should be thinking about?

OEHHA STAFF TOXICOLOGIST KROWECH: Yeah. This was one person's suggestion. So, first of all, it wasn't a general, you know -- or there weren't many people who are saying that. But the idea was, were there chemicals that we had no idea were really important that we would be missing by looking for the bad -- you know, by developing a list of what we thought was bad? So to basically do some initial screening to see if there were other chemicals that weren't on our list. That was sort of the idea.

PANEL MEMBER WILSON: Okay. Is Peter still here?

Could you comment on that as sort of an analytical method that we are thinking about?

CDPH ENVIRONMENTAL HEALTH LABORATORY BRANCH CHIEF FLESSEL: The only thing I would say is to reflect what John Osterloh said to you yesterday when you brought that up. I think it's a very interesting idea and not something that we want to say is not technically feasible. But John pointed out that you lose a lot of sensitivity

when you do a total ion scan. And, therefore, we perhaps wouldn't even find those unusual chemicals if we used that approach, unless they were present in huge amounts.

PANEL MEMBER SOLOMON: You know, in my conversation with Larry Needham about this issue, he said that when they run the GCMS in sort of scan mode, they actually do see a lot of peaks despite the lower sensitivity. I think in the conversation with him the bigger problem was matching them to known chemicals in the chemical library, and that they were actually having some trouble doing that. But it was something that, you know, he was very interested in and, again, said, well, it's feasible and it's something to consider, resources permitting.

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: If I can answer what Peter said in addition to the sensitivity. Before you reach the GCMS you learn a lot of processing. And during that processing you already are eliminating a lot of chemicals. So you'll be seeing maybe some peaks that fall within the sense certain categories of solubility, and so forth. So, again, you're limiting what you're looking for.

PANEL MEMBER SOLOMON: All right. And he said you have to do minimal cleanup of the samples if you're going to run it in scan mode.

DTSC ENVIRONMENTAL CHEMISTRY BRANCH CHIEF PETREAS: So again, going back if something is in huge amounts, it may persist through all this cleanup, but not everything.

PANEL MEMBER BRADMAN: It seems to me that some of these ideas are good for exploratory work or, you know, a graduate degree. But I wouldn't use something like that to drive a program, you know, starting with unknowns, trying to identify the unknowns, and then taking that where that leads you. But it sounds -- to me it sounds interesting to pursue as kind of a learning exercise, and potentially could add, you know, valuable content and target analytes. But, again, I would be hesitant to use something like that as a driver for a program.

CDPH BIOCHEMISTRY SECTION CHIEF SHE: On what Peter and Myrto said, identify high and low and identify targeted compound, two different things. Target analysis is a more routine program, identify the high and low is more on the research end.

CHAIRPERSON MORENO: You know, before we have any more comments I want to quickly -- if there's anyone else out there that's wishing to make certain public comments, we'll get to you in a few minutes.

Did you bring your purple forms?

Dr. Culver, did you have a comment?

PANEL MEMBER CULVER: No.

CHAIRPERSON MORENO: Okay.

All right. Further questions of Amy and Department staff from the Panel?

PANEL MEMBER BRADMAN: I did have one comment. I thought this was useful and helpful. And it also kind of just reinforces some of the discussions that we've had earlier today.

CHAIRPERSON MORENO: Thank you very much, Amy.

PANEL MEMBER QUINT: I just wanted to say too that it'd be interesting to see when Gail summarizes her -- or has comments about her chemicals whether or not the actual chemicals that were recommended by State staff matched the descriptors of persistent and, you know, of interest in pregnant women. Because we had all these chemicals, and now we have just the criteria that they were interested in. So it would be very interesting to see whether or not the chemicals actually match what they listed as their criteria.

OEHHA RESEARCH SCIENTIST DUNN: It is the case that the chemicals and the criteria didn't necessarily come from the same people.

PANEL MEMBER QUINT: Oh, okay. That would be -- well, maybe they shouldn't match then.

(Laughter.)

CHAIRPERSON MORENO: All right. Well, at this time we're going to have some public comments. And following public comment we will have one more opportunity for discussion -- general discussion by the Panel before George will summarize the afternoon for us.

So can I -- Let's see. Hasheem Bason.

Could you come on down. Thank you.

MR. BASON: Hello. My name is Hasheem Bason I'm with Parents for a Healthy Community. And we're a community-based organization based in West Oakland. And so I'm really just now becoming familiar with environmental justice and environmental issues.

But I would like to -- I went to the first biomonitoring meeting I think they had in Preservation Park. And I believe you were there, Dr. Solomon, and a few other people. And I just wanted to reiterate how important it is for this group to take into consideration community-based organizations and the people you serve.

Presently I live in West Oakland. And if you live in West Oakland, the statistics say that your chances of dying 15 years ahead of time because of the pollution and other social issues in that area. So I believe biomonitoring would be very, very important in areas like that to see how we can stem those types of deaths and things like that.

So I think it's very important that -- like I said, the community-based organizations are embraced, and that we address those issues so that we can do a better job there and so people can have a better understanding. So that when you do come to these organizations and these communities and try to gather this information, that you can get good information because people will be free to let you gather that information. Because all this will be null and void if can't really serve the people who you're trying to serve. You're just trying to get information or you're trying to get samples and you're trying get people to get people to get an understanding of what you're really trying to do and how it really trying to do and how it really improves the health of everybody in the community, which improves the health of everybody in the world basically.

So that's all I have to say basically.

Thanks a lot.

CHAIRPERSON MORENO: Thank you.

Okay. Mr. Davis Baltz.

MR. BALTZ: Davis Baltz with Commonweal again. Thanks again for the chance to comment.

I thought that your discussions this afternoon mirrored quite closely some of the feedback that came from the public and staff interviews on the priorities for the

program. And so I thought that was fortuitous.

And I want to just -- you know, Tom brought this up about screening being an art. And we heard yesterday about -- from Canada and Germany. They talked about selecting chemicals being an art and a science. And so I'm quite sure you're not going to get dogmatic and not be able to kind of go back and review the directions that you're going. But this is going to have to be somewhat of a creative process on which chemicals are ultimately going to be biomonitored, for I support the inclusive nature of the designated chemicals list that was mentioned. And I don't think that you want to set too many informational needs on that list, so that it's so onerous that you burden staff with a lot of extra work before you can even get to the point of prioritizing chemicals.

I think it's important to consider trends data that will be useful for California. So another thing that you might consider when we get down to picking priority chemicals is, what do you want to know over a period of time? And you're going to make a commitment to biomonitor these chemicals over a few different cycles.

Then, I think it's also important to just remember that the program is according to the statute ultimately responsible for making the decisions about the program. And of course your guidance is going to be

crucial for that. But the state's ultimately going to have to retain some prerogative to biomonitor potentially on an emergency basis, as CDC has done, when there might be some public health emergency and biomonitoring information is going to be necessary on a short-term basis.

Dick Jackson talks a lot about how that would have been so useful when the spill up in Dunsmuir happened. And whatever chemicals that may be, if it happens, may not be on the priority list or even the designated chemical list. So the state is going to have some leeway, I think, to have to respond to something like this.

And this sort of also speaks to some of the priority chemicals that might be chosen.

When I was biomonitored myself in 2000, we didn't -- we thought we'd pick up a panel that would sort of reflect all the chemicals of concern that we knew about at the time. But we didn't check for PBDEs, we didn't check PFCs, and we didn't check for Bisphenol A, because those -- they hadn't emerged on the radar yet. And so that's only a handful of years ago, and I'm sure we're going to see some more examples like that.

And then, finally, I just want to thank all of you for your work. And in terms of how regulatory

agencies are informed or reported back to from biomonitoring, I think that will sort of in many ways answer -- those questions will be answered as the program starts to generate data. And the most important thing is for there to be absolutely impeccable science that everyone can have confidence that when this program generates data, everyone knows that it's accurate, and then we could use that to have further conversations and make further decisions.

So thanks again. We look forward to your next meeting.

CHAIRPERSON MORENO: Thank you, Davis.

Okay. LaDonna Williams, are you still here?

Rebecca Sutton, are you still here?

Thanks for staying with us.

DR. SUTTON: Sure.

Dr. Rebecca Sutton with Environmental Working Group again.

So I just had a few quick comments for you. I wanted to share our process, because we do biomonitoring studies, so I wanted you to know how we prioritize chemicals.

What we end up doing is we synthesize data from over 50 different data bases on toxicity, persistence, biocumulation, consumer product use, production volume

regulations. And let me throw in some stuff from the literature on these smaller biomonitoring studies. And we use all of this in a great big database that helps guide our decision-making process on which chemicals we want to test and which methods we want to develop.

We've actually tested over 550 different chemicals now in different kinds of samples.

So California could come up with a similar system to help guide their process.

I'm not really suggesting right now that you want to do that, because it seam like you're starting to come to some kind of census already on some of the chemicals you want to start looking at. But it could help, both by a designated chemical list and the priority chemical list evolved in the future.

And another comment I had to make is, umbilical cord blood testing has come up several times, and we're big advocates for that. We think it would be a great thing for you guys to focus on. And of course if you were to focus a lot of your resources on testing that particular matrix, then that would then influence the chemicals you'd want to prioritize for study, for the same reasons that Asa Bradman brought up, you know, the different limitations like the -- content.

So that's it.

CHAIRPERSON MORENO: Thank you.

Okay. Meg Schwarzman.

DR. SCHWARZMAN: Thanks. I'm Meg Schwarzman. I'm a family physician and also a researcher at UC Berkeley Center for Occupational and Environmental Health.

I really admire the process that the state staff and the Panel is going through to address this really complex project that has such potential. And it's been really inspiring to hear the broad range of the discussion both today and yesterday. And so my comments are just very limited.

The main issue I wanted to raise is exploring the possibility of linking the biomonitoring project with California Disease Registries. And the reason I raise the issue now is because of the possibility of data that could be collected sort of in the design phase of the biomonitoring project. If there's data that could be collected through the biomonitoring program, that would help close the loop on some of the exposure and disease links that were very, very challenged in closing. And that sort of recognizing that drawing conclusions about the causal links between exposures and disease is really difficult. But we potentially have the opportunity to get some insight into some of those associations. And this overlaps a bit with what Davis Baltz mentioned earlier

about targeting substances which are associated with some health effect of concern.

And then also it was mentioned just now in looking at substances for which there's a biomarker of affect, such as, you know, thyroid function or something and whether those belong at all in the design phase of choosing substances or of the other questions that should be asked at the same time as the sampling is done.

It risks the issue that Gina mentioned about looking for the keys under the lamppost. But it also -- you know, if we were limited to just those for which we have specific concern because of disease effects or something, but it also raises the opportunity to potentially close some of those links or inform that process.

And the other one is just a brief comment, because this has already come up before, which is if in light of the very limited resources, that it is sort of intriguing, as both Mike and Asa mentioned, to consider maybe in a first phase doing a -- primarily an umbilical cord blood monitoring project and whether because of some of the issues that Asa mentioned it would be helpful to add breast milk to that. I don't know whether that helps address some of those issues of the more lipophilic substances and whether you can catch them that way.

But it strikes me as something that would add to what the CDC does because it's a discrete project that the CDC doesn't do. Also a very noninvasive sample collection, and potentially available -- and the logistics of this I don't know. But I know that umbilical cord blood samples have been collected for at least a decade, if not 15 years or more. And whether there's a possibility of using stored samples to get before and after or comparative and trend data in advance of when we'd be able to through this program and its start date in 2011 or whatever it will be.

So thank you for such an interesting discussion today. And I look forward to it continuing.

CHAIRPERSON MORENO: Thank you, Dr. Schwarzman.

All right. And I have one more. It's the last one.

If there's anyone else wants to provide comment, bring down your card.

Andrea Ventura. Are you still here?

MS. VENTURA: I'll skip mine, because actually Davis said a lot of what I wanted to say. So I will defer to his comments.

CHAIRPERSON MORENO: Okay. Thank you.

All right. With that, I'm going to bring it back to the Panel. We have some time to end the day with some

general conversation. If you have final comments that you want to bring to the Panel for discussion, we just -- anything that we didn't finish on the prioritizing process, and now's the time.

PANEL MEMBER BRADMAN: Can we also speak outside the selection issue, or do you want to hold that off --

CHAIRPERSON MORENO: Sure, certainly.

No, go ahead.

I'm sorry. How far out of the --

(Laughter.)

CHAIRPERSON MORENO: We should speak to the agenda. That's what we're supposed to publicly --

PANEL MEMBER BRADMAN: Well, funding issues, resource issues?

CHAIRPERSON MORENO: Oh, go ahead. Bring it up, yeah.

PANEL MEMBER BRADMAN: Well, I just wanted to bring up for discussion whether as a panel we want to consider writing a letter to the Governor, to the Legislature, or to discuss how we might encourage additional resources for the program. I mean the concern I have is that, given the resources that are available, the program may not be able to fulfill the obligations of the legislation. And if that's -- you know, part of our role is to advise on what needs to be done to fulfill

that, you know, resources are part of the picture. I know in our own private lives we spend a lot of time raising money for the work that we do. And at the same time those -- you know, we know that those resources are essential for accomplishing those goals. And I think that's true for this program.

So I don't know, if you want to defer that for a few minutes and talk more about sample selection. But I would like to have a discussion about that.

CHAIRPERSON MORENO: Well, I, for one, I am interested in looking into what our options are to maximize funding -- revenues for the costs that the laboratory would like to incur and can't incur because it's just not in the budget. That might be one option. I would propose that we kind of expand that to a little more general in terms of looking at our options, which would include, for example -- and then we may come up with more options because we have to determine our capacity as a guidance panel what do we have authority to do. And the other thing would be we'd want to work with the Department staff to determine what is really politically feasible and would suit their interests and make sure that we present the efforts in the best light possible.

So I'd be very interested in doing something like that.

PANEL MEMBER McKONE: I think it's an interesting -- an important question. And of course we're a science panel. So I think the point would be -- the commentary would be to what extent is the science that we're looking at jeopardized by insufficient funding. And I think that's really what drives it. So it wouldn't be a political letter. It would really be a scientific letter. And I think that's the best way to do it. And let me just, you know, if you look at some of the comments, you know, they have credibility. In the scientific community to have credibility with local communities, you have to have enough resources. Otherwise it's going to fall short of meeting basic requirements and we'll lose credibility, not just in science, but also credibility with the community groups that are looking to this to provide some information for what's happening in their community.

OEHHA DIRECTOR DENTON: I think you can -- I think you have latitude. You're here to advise us. You're here to advise the state. You're appointed individuals who are representing different scientific expertise. And you're part of an advisory group which is -- well, you are the advisory group to accomplish the program. So I think that what you would choose to do and how you would choose to weigh in and how you would chose the make your opinion known I don't think is outside of,

you know, your charge and your responsibilities as the Science Guidance Panel.

The situation is that the General Fund is in desperate straits, as we all know. And, you know, anything is up for grabs. I mean, you know, it continues to be a volatile situation as we go into this year. And it's just the reality of the fiscal situation that so many programs find themselves in. But that being said, I think again as a panel, you have a -- you know, you have a latitude to express your opinion.

PANEL MEMBER SOLOMON: May I make a proposal?

I'm not sure that we can -- the budget process is kind of active right now. So if we were, for example, to approve a letter at our next meeting, that would be rather late. And I'm not sure the degree to which we can do a group sign-on letter in between meetings. But what certainly could happen is that, you know, one or a couple of members of the Panel could draft such a letter, send it in to the relevant committees, and then circulate it to the rest of the Panel as an FYI. And then any other Panel member that wanted to write a similar letter and sign it and send it in could also do so. And so that would not be a letter from the entire Committee but rather it would be a number of letters along the same lines from members of the Committee. I think that might be the most expeditious

way to move this forward, unless others have a different thought.

I think it's a great idea. I think it really is. I mean if we want to be able to have this program with any kind of viability or credibility, it needs money.

CHAIRPERSON MORENO: George, do you have a comment?

OEHHA DEPUTY DIRECTOR ALEXEEFF: George Alexeeff with OEHHA.

Well, we work with a number of scientific panels who often want to report information back. And often what they do is they -- they agree in general terms to have the Chair write a letter, possibly with input from one or two additional people. So that's just another option.

CHAIRPERSON MORENO: I would like to maybe just amend that to, with George's recommendation, that perhaps that the Panel could agree to have the Chair work with the Director and -- well, this is what I'm interested in. Is it necessary to work with the Director and run it by counsel?

OEHHA DIRECTOR DENTON: No, no, no, no.

(Laughter.)

OEHHA DIRECTOR DENTON: I think you want to represent your Panel. You want to be this independent panel, which is expressing --

CHAIRPERSON MORENO: Okay. That's fine.

OEHHA DIRECTOR DENTON: Certainly, you know, if there was technical issues or things, you know, you weren't sure that, you know, needed something, we certainly could provide technical input. But your opinion is your opinion and your advice and your recommendations, and it would be your own.

CHAIRPERSON MORENO: Okay. Then in that case the only amendment I would make, Gina, is to accept George's recommendations.

PANEL MEMBER McKONE: I think it would be more powerful if there were a letter on behalf of the whole Panel, instead of having -- it doesn't look quite so strong if it's individuals sending it in saying, "Well, we think we all agree on this." But to have the Chair say, "Look, this is the opinion of the Panel" --

CHAIRPERSON MORENO: And that would be -- if we decided today, then you're right, we wouldn't have to wait till the next meeting, because this Panel could agree to give the direction and -- I would like to run it by the Panel members for one last look and then we'll send it.

PANEL MEMBER WILSON: We couldn't submit our names along together?

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: I think we'd want to check with legal

counsel to see if you can --

OEHHA DIRECTOR DENTON: You know, we're kind of confused. We're kind of hobbled here because we don't have our legal counsel here, so I'm not sure what the restraints or constraints are under the Bagley-Keene with this via serial meeting --

PANEL MEMBER SOLOMON: I'd suggest that we give the Chair and two other members of this Panel full carte blanche to write a letter on behalf of all of us. I will gladly give up my -- you know, put my trust in my fellow Panel members and heartily endorse whatever letter it is without needing to see it. Because if it does come out to the whole Panel, I think it -- without being released to the public, there is a problem.

PANEL MEMBER CULVER: I would prefer to see a draft before it goes in.

PANEL MEMBER SOLOMON: So who else would want to see it or be on the writing group?

PANEL MEMBER BRADMAN: Well, since I volunteered it, I'd do it.

CHAIRPERSON MORENO: We have two so far.

PANEL MEMBER SOLOMON: Anybody else?

So maybe we have a writing group of three.

CHAIRPERSON MORENO: Yes. Okay.

PANEL MEMBER QUINT: I just have a question.

CHAIRPERSON MORENO: Sure.

PANEL MEMBER QUINT: I just want to make sure that when we -- I totally support the letter. And whoever writes it, I am in agreement. I just want to play Devil's advocate a little bit and make sure that we don't by writing a letter saying that "As currently funded the program lacks scientific robustness" or something and that we can't continue. And then they say, "Okay. Well, we have" -- how much is that program -- you know, "we can take that 1.5 million and put it elsewhere.

(Laughter.)

PANEL MEMBER QUINT: You know, stranger things have happened in state government. And so I just want to make sure -- and you in state government are best -- who are current in state government are best to respond to this. But I just want to make sure we don't shoot ourselves in the foot, because we do want this program and we will hobble something together until we can make a stronger argument as to why the state needs this program, by, you know, coming up with a pilot or whatever to show that this is really needed. So we just need to, you know, kind of reflect on that a little bit.

But this is in no way to say that I'm not in favor of writing whatever letter is written to support funding, because we need it.

We've already delayed one year, I think I heard you say, because we don't have an operating budget, that we are ready to launch in 2011 instead 2010 or something like that. So all of those things are very important, because chemicals are changing and being produced as we speak.

But, anyway, just think about it a little bit and make sure we don't --

PANEL MEMBER BRADMAN: I agree that, you know, we have to be careful. And maybe as a fourth person and not making quorum, would you at least be willing to review that --

PANEL MEMBER QUINT: Okay.

PANEL MEMBER WILSON: And of course one of the driving arguments that brought the REACH regulation into force and into life in the European Union was just the public health argument that there are costs saved in future disease in the population and in work places by developing this knowledge. And that carried through over many months in the EU, and probably would be useful here.

And I'd be happy to review it as well.

PANEL MEMBER QUINT: Well, if you review it, then that's five people. So that wouldn't --

PANEL MEMBER WILSON: Does that require actual work and then forgetting it?

PANEL MEMBER QUINT: It requires a notice of meeting.

CHAIRPERSON MORENO: So I'd like to go back to the volunteers who are going to help me write this.

PANEL MEMBER QUINT: I'm sorry?

CHAIRPERSON MORENO: I need the names of the volunteers who are going to help me write this.

PANEL MEMBER BRADMAN: I think I -- I'll help write it. And you and I can write it. And then Dr. Culver and Dr. Quint will help review it.

CHAIRPERSON MORENO: Okay. Great.

PANEL MEMBER QUINT: That's fine.

CDPH EXPOSURE ASSESSMENT SECTION CHIEF LIPSETT:

I would like to offer just a couple of minor comments in relation to this.

One is that Julia has a lot of experience with state budgets and issues. And the scenario that she raised is a very real one that you really need to be cognizant of.

The second is -- it hasn't been brought out here but I feel I need to make it explicit for the record, is that all of the state staff here are -- we work for the administration. The Governor is our boss. And we formally support the Governor's budget. And so in terms of working with you, we can't do that. And our position

is that we do support the Governor's budget.

CHAIRPERSON MORENO: Okay. Thanks for clarifying that.

Okay. Further comments for discussion?

And George needs about seven minutes to summarize for us. And we're getting close to 5 o'clock.

Yes, Gina.

PANEL MEMBER SOLOMON: I actually, in thinking about the discussion earlier today about the designated chemical list, have had increasing heartburn about the sort of the lack of diesel exhaust chemicals on the list. And, you know, the reason for that is that it's not totally clear what the best marker is for diesel. But it's a huge California problem and worse here than in most other states. And so I'm actually proposing that maybe we consider amending our previous agreement around the designated chemical list to ask staff to look into the best biomarkers for diesel. Is 1-nitropyrene the best? I understand that there's some studies Tom told me about, that, you know, some groups that are looking at other markers.

And it seems like an appropriate addition. I'm just wondering if other people feel okay with that or --

PANEL MEMBER QUINT: Yeah. I think the German scientists mentioned that there was a better biomarker for

diesel in terms of cancer concerns.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Yeah, and staff have been making inquiries about that. And we can certainly do that work.

PANEL MEMBER BRADMAN: There's a group at the National -- the Cancer Center, Peggy Reynolds' group. Rudy Rull, who actually wrote a grant on measuring diesel markers in -- it might be worth talking to him. I actually have a call into him. But I can raise it with him.

CHAIRPERSON MORENO: And we have a recommendation and some support here and willingness on staff's behalf.

Panel okay with that?

Okay. Good.

All right. Additional comments from the Panel?

If not, it's all yours, George.

OEHHA DEPUTY DIRECTOR ALEXEEFF: George Alexeeff with OEHHA.

Well, we've had a very full day. And I want to thank the Panel members for hanging in there and providing all this very thoughtful discussion and input.

I also want to thank -- first of all think all the staff that have been involved in helping to pull all this together as well.

From DPH, there -- you've heard many of these

speak today -- Diana Lee, Sandy McNeil, Robbie Welling, Sharon Lee, Lori Copan, Peter Flessel, Jianwen She, Michael Lipsett, Phillip Gonzaga, Frank Barley. And then also from DTSC, Myrto Petreas.

And the OEHHA staff who has been working on this are Gail Krowech, Amy Dunn, David Berger, Farla Kaufman, Jocelyn Suero, Maria Aguilar, Lauren Zeise.

So I just wanted to make sure I mentioned those.

So and today we kind of went through -- you heard a summary of the program updates. You heard about the laboratory capacity issues, some of the costs, the current status of our budget situation. And then we began talking about how we would frame chemical selection as an issue. We went through a number of criteria. You heard about the public input we received, the workshops, the surveys, the surveying of staff. So I think you've heard that information.

And then I think in terms of criteria, you heard sort of like in some ways a lot of similar jelling on the criteria, both from some of the Panel members as well as the staff as well as the public, where some of the issues that they think should be considered in criteria are at-risk populations, such as pregnant women, fetuses, and children; communities with heavy burden; widespread exposure issues; persistent chemicals; looking at

community-based studies and chemicals of California concern.

And then specifically the Panel was looking at seven groups of chemicals that they felt they would like to focus a little more on in terms of potential designated chemicals. Those were vanadium; pesticides, particularly high-use pesticides in California; flame retardants, particularly DecaBDE and placement chemicals for flame retardants that might be coming up; methyl siloxanes, particularly D5; antibiotics in animal feed; also pharmaceutical chemicals that might particularly have hormonal impacts; plasticizers and replacements; and then also some sort of bigger thoughts on product categories for VOCs and for general purpose cleaners which we'll have to sort of think about and get back to you.

So the staff will be getting back to --

PANEL MEMBER SOLOMON: And diesel.

OEHHA DEPUTY DIRECTOR ALEXEEFF: Oh, and now diesel. Thank you.

All right. Updated my notes.

And so the staff will be getting back to you next meeting with regards to some of this chemical selection issues and what we can have on that. And there are four Panel members that have volunteered to provide some input in that regard.

Also, you've heard at the next meeting we'll be discussing additional information on a sample design, getting a little bit more into that.

Also, there may be some information about community studies and how we might follow up on that.

The next meetings are scheduled -- the next meeting is scheduled October 17th in Los Angeles. And the following meeting after that is December 5th in Sacramento.

Those are tentative dates?

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: If anyone has any problems --

OEHHA DEPUTY DIRECTOR ALEXEEFF: So please get back to the staff, Lauren or the team if they have -- or Dr. Lipsett. If you could block those dates, get back to us on whether those are possibles or if we could come up with other dates.

PANEL MEMBER QUINT: Repeat them.

OEHHA DEPUTY DIRECTOR ALEXEEFF: Okay. Those were October 17th for Los Angeles and December 5th in Sacramento.

Oh, and the October 17th, the reason we're having that, because we had previous discussions about somehow coordinating with ISEE. So it's a piggyback on that particular meeting, which is occurring in Pasadena, I

believe.

Yeah. So it's kind of a coordination with that.

All right. That's my summary.

CHAIRPERSON MORENO: Thank you.

Did you mention how the work group will be convened to work -- to follow up on the list?

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: Are you talking about the four?

CHAIRPERSON MORENO: Yeah, the four volunteers from the Panel.

OEHHA REPRODUCTIVE AND CANCER HAZARD ASSESSMENT BRANCH CHIEF ZEISE: We will be sending an Email message and we'll work on that.

CHAIRPERSON MORENO: Great. Thank you.

And then I guess I will probably be notifying the other two volunteers to work on the letter.

All right. Well, with that, I think that concludes our agenda. And any other last commence from Panel members. It's 5:01. We didn't too bad.

All right. Meeting adjourned.

(Applause.)

(Thereupon the California Environmental Contamination Biomonitoring Program Scientific Guidance Panel meeting adjourned at 5:01 p.m.)

CERTIFICATE OF REPORTER

I, JAMES F. PETERS, a Certified Shorthand Reporter of the State of California, and Registered Professional Reporter, do hereby certify:

That I am a disinterested person herein; that the foregoing California Environmental Contamination Biomonitoring Program workshop was reported in shorthand by me, James F. Peters, a Certified Shorthand Reporter of the State of California, and thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said workshop nor in any way interested in the outcome of said workshop.

IN WITNESS WHEREOF, I have hereunto set my hand this 23rd day of June, 2008.

JAMES F. PETERS, CSR, RPR
Certified Shorthand Reporter
License No. 10063