

MEETING  
STATE OF CALIFORNIA  
AIR RESOURCES BOARD  
SCIENTIFIC REVIEW PANEL

SOUTH SAN FRANCISCO CONFERENCE CENTER  
BADEN ROOM  
255 SOUTH AIRPORT BOULEVARD  
SOUTH SAN FRANCISCO, CALIFORNIA

TUESDAY, DECEMBER 13, 2005  
9:45 A.M.

JAMES F. PETERS, CSR, RPR  
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## APPEARANCES

### PANEL MEMBERS

Dr. John Froines, Chairperson

Dr. Roger Atkinson

Dr. Paul Blanc

Dr. Craig Byus

Dr. Gary Friedman

Dr. Stanton Glantz

Dr. Katharine Hammond

Dr. Joseph Landolph

### REPRESENTING THE AIR RESOURCES BOARD:

Mr. Jim Behrmann, Liaison, SRP

Ms. Janette Brooks, Chief, Air Quality Measures Branch

Mr. Peter Mathews

### REPRESENTING THE OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT:

Dr. George Alexeeff, Deputy Director

Ms. Sara Hoover, Research Scientist

Dr. Melanie Marty, Manager, Air Toxicology and Epidemiology Section

Dr. Andrew G. Salmon, Chief, Air Toxicology and Risk Assessment Unit

Ms. Martha Sandy, Supervisor, Cancer Toxicology and Epidemiology Section

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APPEARANCES CONTINUED

REPRESENTING THE DEPARTMENT OF PESTICIDE REGULATION:

Ms. Tobi L. Jones, Assistant Director

Dr. Lori Lim, Staff Toxicologist

Mr. Randy Segawa, Senior Environmental Research Scientist

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1 PROCEEDINGS

2 CHAIRPERSON FROINES: So we will officially  
3 convene the meeting of the Scientific Review Panel on  
4 December 13th, 2005.

5 And the first topic on the agenda is going to be  
6 the sulfuryl fluoride findings.

7 And, Tobi, you may not have much to be involved  
8 with because it's going to be internal pretty much to the  
9 Panel, unless you had some comments at the beginning.

10 DPR ASSISTANT DIRECTOR JONES: And this is Tobi  
11 Jones, Department of Pesticide Regulation.

12 I only wanted to introduce Lori Lim and Randy  
13 Segawa, who are joining us by phone, should you have any  
14 specific questions about the risk assessment or your  
15 findings.

16 CHAIRPERSON FROINES: And they are on the phone.  
17 They can hear me?

18 DR. LIM: Yes, we can hear you fine.

19 CHAIRPERSON FROINES: Randy?

20 DPR SENIOR ENVIRONMENTAL RESEARCH SCIENTIST

21 SEGAWA: Yes.

22 CHAIRPERSON FROINES: Okay, great.

23 There was a question that Roger raised, and I'm  
24 concerned that Jim's not here. Where is Jim?

25 MR. MATHEWS: He'll be here shortly.

1 CHAIRPERSON FROINES: Roger raised a question  
2 about, has the Panel seen the final document with all the  
3 revisions that we discussed at a prior meeting? And I  
4 don't know the status of that. I sent an E-mail, and  
5 Jim's -- Roger sent an E-mail. So --

6 PANEL MEMBER BLANC: Well, I think there's some  
7 confusion, because the -- Paul Blanc here. I think there  
8 was some confusion, because the cover note for the second  
9 version that went out wasn't explicit; that what I'm  
10 sending now is a revised version to what was sent earlier  
11 in the week.

12 So it was implied, but it wasn't explicit. And I  
13 think the presumption should be made that -- and it did go  
14 out late in the day yesterday.

15 CHAIRPERSON FROINES: Paul, you're not on topic.  
16 You're talking about findings. I'm talking about the  
17 document.

18 PANEL MEMBER BLANC: Oh, so -- you mean this  
19 thing that came by --

20 DR. LIM: This is Lori. I talked to Jim Behrmann  
21 this morning. He said he was already in San Francisco.  
22 And we have sent out pdf files of the current draft of  
23 that. I don't know if -- has forwarded it to the rest of  
24 the panel.

25 CHAIRPERSON FROINES: When was that done?

1 DR. LIM: A week -- was that done earlier last  
2 week or this week?

3 PANEL LIAISON BEHRMANN: Just to clarify. This  
4 is Jim Behrmann, liaison to the panel.

5 John, you're asking about the report or the  
6 findings? I apologize.

7 CHAIRPERSON FROINES: Roger Atkinson sent an  
8 E-mail to everyone saying he did not believe that he had  
9 seen the final report.

10 PANEL LIAISON BEHRMANN: That's correct.

11 PANEL MEMBER ATKINSON: And you sent it out.

12 PANEL LIAISON BEHRMANN: That's correct.

13 Well, what -- DPR was -- and Tobi can clarify.  
14 But DPR was holding the final version -- the final draft  
15 of the report until the Panel's findings were adopted,  
16 because the Panel's findings become part of the final  
17 report. It was DPR's intention that the panel would adopt  
18 its finding, they would be added into the report, it would  
19 go back to the leads and to you, Chairman Froines, for  
20 your final review to make sure that all the panel's  
21 changes from the last meeting had been incorporated.

22 So what we have right now, and I've provided this  
23 morning to Roger and to Craig, copies of portions of that  
24 final draft that DPR's been holding on to.

25 CHAIRPERSON FROINES: Well, I have to say that

1 I'm very disturbed about this; because as far as I'm  
2 concerned, the Panel cannot adequately write the findings  
3 without seeing the final document. It can't be the other  
4 way around. We can't have the Panel seeing the final  
5 document after they've written their findings, because  
6 we've had meetings where there was a discussion about  
7 changes that were going to go into the document and the  
8 panel should have seen that because it would affect their  
9 view of the findings.

10 So that what we've got is the cart before the  
11 horse proverbially. And so we've got a panel now  
12 discussing findings without having seen the final  
13 document. That's the wrong way to do it.

14 So what's done is done. But what means is that  
15 Craig and Roger and I are going to have to go over the  
16 final report before -- we may vote on the findings today.  
17 But that is dependent upon what we consider to be the  
18 adequacy of the final report. And if it's not -- if we  
19 don't think the changes have been made appropriately, then  
20 we're coming back.

21 PANEL LIAISON BEHRMANN: And that's certainly the  
22 Panel's prerogative.

23 CHAIRPERSON FROINES: But that's a step we would  
24 like to have ignored.

25 PANEL MEMBER BLANC: Avoided.

1 CHAIRPERSON FROINES: Avoided.

2 DR. LIM: This the Lori.

3 CHAIRPERSON FROINES: It's always good to have  
4 Paul on my left side.

5 PANEL LIAISON BEHRMANN: If I can just -- just as  
6 an addition clarification. In speaking with DPR -- and,  
7 Tobi, feel free to step in. -- I know that they have  
8 revised the report based upon the comments received from  
9 the Panel at the last meeting and their review of the  
10 transcript. And the findings that is before the Panel  
11 were developed, you know, based upon the Panel's  
12 discussion and the OEHHA findings and input from DPR  
13 Staff.

14 CHAIRPERSON FROINES: But, for example, there was  
15 an extensive back and forth that I was involved in and  
16 Craig was involved in and Lori was involved in on the  
17 issue of carcinogenesis. And it was an important topic.  
18 And when the findings were written, there is not a word  
19 about carcinogenesis in the findings. So what was an  
20 obvious concern of the Panel did not get reflected in the  
21 findings. So, therefore, there is a clear omission on  
22 that issue.

23 PANEL LIAISON BEHRMANN: Well, just as a point of  
24 clarification, there was a question -- or a point raised  
25 in the draft findings for the Panel to discuss because it

1 was not clear to the staff in terms of what the Panel  
2 wished to find regarding carcinogenesis.

3 CHAIRPERSON FROINES: But that's what the leads  
4 and you and Lori are supposed to work out prior to this  
5 meeting. We come to this meeting today to finish this  
6 document. And we're clearly not going to finish it in its  
7 entirety. We may approve the findings -- the findings we  
8 currently have. But I suspect that we may have to go back  
9 and reconsider what's in the findings.

10 PANEL LIAISON BEHRMANN: Again, that's --

11 CHAIRPERSON FROINES: And I'm going to come back  
12 to Craig in a second on this.

13 PANEL LIAISON BEHRMANN: But, again, that's the  
14 Panel's prerogative. What the staff has put forth  
15 historically has ranged from one page to a dozen pages.  
16 Historically the Panel has drafted findings in a meeting.  
17 And --

18 CHAIRPERSON FROINES: What I'm saying is that --  
19 it doesn't matter whether it's been one or a hundred  
20 pages. What I'm saying is that the problem we currently  
21 have is that the findings do not reflect one element that  
22 was a significant discussion at the meeting, and there was  
23 considerable discussion after the meeting between Lori and  
24 Craig. And so all that should have been dealt with before  
25 we walked into the room today is what I'm saying.

1 DR. LIM: Yes, this is Lori. Let me clarify that  
2 the question came from Dr. Landolph. And I worked out the  
3 wording with him as well as Craig on what needs to go in.  
4 And we came to the conclusion that we shouldn't include  
5 Dr. Breslin's thesis at this time because it's not -- it  
6 would not be balanced to present that work and not other  
7 work. And since the NAS is coming out with a final  
8 report, I would revise the wording on the oncogenicity.  
9 And so I have submitted through E-mail to everybody on the  
10 Panel who have asked questions with our responses and got  
11 approval for the responses. So that step took place.

12 CHAIRPERSON FROINES: Well, I have -- Lori, the  
13 problem is that nobody on this Panel has seen what's been  
14 worked out, because we haven't seen the final document.  
15 So we don't know -- you may say all this has been worked  
16 out with Landolph and Byus, but nobody else on the Panel  
17 knows what that is. And so the findings do not reflect  
18 that discussion. It's not -- there's nothing in the  
19 discussion on that topic. And I can guarantee you there's  
20 going to be. And so we're going to have to come up with  
21 language that reflects that issue, I think.

22 PANEL MEMBER GLANTZ: Do you have a copy of the  
23 final draft here?

24 PANEL LIAISON BEHRMANN: Yes, I do.

25 PANEL MEMBER GLANTZ: Is it done in a red line

1    strikeout so people can see the changes that were made?

2               PANEL LIAISON BEHRMANN:  No, I don't believe it  
3    is.

4               DR. LIM:  Mine is -- I have hard copy that we  
5    have a highlight.  And I could point you to the exact page  
6    where that discussion is.

7               CHAIRPERSON FROINES:  Well, okay.  So we will  
8    come back to this issue.  I had -- I want to raise two  
9    options with the Panel, one that I had suggested early on  
10   and a modified suggestion that Paul raised.

11              The problem is -- what I was concerned about  
12   is -- there is the document that Jim distributed this  
13   morning and presumably sent by E-mail last night.

14              PANEL LIAISON BEHRMANN:  That's correct.

15              CHAIRPERSON FROINES:  And I wasn't --

16              PANEL MEMBER HAMMOND:  I don't have that.

17              PANEL MEMBER ATKINSON:  That was the revised  
18   document.  Yeah, the report.

19              PANEL LIAISON BEHRMANN:  No, I did not send the  
20   actual report last night.  I sent the revised findings  
21   last night.

22              CHAIRPERSON FROINES:  Okay.  And Kathy's proving  
23   my point.  And I think that -- I talked to somebody else  
24   this morning, maybe Joe, who hadn't had a chance to read  
25   the revised document.  So there are two people in the room

1 who have not gone -- have not had an opportunity to go  
2 over the revised document.

3           So we have two options: One, we can take the  
4 document that everybody has seen and we can go through it  
5 and Craig and Roger can point out where there are changes  
6 to the revised document or --

7           PANEL MEMBER HAMMOND: By document, you mean  
8 findings or the report?

9           CHAIRPERSON FROINES: Findings, findings.

10           Or we can stop the meeting right now and  
11 everybody take a half hour to read the new findings and  
12 then come back for the discussion.

13           PANEL MEMBER GLANTZ: But I thought the issue was  
14 having not seen the changes to the final report.

15           CHAIRPERSON FROINES: That's a separate issue,  
16 yeah.

17           PANEL MEMBER GLANTZ: I mean I think that the  
18 sequence, you know, normally would be that the report  
19 would be finalized and then the findings are dealt with.  
20 So I think the first thing that needs to be done somehow  
21 is to get some sense of whether you and the leads are  
22 happy with the final report or what changes, if any, need  
23 to be made there. And then -- and once that's done, then  
24 move on to the findings. And if there's a copy of the --  
25 were there a lot of changes to the report?

1           PANEL MEMBER ATKINSON: Well, I have a number of  
2 changes in the -- in Volume 3, most of which seem to have  
3 been taken care of. Although there's still a couple of  
4 sentences which are -- I have real problems with.

5           PANEL MEMBER HAMMOND: I have a problem -- you  
6 know, this is just quickly looking at this --

7           CHAIRPERSON FROINES: We're not on the findings.

8           PANEL MEMBER HAMMOND: I know. But it's actually  
9 relevant --

10          CHAIRPERSON FROINES: Okay.

11          PANEL MEMBER HAMMOND: -- all right, I mean why I  
12 think there's a problem. It is a finding here, but it  
13 doesn't make sense to me in the context. And that relates  
14 to all of this. And it says that -- this is a finding --  
15 that in parts of the report where an assumption is made,  
16 DRP should say there is no data. That's not a finding.  
17 But that's what should -- how the report should have been  
18 revised. Correct? So to me that already tells me -- I  
19 haven't seen this revised report. But it tells me the  
20 report was not revised according to our discussion. And  
21 you don't put in your findings that the report should say  
22 something different from what it says. That's not a  
23 finding.

24          CHAIRPERSON FROINES: Where are you at, Kathy?

25          PANEL MEMBER HAMMOND: Page 2, number 7. This

1 related to the assumption about the 5 ppm exposure. But  
2 you don't make a finding that they should -- I thought it  
3 was a discussion that should have been led to a change in  
4 the report, which apparently it didn't.

5 PANEL LIAISON BEHRMANN: Well, as a point of  
6 clarification. What the staff was suggesting there is the  
7 staff in its review of the transcript noted the Panel's  
8 discussion about that exact point. The staff felt it was  
9 a relevant point to raise to the Panel on whether or not  
10 the Panel wished to include something on this order. It  
11 was asked in the earlier draft as a question. In this  
12 version we -- based upon comments from Panel members, we  
13 actually changed it from a question into a finding because  
14 there was an expression of support from Panel members.  
15 This is for discussion. This is not --

16 CHAIRPERSON FROINES: Let me just clarify,  
17 because if you look at -- what I did this morning when I  
18 was going over this, I decided that the way to deal with  
19 this -- but Kathy's point's well taken -- what I did was  
20 to take out that according to the Panel's discussion  
21 rhetoric, which I think is a lot of silliness, and I just  
22 said, "This is not an appropriate assumption, period."

23 PANEL MEMBER HAMMOND: Well, I would first of  
24 all, if it's -- I mean I -- let me ask -- is the fact that  
25 it's here and the report did not -- it implies to me the

1 report did not change. I haven't seen the report. If the  
2 report did not change, was that because there was a  
3 disagreement with that discussion, you know, at that  
4 point?

5 PANEL MEMBER BLANC: How do we know it was the --

6 PANEL MEMBER BYUS: We don't know. No one's seen  
7 the report.

8 PANEL MEMBER HAMMOND: Well, that's what I'm  
9 saying. I've actually --

10 PANEL MEMBER BLANC: Wait, wait, wait. Are you  
11 saying -- Roger, you've seen the revised report.

12 PANEL MEMBER ATKINSON: I have looked at two  
13 sections of the revised report. I only got the revised  
14 report by E-mail attachment yesterday late afternoon.

15 PANEL MEMBER BLANC: And did you -- have you  
16 seen -- all right, John --

17 PANEL MEMBER HAMMOND: I don't think it's  
18 possible to have this discussion.

19 CHAIRPERSON FROINES: It's moot.

20 PANEL MEMBER BLANC: It's actually, John -- let  
21 me just say from point of view. I will not vote to  
22 approve findings for which the leads have not seen the  
23 final revised version of the report. I could live with me  
24 not having seen the final revised version of the report,  
25 if there was appropriate checks and balances that the

1 leads have seen it. But if the leads have not seen it,  
2 it's really not possible, as much as one would like -- I  
3 do think that we could -- I think that it's relevant for  
4 us to discuss draft findings so that we can highlight  
5 areas, such as Kathy has just done, of concern. But it  
6 will not -- I certainly will not support approving any  
7 findings today.

8 CHAIRPERSON FROINES: So my -- Stan. Sorry.

9 PANEL MEMBER GLANTZ: What I'd like to suggest,  
10 just based on a comment I think that Roger made -- I mean  
11 it sounds like it's close. So why don't we do this: Why  
12 don't we move on to another item and then while everyone  
13 else is eating lunch, maybe the leads could --

14 PANEL MEMBER BLANC: No, I'm sorry.

15 PANEL MEMBER GLANTZ: No?

16 -- would go over the report and see if the --  
17 because what I recall from the last meeting was that --  
18 which this Panel has done many times -- the report was  
19 tentatively approved subject to the changes that were  
20 outlined being made. And we said that's up to the Chair  
21 working with the leads to determine.

22 And so maybe -- I think to try to do this as a  
23 committee of the whole is not going to work. But if at a  
24 break or something they could -- if there was -- if this  
25 is feasible -- you guys would have to say -- maybe they

1 could look over the revised report while at lunch or at a  
2 break. And then if they're happy, we will have  
3 effectively done what should have been done before the  
4 meeting. And then we can come back to the findings. I  
5 mean I would -- because I hate to see this drag on. I  
6 mean I totally agree with what Paul said, but I also hate  
7 to have this put over to yet another meeting.

8 I mean what do the leads think?

9 CHAIRPERSON FROINES: Joe.

10 Let Joe --

11 PANEL MEMBER LANDOLPH: Well, I've read this.  
12 And, you know, what the guys have -- Roger and Craig have  
13 written is very good, so I understand what it says now.  
14 My recommendation would be we work a little bit on the  
15 findings, still considering them a draft findings, since  
16 we're all assembled here, and make it as good as it can  
17 be. And then we recess and let everybody that wants to  
18 read this report again, but not rush to do this. Let's  
19 get people a copy that want to have it and go through it  
20 and defer finalization till the next meeting.

21 CHAIRPERSON FROINES: Well, before you guys  
22 comment, let me just say one thing, because I think  
23 Kathy's point is particularly germane to this. There is  
24 the issue of carcinogenicity and then NAS, and that issue  
25 was discussed at length. Then Craig had interaction with

1 Lori. And my assumption -- my impression from that E-mail  
2 exchange was that Craig was at some point satisfied. And  
3 let me just finish and you can comment.

4           However, then we get a document that's supposedly  
5 our findings which doesn't contain a word about that  
6 carcinogenicity issue, which is in my view inappropriate.  
7 I think it's one thing to have a sentence in there that  
8 says the issue of carcinogenicity was raised in terms of  
9 osteosarcomas and that the Panel recognized that there is  
10 an NAS report and changes to this document will occur  
11 based on that report depending upon its findings. Some  
12 kind of holding. In other words we're not going to make a  
13 conclusion about carcinogenicity, but it should be  
14 addressed.

15           But leaving that aside, the issue that Kathy  
16 raised is if there is a real problem with the report  
17 dealing with that topic, then the report's going to have  
18 to change and our findings are going to need to see that  
19 change to reflect it. So it may be that Stan's right that  
20 we can do this the way you're saying. But it may be that,  
21 given what Kathy's raising, we may not be able to.

22           PANEL LIAISON BEHRMANN: Dr. Froines, if I can  
23 just as a clarification --

24           CHAIRPERSON FROINES: No, no. let's hear from  
25 Kathy.

1           PANEL MEMBER HAMMOND: I mean just speaking for  
2 myself, I don't think Finding 7 belongs as a finding. I  
3 just -- I had expected there would be a change in the  
4 document reflecting that concern. And that's what I would  
5 be happiest with. And if that's not what happened, me,  
6 for one, I'd have to go back and re-find where all those  
7 problems are, you know. And that becomes a big deal. So  
8 if that hasn't been done, to me that's a big problem.

9           CHAIRPERSON FROINES: What do think of what  
10 Stan's saying, Kathy?

11           PANEL MEMBER HAMMOND: I don't think there's  
12 enough time to do that. That's the problem. Well, first,  
13 I'd like -- I guess I would actually like to know two  
14 things: One was, were there changes made in the document  
15 that reflected that concern? Which is what I had expected  
16 would happen. And if not, why not? That would really  
17 help me understand.

18           DR. LIM: Maybe since I have a yellow highlight  
19 copy of everything that --

20           CHAIRPERSON FROINES: Wait a second, Lori.

21           And so at this point you're saying that it may be  
22 possible to do what Stan's suggesting but it may not be?

23           PANEL MEMBER HAMMOND: Right.

24           CHAIRPERSON FROINES: Okay.

25           PANEL MEMBER HAMMOND: I mean that's only from my

1 point of view. I really understand that I'm the prime  
2 person here, that these other people --

3 CHAIRPERSON FROINES: State it -- I'm sorry,  
4 Stan.

5 PANEL MEMBER GLANTZ: No, I was going to say what  
6 I'm suggesting might not be possible either. But I  
7 think -- I'd like to hear what the leads think about  
8 whether that's something that can be done reasonably  
9 without being too rushed.

10 CHAIRPERSON FROINES: With the one proviso that  
11 it appears that the leads have in one case not seen the  
12 final report, in one case have seen partial final report.

13 PANEL MEMBER ATKINSON: Yeah, the parts I've  
14 seen -- parts I looked at specifically, I have some  
15 problems with them. But they can be dealt with very  
16 quickly. It's just a couple of sentences, one on the  
17 executive summary and one or two on Volume 3 that are  
18 factually incorrect as far as I know. Just need a little  
19 change.

20 PANEL MEMBER BYUS: Well --

21 CHAIRPERSON FROINES: No, no, no.

22 PANEL MEMBER BYUS: Yeah, Lori -- This is Craig  
23 Byus.

24 Lori, did you put the NAS in the document?

25 DR. LIM: The NAS document is not ready. But I

1 did not reference it. But I footnoted the fact that they  
2 are looking at it.

3 PANEL MEMBER BYUS: Okay. So you added something  
4 to the final version about the NAS?

5 CHAIRPERSON FROINES: Well, I have a question.  
6 Is there a section in the report on the carcinogenicity of  
7 fluoride? Yes or no.

8 DR. LIM: Yes.

9 PANEL MEMBER BYUS: There is.

10 CHAIRPERSON FROINES: And so we need to know what  
11 that is.

12 PANEL MEMBER GLANTZ: Well, again, I would  
13 suggest you have a copy here. Maybe if we could move on  
14 to something else and then over the phone Lori could work  
15 with somebody, so we could get a couple of highlighted  
16 copies here; that then could the leads and Chair could  
17 look at at some point and decide is this close? Can we  
18 deal with it at this meeting or should we put it over?

19 CHAIRPERSON FROINES: Paul.

20 PANEL MEMBER BLANC: I think my feeling would be  
21 that even were it somehow to be technically possible to ad  
22 hoc quickly review the text, I think given the precedent  
23 and the historical context of the relationships between  
24 this Panel and the Department of Pesticide Regulation, I  
25 think we need to send a very clear signal in terms of what

1 is appropriate -- what is an appropriate pathway and  
2 before review and approval and what is not. It's -- given  
3 that we have a fairly clear pattern of operations with  
4 OEHHA and the non-pesticides, I don't -- I think it would  
5 send the wrong message. And I would rather be meticulous  
6 in how we approach this.

7           So even were it somehow to be technically  
8 possible to circumvent a more paced review, I don't think  
9 we should do it.

10           CHAIRPERSON FROINES: Kathy.

11           PANEL MEMBER HAMMOND: I concur.

12           CHAIRPERSON FROINES: Craig, how do you feel  
13 about that?

14           PANEL MEMBER BYUS: I would agree with them. I  
15 think we should spend some time on the findings so that we  
16 can get a sense of where everybody's concerns are, since  
17 we have them here, as you suggested. And then let's  
18 just -- I don't anticipate there being a problem with the  
19 document, with the final version. I believe that all of  
20 the concerns were addressed. Although if there are more  
21 that need further clarification, we can fix that as well.

22           I think the carcinogenicity issue is of  
23 importance. It is dealt with in the document. It is a --  
24 the overall evidence is relatively equivocal, except for  
25 this one study that indicates possible some effects on

1 osteosarcomas, as I recall. I didn't bring all my notes  
2 to that effect. But it was -- it did involve a Ph.D.  
3 thesis that was unpublished. But there is some other  
4 evidence, and that is being reviewed by the National  
5 Academy. And so that should be indicated appropriately in  
6 the final version of the document. The potential concerns  
7 of that -- however that study turns out could be much more  
8 definitive than what we're looking at here.

9 But I don't anticipate there being a lot of  
10 problems. But I would like to take a look at the final  
11 version of it and allay anyone's concerns that there's a  
12 problem.

13 CHAIRPERSON FROINES: Let me ask a question. It  
14 goes to my knowledge base on this.

15 The question in my recommendations to Jim and to  
16 Roger and Craig -- I said that the issue of sulfuryl  
17 fluoride being transformed to fluoride was an issue that  
18 needed to be addressed in a finding. And I think we'd all  
19 agree with that.

20 And so Jim or Craig or whoever added a finding  
21 that says that fluoride is a metabolic product of sulfuryl  
22 fluoride. What worried me about that -- I'm happy with  
23 that sentence. But what worried me about that was when  
24 you have sulfuryl fluoride in a tented house, for example,  
25 or in the atmosphere, is sulfuryl fluoride being

1 transformed to fluoride irrespective of its metabolism?  
2 In other words is there atmospheric chemistry that goes on  
3 that forms fluoride and is there any -- anybody has ever  
4 looked at fluoride?

5 PANEL MEMBER ATKINSON: Doesn't seem to be any  
6 atmospheric chemistry, period, which is a problem.

7 CHAIRPERSON FROINES: You mean there are no  
8 studies on atmospheric chemistry?

9 PANEL MEMBER ATKINSON: Hmm?

10 CHAIRPERSON FROINES: You're saying there's no  
11 studies on atmospheric chemistry?

12 PANEL MEMBER ATKINSON: Well, there's no studies,  
13 no. And the expectation is that it's going to be pretty  
14 stable. There's some data on the solubility and  
15 hydrolysis in aqueous solutions, and that's what the new  
16 version of -- the latest version of the report has in it,  
17 which differs significantly from previous versions.

18 CHAIRPERSON FROINES: But if you have the  
19 possibility of hydrolysis -- you clearly have hydrolysis  
20 in an atmosphere that has a lot of water in it. So  
21 that --

22 PANEL MEMBER ATKINSON: But -- I mean what they  
23 come up -- what DPR comes up with is a lifetime of -- I  
24 think years, if not longer, in the atmosphere.

25 CHAIRPERSON FROINES: So you're saying that

1 that -- but here's my question: Have there been studies  
2 in which people have actually looked for fluoride?

3 PANEL MEMBER ATKINSON: You see -- let's see, in  
4 fact, yes, if you hydrolyze it, you get fluoride.

5 CHAIRPERSON FROINES: But in the air?

6 PANEL MEMBER ATKINSON: No, in aqueous solution.  
7 Nobody's looked in the air, no.

8 CHAIRPERSON FROINES: Nobody's looked the air?

9 PANEL MEMBER ATKINSON: No.

10 CHAIRPERSON FROINES: Which is an interesting  
11 issue. Kathy and I spend a lot of time working on  
12 pot-room asthma from fluoride. And so obviously the  
13 question came to me is that is there some fluoride that  
14 people are going to be breathing? And obviously that  
15 would have the potential for producing perspiratory  
16 effects.

17 MEMBER ATKINSON: I mean you're more likely to  
18 get fluoride in the atmosphere from the HFCs and HCFCs,  
19 just based upon the amounts released. They will lead to  
20 fluoride. That's known.

21 CHAIRPERSON FROINES: From the --

22 PANEL MEMBER ATKINSON: From the  
23 hydrofluorocarbons --

24 CHAIRPERSON FROINES: Sure.

25 PANEL MEMBER ATKINSON: -- and HCFCs.

1 CHAIRPERSON FROINES: Okay. So I think that  
2 is --

3 PANEL MEMBER ATKINSON: At least in rain water.  
4 I mean it's not going to be in the gas phase. It's going  
5 to be in aqueous droplets.

6 CHAIRPERSON FROINES: So my point is that  
7 you're -- the point is that everyone -- you and Craig and  
8 I then are comfortable saying that the primary route of  
9 fluoride exposure is going to be via metabolism?

10 PANEL MEMBER ATKINSON: Yeah, I would imagine  
11 that's right.

12 CHAIRPERSON FROINES: And that's consistent with  
13 the report?

14 PANEL MEMBER ATKINSON: (Nods head.)

15 CHAIRPERSON FROINES: So the -- I got off on a  
16 little side track there. But the last point of -- focal  
17 point was Paul's statement that he does not want to  
18 ultimately vote on findings without the Panel having an  
19 opportunity to review the document itself.

20 PANEL MEMBER GLANTZ: Can I just --

21 CHAIRPERSON FROINES: Yeah.

22 PANEL MEMBER GLANTZ: And I -- first of all, I  
23 agree totally with Paul, that in the future we -- DPR  
24 needs to do this the way we're used to doing it. And,  
25 that is, that the report is agreed to before the findings

1 are agreed to. So I think -- I'm willing to chalk that up  
2 to confusion.

3 (Laughter.)

4 PANEL MEMBER GLANTZ: Okay. And I think that  
5 message has been sent.

6 Again, in the -- I still think, since it sounds  
7 like the lead -- and the way we left it was the leads and  
8 the Chair would have the authority to act on behalf of the  
9 Panel. I still think it would be desirable to see if  
10 that's possible. If a copy of the report can be  
11 generated, that they can look at the highlights where the  
12 changes were and were not made, so that they can look at  
13 it and then come back with any outstanding issues. They  
14 may come back and say it's too much to do having looked at  
15 it for a half hour or an hour during lunch. But they may  
16 say this is okay. I haven't heard any huge points of  
17 controversy raised. And it just seems a same to let this  
18 drag on till whenever we meet again.

19 CHAIRPERSON FROINES: Well, I think that --

20 PANEL MEMBER GLANTZ: If we -- I mean if we can't  
21 do that, then fine. We'll let it drag --

22 CHAIRPERSON FROINES: Do we have copies of the  
23 report here?

24 PANEL LIAISON BEHRMANN: We have a copy right  
25 here.

1 PANEL MEMBER GLANTZ: They are photocopiers  
2 somewhere.

3 CHAIRPERSON FROINES: I don't know about that.  
4 This is a --

5 PANEL MEMBER HAMMOND: You have a conference  
6 center?

7 PANEL LIAISON BEHRMANN: There is limited copying  
8 capability here at the conference center.

9 PANEL MEMBER ATKINSON: I don't personally -- I  
10 mean I don't personally need a copy. The way I think this  
11 was left again was with the leads and the Chair. And what  
12 I would suggest is that you find a place there's a copier,  
13 copy it, get on the phone with Lori, mark the changes and  
14 then give it to them and see what they think.

15 CHAIRPERSON FROINES: Stan, I think that the  
16 population is larger than you're thinking. I think  
17 there's a lead -- there are the two leads. But one of the  
18 people who had extensive interaction on this was Joe. And  
19 Kathy's obviously raising questions. And so you've got  
20 four people, plus me is five, who --

21 Okay. Then it's too much probably.

22 CHAIRPERSON FROINES: And so we haven't -- we've  
23 got one document. And you can envision five people  
24 standing around just one document?

25 PANEL MEMBER GLANTZ: No, no. I think they

1 should make copies of it.

2 CHAIRPERSON FROINES: There's no copying  
3 capability.

4 PANEL MEMBER GLANTZ: There's got to be a cop --  
5 I mean we have several other agenda items. I think that  
6 you could get on -- that they could get on the phone with  
7 Lori, mark it up so the changes are obvious, that people  
8 don't have to read every word. And then while we're  
9 discussing these other items --

10 CHAIRPERSON FROINES: How many pages are we  
11 talking about?

12 PANEL MEMBER GLANTZ: I don't know. It looks  
13 like it's a half inch thick. But there's got to be a high  
14 speed copy machine somewhere not too far from here.

15 PANEL LIAISON BEHRMANN: The health assessment is  
16 115 pages.

17 But just as a clarification again, the Panel  
18 expressed its sentiment at the last meeting, but the  
19 report was in very good shape. And the changes were not,  
20 I don't believe, that extensive. Again, I would defer to  
21 DPR staff to identify what those sections are.

22 DR. LIM: Yeah, actually for the staff all you  
23 need to do is Xerox up to 103, which is the end of the  
24 conclusion. The rest of our references and the tox  
25 summary, which there were no changes. There's also an

1 appendix on fluoride on Appendix B that I made a few  
2 changes to, but that the relevant section to that one.

3 In Volume 4, which is DPR responses to comments,  
4 only need to make a copy of that, because that's  
5 essentially documents of responses, and then no addition  
6 to that since the last time.

7 In Volume 2, I could also identify these pages up  
8 to the end of the conclusion, which is 60. So these could  
9 be considerably shortened, you know, copying everything,  
10 but not completely.

11 CHAIRPERSON FROINES: Stan?

12 PANEL MEMBER GLANTZ: Um-hmm.

13 CHAIRPERSON FROINES: I personally, and not  
14 speaking as a Chair but just as a Panel member, am  
15 uncom -- hearing that, I'm uncomfortable with our trying  
16 to go through this document today.

17 PANEL MEMBER GLANTZ: Okay. Well, that's fine.  
18 I'm --

19 CHAIRPERSON FROINES: How do other people feel?  
20 I mean where are we at?

21 PANEL MEMBER BYUS: I would like to see this  
22 document dealt with. But I'm -- I think if we try and  
23 rush through it today, it's going to be counterproductive,  
24 because I really believe that there are minor changes.  
25 But it's just the way we're going to go about it is not

1 going to be productive. And so I would propose that we  
2 postpone the consideration -- the final consideration of  
3 the document. We'd discuss the final --

4 CHAIRPERSON FROINES: That means we don't vote on  
5 the findings?

6 PANEL MEMBER BYUS: Correct. But we do discuss  
7 the findings today since we're here. And that way we can  
8 take -- Roger and I can -- we can incorporate salient  
9 changes to the findings and tighten up the language. We  
10 can then return after viewing the revised document  
11 completely and make sure that it addresses everybody's  
12 concern and the right language. And I don't we'll have  
13 any problems at all. It will take, well, theoretically,  
14 five minutes at the next meeting.

15 But I have feeling if we can try and do this  
16 today, it's not going to work.

17 CHAIRPERSON FROINES: Okay. Then I rescind my  
18 suggestion.

19 Okay. My next question then is: Do you want to  
20 spend time at this meeting going over the findings?

21 PANEL MEMBER BYUS: Yes. I would like to go over  
22 the findings, because I'd like to make sure, you know,  
23 and -- the findings were written a little hastily, but  
24 that's been done before here. We can tighten up the  
25 language and make sure that we're addressing everything

1 appropriately.

2 CHAIRPERSON FROINES: I should say that this is  
3 the last time this is ever going to happen as far as I'm  
4 concerned. This is not as a procedural matter -- getting  
5 findings on the Friday before we meet is not the way we're  
6 going to do business.

7 PANEL MEMBER HAMMOND: And before we see the  
8 final report.

9 CHAIRPERSON FROINES: Yes.

10 PANEL MEMBER FRIEDMAN: May I just add that when  
11 this revised final report comes out that we all see it,  
12 not just the leads?

13 CHAIRPERSON FROINES: Of course. Absolutely.

14 PANEL MEMBER FRIEDMAN: I mean with the track  
15 changes so that we can see them?

16 PANEL MEMBER BYUS: Right, with track changes.  
17 Everyone should get a copy of it.

18 DR. LIM: Excuse me. This is Lori. And for the  
19 track changes, it could be quite a mess to do that,  
20 because I shifted paragraph and -- what I would like to  
21 propose is that I just yellow highlight all the X0 changes  
22 on this version. I think it would be more readable.

23 PANEL MEMBER FRIEDMAN: Sure, sure. Fine.

24 PANEL MEMBER BLANC: Fine.

25 CHAIRPERSON FROINES: Okay. Let's start with the

1 latest findings and go down and -- Craig and Roger, you're  
2 going to be on target on lead to say where changes have  
3 occurred. So --

4 PANEL MEMBER BLANC: Just to call to people's  
5 attention, the version of -- the most recent version of  
6 the one that says "for discussion" at the very top.

7 CHAIRPERSON FROINES: Right.

8 And Jim needs to be at the tables, because he's  
9 had a hand in all of this.

10 PANEL MEMBER BYUS: All right. Well, I'll do the  
11 best I can here.

12 On page 1 of the original finding version, John  
13 and I both had some concerns over the term "ambient  
14 exposure" -- which would be like the second paragraph.  
15 "This report was written to meet the statutory  
16 requirements for state's toxic air, which addresses  
17 ambient air exposures and also," et cetera. "The review  
18 was focused primarily on the general population exposures  
19 to ambient air concentrations of sulfuryl fluoride." We  
20 had some concern the fact that the report didn't focus  
21 simply on ambient air concentrations. It dealt with peak  
22 exposures, all by an occupational exposure in a sense of  
23 the workers, et cetera. So that really was inaccurate.  
24 We took that -- that sentence was removed out of the  
25 document -- out of the findings.

1 CHAIRPERSON FROINES: We're on paragraph 2?

2 PANEL MEMBER BYUS: Right, on paragraph 2.

3 There was also -- I mean I also had some concern  
4 that in reality there isn't -- I mean there isn't any  
5 ambient exposure much to sulfuryl fluoride; is that  
6 correct, Roger? I mean there is no such thing as ambient.  
7 I mean it depends on how you -- I mean it's minimal.

8 PANEL MEMBER ATKINSON: Yeah. I mean there's  
9 obviously an exposure when they're releasing it from the  
10 tented house. But otherwise --

11 PANEL MEMBER BYUS: But really that's not  
12 ambient. That to me is part of the overall application.  
13 Ambient --

14 PANEL MEMBER ATKINSON: It's an application,  
15 you're correct.

16 PANEL MEMBER BYUS: Yeah, it's an application.

17 So ambient to me -- and again that's why I don't  
18 like that term in this case, because there really isn't  
19 much ambient sulfuryl fluoride.

20 CHAIRPERSON FROINES: Well, I think there's a  
21 question of what the legislation says.

22 PANEL MEMBER BYUS: Right. But it is --

23 PANEL MEMBER ATKINSON: -- which increases  
24 exposure.

25 CHAIRPERSON FROINES: What does 1807 say?

1 PANEL MEMBER BYUS: No idea.

2 PANEL MEMBER BLANC: Well, but I mean it sounds  
3 like it's a completely appropriate deletion. Because what  
4 you're saying is that the Panel in fact didn't only focus  
5 on that, so why say that. So that's good -- a good  
6 deletion.

7 CHAIRPERSON FROINES: That's fine.

8 PANEL MEMBER BYUS: Okay, I suggested --

9 CHAIRPERSON FROINES: But let me just -- I'm  
10 sorry for being a bore on this. This says, "Also DPR's SB  
11 950 requirements addressing" -- I don't think we need to  
12 have parentheses in there, but that's easy enough to take  
13 out -- but "addressing both occupational and general  
14 population exposures." The reason I asked the question  
15 about the legislation is that that paragraph isn't  
16 about -- it seems to me it's not about what's in the  
17 document. It's about what's in the law. This paragraph  
18 refers to the law, not the document. And so that's what I  
19 want clarification on. Is this paragraph in there saying  
20 that 1807 says that we address ambient air exposures?  
21 Because that's an important issue. Because I don't know  
22 if it says it. But if it says it, we're bound by it.

23 But as far as I'm concerned, if you have a -- if  
24 we had a vinyl chloride factory and it was emitting vinyl  
25 chloride and we were worried about the people who lived

1 closest to the vinyl chloride factory, that's not ambient  
2 vinyl chloride; that's a hot spot. That's an exposure  
3 close in. And so to the degree that we are restrained by  
4 the legislation -- so it's a legislative issue, not a --

5 PANEL MEMBER ATKINSON: That's how you view the  
6 word "ambient".

7 CHAIRPERSON FROINES: But I don't know -- if the  
8 Legislature says that what we're doing is looking at toxic  
9 air contaminants in the ambient context, then that's what  
10 we're -- that's what the legislation says.

11 PANEL LIAISON BEHRMANN: This is Jim Behrmann.  
12 The legislation does -- in the legislative  
13 findings refers to the admission of substances into the  
14 ambient air. But just as a point of clarification,  
15 ambient air can be at the fence line of a facility. We  
16 would consider that to be near-source ambient.

17 CHAIRPERSON FROINES: Well, would you -- read  
18 that again, because, you see --

19 PANEL LIAISON BEHRMANN: The Legislature finds  
20 and declares -- this is in the "intent" language -- that  
21 public health, safety and welfare may be endangered by the  
22 admission into the ambient air of substances which are  
23 determined to be carcinogenic" --

24 CHAIRPERSON FROINES: Yeah. And I think what  
25 that says is different than what this says. This says the

1 contaminant statute which addresses ambient air exposures.

2 That which you read doesn't -- does not mean this.

3 PANEL MEMBER HAMMOND: It addresses releases into  
4 the ambient air.

5 CHAIRPERSON FROINES: Right.

6 PANEL MEMBER BYUS: Okay. So you're saying which  
7 addresses release --

8 CHAIRPERSON FROINES: Which addresses releases --

9 PANEL MEMBER BYUS: -- into --

10 CHAIRPERSON FROINES: -- into the ambient air.

11 PANEL MEMBER BYUS: -- the ambient air. Okay.

12 That's very good.

13 Well, it is an important point because, you know,  
14 when we talk about ambient exposures and this is --

15 CHAIRPERSON FROINES: Well, this is a major issue  
16 with pesticides because of the drift question.

17 PANEL MEMBER BYUS: Correct, major issue.

18 All right. I added -- statement 1, page 1.

19 Where did I add it?

20 Oh, I think we put it now down to on paragraph  
21 sub-item 2 --

22 PANEL MEMBER BLANC: Before you get there, just a  
23 note, Craig.

24 PANEL MEMBER BYUS: Sure.

25 PANEL MEMBER BLANC: You'll just need, and

1 subsequent to this meeting, probably to add to the  
2 chronology that there was a further discussion at our  
3 December 13th meeting, presuming that -- just make a note  
4 to yourself then.

5 CHAIRPERSON FROINES: So that's paragraph 1?

6 PANEL MEMBER BLANC: Paragraph 3.

7 CHAIRPERSON FROINES: Three, right.

8 PANEL MEMBER BYUS: Three, okay.

9 PANEL MEMBER BLANC: The 4.1.

10 PANEL MEMBER BYUS: Okay. So I added on two, a  
11 statement to the effect that sulfuryl fluoride is a  
12 colorless, odorless gas, highly toxic to human beings and  
13 mammals. I mean I think --

14 PANEL MEMBER BLANC: You mean other mammals?

15 PANEL MEMBER BYUS: And all mammals. I'd  
16 actually had it put in up above, and I think it fits a  
17 little bit better down here.

18 I just want to make sure that they understand  
19 that it's -- you know, nothing against DPR. But it's a  
20 rodenticide and an insecticide, but it kills people at the  
21 same concentrations as it's killing rodents. So it's a  
22 highly, highly toxic compound --

23 CHAIRPERSON FROINES: I agree with that.

24 -- with minimal selectivity towards its toxic  
25 targets of insects and rodents. There's no select --

1 isn't this right, Joe?

2 PANEL MEMBER LANDOLPH: (Nods head.)

3 PANEL MEMBER BYUS: There is minimal to no  
4 selectivity here in terms of its toxicity. So --

5 CHAIRPERSON FROINES: Craig, I would -- I have no  
6 problem with that. I think you're right. But I think  
7 that should be put back to the section where we have --  
8 where we're dealing with health effects, because I think  
9 that the second sentence should not be a finding. It  
10 says, "Much of the margin of safety using this compound in  
11 relation to minimizing human exposure relies upon the good  
12 application practices of licensed pesticide contractors."  
13 I don't think that's an appropriate SRP finding.

14 PANEL MEMBER BYUS: That was my -- I put that in.  
15 That was me. I --

16 CHAIRPERSON FROINES: That sort of --

17 PANEL MEMBER BYUS: The reason is --

18 CHAIRPERSON FROINES: -- I mean we go through all  
19 this about five parts per million and we're saying, "Well,  
20 the way we deal with it is with appropriate practices by  
21 contractors."

22 PANEL MEMBER BYUS: Well, but that is facts --

23 CHAIRPERSON FROINES: No, but this is a  
24 regulatory document. This is not a voluntary compliance  
25 document that says we're going to rely on contractors to

1 do the right thing.

2 PANEL MEMBER BYUS: Well, we are. I mean what  
3 I'm trying to say --

4 CHAIRPERSON FROINES: Who knows.

5 PANEL MEMBER BYUS: -- but looking at it as a  
6 select --

7 CHAIRPERSON FROINES: Once it becomes a TAC --

8 PANEL MEMBER BLANC: Well, let him --

9 PANEL MEMBER BYUS: Let me answer, John.

10 I mean the point is, this is a highly toxic  
11 compound, colorless, odorless gas that you find virtually  
12 nowhere else in the environment except in these tented  
13 buildings where we rely -- its toxicology as it relates to  
14 the rest of the environment and exposure really relies on  
15 the application by these contractors. I mean -- so in my  
16 view, it does -- it's something you want to highlight  
17 about the toxicology -- environmental toxicology above  
18 this thing.

19 PANEL MEMBER BLANC: You're both -- you're both  
20 saying -- wait, wait. Can I just interrupt. I think  
21 you're both saying the same thing. This was a critique  
22 here. This was not a free pass for contractors.

23 PANEL MEMBER BYUS: No, no, no, it's a critique.

24 CHAIRPERSON FROINES: I said that I'm happy with  
25 the first sentence, although I think I should be

1 elsewhere.

2 I'm not happy with the second sentence because  
3 that is a risk management issue of how you control Vikane.  
4 It may be that somebody's going to come up with other  
5 approaches to its control and it's not going to rely on  
6 licensed pesticide contractors' good work practices.  
7 That's -- this is a risk management statement.

8 PANEL MEMBER FRIEDMAN: Well, it's a factual  
9 statement that's a guidance to risk management. But I  
10 don't see that it doesn't belong here.

11 CHAIRPERSON FROINES: Why should it be a finding  
12 of this Panel? It deals with risk assessment.

13 PANEL MEMBER HAMMOND: It strikes me -- I mean,  
14 you know, maybe I need to get clear on again the role of  
15 the Panel. But it does strike me that it's an important  
16 observation that's not necessarily true of other  
17 materials, that you have people who are out in the general  
18 population who are releasing this. These are the  
19 contractors. And we all know that that's a more difficult  
20 problem to protect the public from than something that's  
21 like one factory or something like that. So that  
22 highlighting the fact that the practice -- the work  
23 practices of these individual contractors will be the  
24 major determinants of what those ambient emissions are I  
25 think is an important point.

1           CHAIRPERSON FROINES: I'm sorry. I don't think  
2 this document deals with how we're going to control this  
3 compound.

4           PANEL MEMBER HAMMOND: No, no, this is  
5 something --

6           We don't know --

7           PANEL MEMBER BYUS: It's not a control. It's --

8           PANEL MEMBER HAMMOND: It's an observation.

9           CHAIRPERSON FROINES: No, but it is -- I know  
10 it's an observation. What I'm saying is that there may be  
11 other approaches to this -- to how one prevents exposure.  
12 That's not part of the document we reviewed. This is a  
13 one glib -- one sentence thing that says contractors can  
14 deal with it.

15          PANEL MEMBER BYUS: No, no, no, no, no. in  
16 fact --

17          CHAIRPERSON FROINES: There may be other  
18 approaches. And unless you have a document that addresses  
19 the approaches to control --

20          PANEL MEMBER BYUS: No, the entire document on  
21 exposure assessment is replete with how Vikane is applied  
22 and how it's vented and the different methods and how the  
23 dosage is calculated for houses. It all depends upon the  
24 contractor's ability to apply and handle this.

25          PANEL MEMBER HAMMOND: May I make a suggestion.

1 I'd like to make a suggestion here. And, that is, rather  
2 than saying -- I think it's the margin of safety that  
3 bothers John. And we could take that term out. I think  
4 what one might say is that the emissions of this material  
5 into the environment are predominantly determined by the  
6 practices of contractors.

7 PANEL MEMBER BYUS: There you go.

8 PANEL MEMBER GLANTZ: What I think --

9 PANEL MEMBER HAMMOND: Then it doesn't say how to  
10 control that.

11 PANEL MEMBER GLANTZ: Yeah. I think it may be  
12 that the -- I mean I hadn't -- this hadn't bothered me  
13 till I heard this discussion. But it may be that the way  
14 to deal with this issue is to move that sentence. Because  
15 the first sentence, sulfuryl fluoride is a colorless,  
16 odorless gas, highly toxic to human beings and mammals, is  
17 a biological statement.

18 And if you look down later in the findings,  
19 around number 6 or 7 or 8 or 9 or 10 or 11, all of those  
20 are talking about what happens when you apply it. And  
21 so -- and, in fact, the estimated concentrations -- I mean  
22 again I have -- like everybody else, I haven't looked at  
23 the report in a long time. But as I recall, the estimated  
24 public exposures were presuming that the material was  
25 being applied according to the way it was supposed to be

1 applied. So that's actually an important assumption which  
2 is built in to the whole risk assessment part of the  
3 report.

4 So I agree with Craig, that something like this  
5 sentence should appear because it's a condition -- a lot  
6 of the other findings are conditioned on it. It's really  
7 the nature of an assumption that DPR made.

8 But I think the right place to put that is not  
9 here where it -- in connection with the biology, it's  
10 somewhere in these later findings beginning with --  
11 somewhere between 6 and 11 where there are discussions  
12 about, you know, the levels that you expect to see when  
13 it's actually used. So I think that's the -- that's how I  
14 would resolve this issue.

15 CHAIRPERSON FROINES: I don't understand what you  
16 just said.

17 PANEL MEMBER GLANTZ: What I'm saying is is that  
18 in the report as I recall it there are statements about  
19 the levels of this compound that people are exposed to or  
20 when they're around tented houses. And the calculations  
21 of those levels and the measurements of those levels  
22 that -- I don't remember which it was -- presumed that  
23 it's being applied properly. So that's a very important  
24 assumption that underlies the exposure levels that are  
25 discussed later in these findings.

1           So I think that needs to be stated, that the  
2 whole document in many ways is predicated on the  
3 assumption that -- in terms of the exposures, the  
4 assumption that the stuff is being applied properly. So I  
5 think that needs to be stated in here.

6           PANEL MEMBER BYUS: It's not only -- you know,  
7 there's many -- I mean as you read this document, if the  
8 house is not tented properly, if it leaks, then the  
9 bystander levels go way up. They're much higher than you  
10 would calculate or observe. When you untarp the building,  
11 or whatever the various procedures, how that is done  
12 markedly affects how the workers are exposed. I mean it's  
13 a very -- there's a lot of assumptions, as you are  
14 correct, throughout the exposure part that rely on these  
15 application procedures. That's all I'm trying to get --  
16 that's all I'm trying to --

17          PANEL MEMBER GLANTZ: But then I think the way to  
18 deal with this without upsetting John is to simply remove  
19 this and rephrase it as saying the exposure estimates in  
20 here are based on several assumptions, and then list them.  
21 That's one of them. But I think highlighting those  
22 assumptions is a good idea.

23          PANEL MEMBER BYUS: Are you okay with that, John,  
24 if I do that instead of --

25          CHAIRPERSON FROINES: I won't accept this

1 sentence the way it's currently written --

2 PANEL MEMBER BYUS: We'll take the sentence --

3 CHAIRPERSON FROINES: Let me finish.

4 -- because this thing relies upon the good  
5 application practices of licensed pesticide contractors.  
6 We have no knowledge whatsoever about whether or not good  
7 application practices are used with respect to this  
8 chemical. We have no knowledge of this. So it says that  
9 we --

10 PANEL MEMBER BLANC: No, we'll reword it when we  
11 get to it. But, John, your point is well taken. And I  
12 think we're going around in circles.

13 PANEL MEMBER GLANTZ: Well, let's move on. I  
14 mean I think that we all agree it should be deleted from  
15 number 2 --

16 PANEL MEMBER BLANC: -- and reworded and put --

17 PANEL MEMBER GLANTZ: -- and reworded and put  
18 somewhere else as an assumption.

19 PANEL MEMBER BLANC: And, Craig, can you just put  
20 the phrase -- and we also -- I think John's point was well  
21 taken that this point about the -- it's here in general  
22 toxicity should be the opening gambit in the toxicity  
23 section.

24 PANEL MEMBER BYUS: Okay.

25 PANEL MEMBER BLANC: And that -- and I would just

1 suggest that you say it's highly toxic to human beings as  
2 well as to other mammals.

3 CHAIRPERSON FROINES: Okay, Craig. Go ahead.

4 PANEL MEMBER BYUS: Okay. This is all very  
5 useful, because we'll hopefully not have to do this again.

6 PANEL MEMBER BLANC: So Point 2 -- the former  
7 point 2, which is now Point 3, didn't really change,  
8 right?

9 PANEL MEMBER BYUS: Right.

10 PANEL MEMBER BLANC: Can I -- can I suggest that  
11 in the new Point 3, which now will actually become Point 2  
12 again -- I presume that the reason it talks about 2003 is  
13 because that's the last year for which data were presented  
14 in the report; is that correct? I mean that's a  
15 reasonable assumption.

16 PANEL MEMBER BYUS: Yes.

17 PANEL MEMBER BLANC: And I would just put  
18 parenthetically after -- in 2003, blah, blah, 1, 2 --  
19 we're using the Los Angeles County alone, parentheses "the  
20 last year for which data were presented in a report."

21 CHAIRPERSON FROINES: Is it correct to say that  
22 that's the last year we have data?

23 PANEL MEMBER BLANC: Well, that's the last year  
24 for which there were data in a report.

25 CHAIRPERSON FROINES: Well, I'm asking the

1 question differently.

2 DPR ASSISTANT DIRECTOR JONES: This is Tobi  
3 Jones.

4 When this report was written that was the last  
5 year for which we have data. We --

6 CHAIRPERSON FROINES: That's not my question.

7 My question was: Is this the last year we have  
8 data? And if it isn't, then we can change the report.

9 DR. LIM: This Is Lori Lim. I checked our  
10 website yesterday. 2003 is the latest data that's posted.  
11 But the document -- 2002 is the last year that was cited.

12 CHAIRPERSON FROINES: Then it should --

13 PANEL MEMBER BLANC: Well, how can the  
14 document -- Paul Blanc here. How could the document only  
15 refer to 2002 and the findings refer to 2003?

16 DR. LIM: 2003 is -- it's the most recent. But  
17 there is documents in the work for a long time. So we can  
18 change that. We could certainly update it.

19 PANEL LIAISON BEHRMANN: In the staff's  
20 presentation, they cited the most recent data available  
21 from their website.

22 PANEL MEMBER BLANC: Yeah, but this is a very  
23 important point, even though this is a very small matter.  
24 This -- the findings cannot refer to data which has been  
25 only presented to the Panel but which is not in the

1 report. These are findings about the report.

2 PANEL LIAISON BEHRMANN: That's a good point.

3 And that's an error on my part then.

4 CHAIRPERSON FROINES: So what is it? Because we  
5 have data in here where we say that the use of fluoride  
6 increased to 2002, and then in 2003 -- 2003 they refer to  
7 Los Angeles. So the question is: What is it? What do we  
8 have?

9 PANEL LIAISON BEHRMANN: The report could be  
10 updated to include the 2003 numbers. That's one option.

11 Though the point the staff was making here or the  
12 suggested point was: In the staff presentation by DPR, it  
13 was notable that of three million pounds, almost half was  
14 applied in a single county.

15 PANEL MEMBER BLANC: Well, I would suggest both  
16 things. I would suggest that the report be updated to  
17 have the 2003 data, and that our findings retain the 2003  
18 data with the parenthetical comment that this is the last  
19 year -- that that is the most recent year for which data  
20 are available, or that is the last year for which data  
21 were cited in the report, or both. Whatever's the most  
22 conservative statement.

23 PANEL MEMBER LANDOLPH: Joe Landolph.

24 And can you have that, Jim -- can you have the  
25 2003 data, the generic data as well as for Los Angeles

1 County, so it's all consistent?

2 PANEL LIAISON BEHRMANN: Yes.

3 PANEL MEMBER LANDOLPH: Thank you.

4 CHAIRPERSON FROINES: Okay. We're up to 4?

5 PANEL MEMBER BYUS: Four. I think -- I don't  
6 know whether it was new or old 4.

7 I added something to the effect that after --  
8 okay, on 4, that after fumigation of the tented structure  
9 sulfuryl fluoride in the air of treated structures is  
10 released through clearance or aeration of a structure  
11 using a variety of procedures, including the TRAP and  
12 Stack defined methods. All of the applied sulfuryl  
13 fluoride is released into the atmosphere as a gas.

14 It just clarified the original statement,  
15 which -- which didn't clarify it. It says that -- the  
16 original statement said after fumigation sulfuryl fluoride  
17 in the air of treated structures is being released in the  
18 atmosphere as a gas.

19 In reality, it's applied. It sort of leaches out  
20 slow -- relatively slowly even over the tented structure.  
21 And then it is vented by these two very specific methods,  
22 only one of which we use in California, correct?

23 CHAIRPERSON FROINES: Anybody have any problem  
24 with 4?

25 PANEL MEMBER BYUS: But I think it's important,

1 because this again -- this is a very unusual thing here  
2 compared to any other compound that I've ever dealt with.

3 PANEL MEMBER BLANC: So in fact there -- you say  
4 there are a variety of procedures. Two of the procedures  
5 are the TRAP and the Stack defined methods?

6 PANEL MEMBER BYUS: Uh-huh.

7 PANEL MEMBER BLANC: But then you indicated that  
8 those are the only two procedures, and only one of them is  
9 actually approved in California?

10 PANEL MEMBER ATKINSON: I would be attempted to  
11 say use in two main procedures.

12 PANEL MEMBER BYUS: Which one's used in  
13 California? Jim, which one's used in California?

14 PANEL LIAISON BEHRMANN: In California, the TRAP  
15 method is the one that's used.

16 PANEL MEMBER BLANC: Is that by regulatory or by  
17 convention?

18 PANEL LIAISON BEHRMANN: I do not know.

19 DPR ASSISTANT DIRECTOR JONES: Randy, do you know  
20 that answer?

21 DPR SENIOR ENVIRONMENTAL RESEARCH SCIENTIST  
22 SEGAWA: This is Randy.

23 Yes, this is a regulatory requirement.

24 PANEL MEMBER BLANC: Well, I think -- and that's  
25 stated in the document clearly?

1 PANEL MEMBER BYUS: Yes, yes. It's clearly  
2 stated in the document, isn't it, Randy?

3 DPR SENIOR ENVIRONMENTAL RESEARCH SCIENTIST  
4 SEGAWA: Yes.

5 PANEL MEMBER BLANC: Then I think I would  
6 probably clean up this point a little bit then by making  
7 clear that these are the two main methods, but in fact  
8 only the TRAP -- is that right, the TRAP method is  
9 currently regulatorily approved in California?

10 PANEL LIAISON BEHRMANN: Yes.

11 CHAIRPERSON FROINES: Then we don't really need  
12 that sentence, do we, that describes the Stack method?

13 PANEL MEMBER ATKINSON: No.

14 CHAIRPERSON FROINES: Let's try and tighten this  
15 stuff up.

16 PANEL MEMBER BYUS: Okay.

17 PANEL MEMBER ATKINSON: Point No. 5 as it  
18 presently is was rewritten quite a bit. But it still has  
19 a problem in that it doesn't reflect what's in the  
20 final -- the latest version of the final report -- of the  
21 report. So it needs changing.

22 I would suggest a slightly mangled version of the  
23 last paragraph on page 8 of Volume 3 replacing. But I can  
24 do that.

25 PANEL MEMBER BLANC: Roger, when you say

1 lifetimes here, do you mean persistence? Or is that --

2 PANEL MEMBER ATKINSON: Well, no, lifetime is  
3 defined as a 1 over E lifetime, the time to -- decreased  
4 by 1 over E. Persistence doesn't mean anything to me.

5 PANEL MEMBER BLANC: So you mean like half life?

6 PANEL MEMBER ATKINSON: No, it's different to a  
7 half life. I can change it -- I mean it can be easily  
8 changed to a half life.

9 PANEL MEMBER GLANTZ: Aren't you talking about a  
10 time constant then?

11 PANEL MEMBER ATKINSON: A what?

12 PANEL MEMBER HAMMOND: It's a time to achieve 1  
13 over E times the original concentration.

14 PANEL MEMBER ATKINSON: That's right, that's 1  
15 over 3. It could be a half life, which is the time to go  
16 down 1 1/2.

17 PANEL MEMBER BLANC: I see.

18 But, yeah, if you could just tighten that up so  
19 that nobody thinks you mean --

20 PANEL MEMBER ATKINSON: But it needs rewriting,  
21 because it no longer reflects what's in new version of the  
22 report.

23 CHAIRPERSON FROINES: Well, what -- I'm sorry,  
24 Paul. Go ahead.

25 PANEL MEMBER BLANC: And when you say the

1 compound in water, you know, a general reader would read  
2 that as in water. And do you mean -- that could mean in a  
3 saturated atmosphere? Or does that mean in water?

4 PANEL MEMBER ATKINSON: It means in water  
5 droplets. But that will all change, because the report is  
6 quite different now to what it was at the time this was --

7 CHAIRPERSON FROINES: Just for the sake of --  
8 okay. That's okay, because we're going to approve the  
9 findings at the next meeting. So okay.

10 PANEL MEMBER BYUS: Correct.

11 PANEL MEMBER BLANC: And can you also clarify,  
12 is -- in the current listings of greenhouse -- is there a  
13 formal listing of greenhouse gases --

14 PANEL MEMBER ATKINSON: Not to my knowledge.

15 PANEL MEMBER BLANC: -- anywhere?

16 So the U.N. --

17 PANEL MEMBER ATKINSON: That's one of the things  
18 that they need to look into.

19 PANEL MEMBER BLANC: And so that's a modification  
20 you wish to see in the document, with either a statement  
21 saying this does or does not appear on the current list of  
22 greenhouse materials?

23 PANEL MEMBER ATKINSON: I don't even know if  
24 there is a current listing, is there?

25 CHAIRPERSON FROINES: This is a very interesting

1 topic. I was at EPA last week talking with them about  
2 chemicals that are important in global warming. And they  
3 want to have a national conference to define chemicals  
4 that are important in global warming. So it's actually an  
5 issue that is current and we're going to sponsor it. So  
6 it's --

7 PANEL MEMBER ATKINSON: There's a thing called a  
8 global warming potential, which you can calculate from  
9 computer models -- atmospheric computer models. And that  
10 needs to be done for sulfur hexafluoride.

11 CHAIRPERSON FROINES: Yeah.

12 PANEL MEMBER ATKINSON: Which takes into account  
13 its lifetime, its infrared absorptions, and its  
14 concentration.

15 PANEL MEMBER BLANC: But in the Kyoto accords or  
16 in the International Treaty on Fluorocarbons, that must  
17 list --

18 PANEL MEMBER ATKINSON: Those are two different  
19 things.

20 PANEL MEMBER BLANC: Right. But that -- look,  
21 for example, that lists specific fluorocarbons that come  
22 under --

23 PANEL MEMBER ATKINSON: That's the Montreal  
24 protocol and its revisions. The Kyoto protocol, as far as  
25 I -- I wouldn't want to be necessarily on record, but as

1 far as I would imagine, all sorts of chemicals come under  
2 it if they become a significant contributor to radiated  
3 forcing.

4 PANEL MEMBER BLANC: Well, you know, I would be  
5 satisfied with a statement in the document which says, you  
6 know, although this chemical currently does not -- there  
7 are these lists -- if there are such lists and it does not  
8 appear on them, it doesn't mean that it might not in the  
9 future. But a statement to that effect would probably  
10 clarifying in the document. And then we could actually  
11 refer to it or not refer to it in our findings.

12 PANEL MEMBER ATKINSON: I think the -- if it's  
13 tightened up on the statement. But the global warming  
14 potential needs to be evaluated, is the thing that will be  
15 the key to it.

16 CHAIRPERSON FROINES: That's good.

17 PANEL MEMBER BYUS: All right.

18 CHAIRPERSON FROINES: Can I just make a comment  
19 about 6?

20 PANEL MEMBER BYUS: Yeah, I was just going to  
21 say, someone -- we should talk about 6 a little bit. It's  
22 a little bit of soft.

23 CHAIRPERSON FROINES: I would like to -- what I  
24 did was to change it so that the sentence that this  
25 paragraph started as follows: "For residents and

1 neighbors (referred to in the report as 'bystanders'),  
2 exposures to sulfuryl fluoride are primarily acute and of  
3 short-term duration. Ambient air exposures to the general  
4 population other than neighbors were not estimated since  
5 they were assumed to be negligible."

6           In other words, I basically took out that first  
7 sentence, which I think is not an SRP finding. Whereas  
8 the statement about that they are primarily acute and  
9 short-term duration is a specific statement that  
10 represents a finding. What comes is the -- the assumption  
11 that on a given day the likelihood of community-wide  
12 exposures is very low, I don't think we need to get into  
13 that speculation. I think we should make definitive  
14 statements rather than speculative ones, even if it's  
15 true.

16           PANEL MEMBER BLANC: But I do think, by the way,  
17 that at the conclusion of this point is where a phrase  
18 should be inserted that in fact all of these presumptions  
19 are based -- or all of this is based on the presumption  
20 that a series of recommended application procedures are  
21 strictly followed using a chemical which has a very narrow  
22 margin of safety, or something to that effect. Because  
23 that's the point you were trying to make.

24           PANEL MEMBER BYUS: Right, that's the point I'm  
25 trying to make.

1 PANEL MEMBER BLANC: And that's where you were --  
2 that's where it fits in.

3 CHAIRPERSON FROINES: So that's good. That's the  
4 thing we argued about before.

5 PANEL MEMBER BYUS: But that's the point I'm  
6 trying to make.

7 PANEL MEMBER BLANC: Yeah, I know, I know.

8 CHAIRPERSON FROINES: And so you can take -- what  
9 he just said I think will -- from the transcript will  
10 almost be the language you want to use.

11 PANEL MEMBER BYUS: Exactly.

12 CHAIRPERSON FROINES: Unless he wants to try and  
13 state it again.

14 PANEL MEMBER BYUS: Say it -- could you just  
15 quickly say a couple of those words that capture it.

16 PANEL MEMBER BLANC: These -- this is based on  
17 the presumption that all applications occur according  
18 to -- occur strictly according to regulated application  
19 procedures.

20 PANEL MEMBER BYUS: I got it, I got it, I got.  
21 Yeah, that's good. I just wanted the first part -- the  
22 first part of the sentence.

23 Very good.

24 CHAIRPERSON FROINES: Okay. So are we okay on 6  
25 then?

1 PANEL MEMBER BYUS: Yes.

2 CHAIRPERSON FROINES: And 7 is Kathy's.

3 What I did, Kathy, is I basically -- you may -- I  
4 basically took out that section that starts "according,"  
5 in other words the last three lines, and I added, "There  
6 is no quantitative data addressing this issue and remains  
7 an assumption." So -- but this is your call.

8 PANEL MEMBER HAMMOND: I had actually wanted the  
9 report to change so that the report itself said that this  
10 was an assumption that there was no data. In which case  
11 the "no finding" would be required by the Panel.

12 Now, I guess my question was: Was that change  
13 made? And implicitly I'm hearing it wasn't. And I'm  
14 trying to understand why that change wasn't made. Is  
15 there some resistance to that?

16 PANEL MEMBER BYUS: No, I don't think -- do you  
17 have any resistance?

18 PANEL MEMBER ATKINSON: No.

19 PANEL MEMBER BYUS: I don't think there's any  
20 resistance.

21 PANEL MEMBER HAMMOND: A mean this is just to  
22 make the report a better report.

23 PANEL MEMBER BYUS: Whether the report actually  
24 did change, I have no idea because I haven't seen it. But  
25 I didn't detect any problems. I mean I think we should --

1 I think -- I agree with you. I think it's best to make  
2 that statement clear in the report. And that way we don't  
3 have to -- we can take it out of the findings.

4 PANEL MEMBER HAMMOND: Right.

5 DR. LIM: This is Lori. Can I make comment?

6 In the conclusion, this is the -- I added two  
7 statements to the conclusion. One of which it says, "In  
8 this document exposure estimates were based on the  
9 assumption that labor instructions were followed such that  
10 the maximum exposure was 5 ppm." This is in the  
11 conclusion.

12 PANEL MEMBER BYUS: Okay. Well, we can -- we'll  
13 discuss that further to make sure that it really --

14 PANEL MEMBER HAMMOND: So I would suggest that --  
15 that sounds very good. Thank you.

16 Maybe you might even want to say, if that's not  
17 true, then there could be higher exposures. Because the  
18 reality, as we know, that those precautions are not always  
19 taken. But it would also be good to have that similar  
20 statement in the body of the report itself where that --  
21 to which that conclusion's referring.

22 CHAIRPERSON FROINES: Can she read that again?

23 DR. LIM: It says -- two sentences are the thing  
24 you guys are most interested. "Additional exposure data,  
25 in particular those with maximal application rate and for

1 commodity fumigation would provide better estimates of  
2 actual exposure. In this document exposure estimates were  
3 based on the assumption that label instructions were  
4 followed such that maximum exposure was 5 ppm."

5 PANEL MEMBER HAMMOND: And I'm suggesting that we  
6 add to that a statement that says that this assumption may  
7 not always be valid and that -- perhaps maybe suggest that  
8 some measurements should be taken to ensure the protection  
9 of these workers.

10 PANEL MEMBER BLANC: This is Paul Blanc.

11 Does the document somewhere -- and I apologize  
12 for not being more familiar with it so that I don't even  
13 have to ask this question -- discuss whether or not there  
14 have been ever citations by the appropriate regulatory  
15 authorities for violators --

16 PANEL MEMBER HAMMOND: Or inspections.

17 PANEL MEMBER BLANC: -- or inspections?

18 The inspections for structural pest  
19 applicators --

20 PANEL MEMBER HAMMOND: These are non-structural,  
21 right? These are the commodity?

22 PANEL MEMBER BLANC: I think we're talking about  
23 everything, aren't we?

24 DR. LIM: Yes. There's a structural and the  
25 commodity.

1 PANEL MEMBER BLANC: Okay. So the structural  
2 pest applicators fall under OSHA inspection or under DPR  
3 only?

4 DPR SENIOR ENVIRONMENTAL RESEARCH SCIENTIST  
5 SEGAWA: It's DPR's authority.

6 PANEL MEMBER BLANC: Okay. Has DPR ever  
7 inspected a structural pest applicator?

8 DPR SENIOR ENVIRONMENTAL RESEARCH SCIENTIST  
9 SEGAWA: Yes.

10 PANEL MEMBER BLANC: Have you ever cited one?

11 DPR SENIOR ENVIRONMENTAL RESEARCH SCIENTIST  
12 SEGAWA: Yes.

13 PANEL MEMBER BLANC: Have you ever cited one for  
14 having levels above 5 ppm?

15 DPR SENIOR ENVIRONMENTAL RESEARCH SCIENTIST  
16 SEGAWA: I don't know.

17 PANEL MEMBER BLANC: Have you ever cited one for  
18 not using a respirator?

19 DPR SENIOR ENVIRONMENTAL RESEARCH SCIENTIST  
20 SEGAWA: Yes.

21 PANEL MEMBER BLANC: So perhaps the statement  
22 that -- so this business about the breathing -- the  
23 self-contained breathing apparatus, that occurs not in the  
24 summary statement but somewhere in the body of the report?

25 DR. LIM: I don't understand.

1           PANEL MEMBER BLANC: Do you have -- you've read  
2 us the language of the -- the revised language of the  
3 summary. But this finding seems to relate not to the  
4 summary statement but to the body of the report. And  
5 somewhere in the body of the report there's something  
6 about wearing a self-contained breathing Apparatus.

7           DR. LIM: Yes, it --

8           PANEL MEMBER BLANC: Can you read us that  
9 sentence as it is in the current report? Is that hard to  
10 find?

11          PANEL MEMBER HAMMOND: Page 58 of the old one.

12          PANEL MEMBER BLANC: It should be on page 58 of  
13 the old report.

14          CHAIRPERSON FROINES: I have a question. I don't  
15 think any of this is appropriate. This Panel is not  
16 established to do occupational exposures. This refers to  
17 an occupational exposure.

18          PANEL MEMBER BLANC: Well, except that if they're  
19 violating the occupational law, it's going to get out, and  
20 then it is relevant.

21          PANEL MEMBER HAMMOND: Yeah, the assumptions for  
22 the bystanders --

23          CHAIRPERSON FROINES: Well, then it should say  
24 that.

25          PANEL MEMBER HAMMOND: But the assumption of the

1 bystanders are based upon --

2 PANEL MEMBER BLANC: Well, that's what I'm trying  
3 to get at. I mean I'm working my way up to that.

4 CHAIRPERSON FROINES: This silliness about  
5 self-contained breathing apparatus and whether people wear  
6 it or not is not within the purview of --

7 PANEL MEMBER BLANC: Well, that's why I was  
8 getting at the point, if they've been citing people for  
9 being over --

10 CHAIRPERSON FROINES: I understand.

11 PANEL MEMBER BLANC: -- then their presumption is  
12 probably weakened that there's never overuse.

13 PANEL MEMBER BYUS: Well, the overuse argument  
14 that they made -- I hate to bring this up -- was that it's  
15 very expensive. And so there's sort of an additional  
16 pressure not to overuse this compound because it's very  
17 expensive. But that's what --

18 PANEL MEMBER HAMMOND: That was true of vinyl  
19 chloride -- that was actually the argument with vinyl  
20 chloride and also mercury in --

21 PANEL MEMBER BYUS: Right.

22 CHAIRPERSON FROINES: I mean I think it's fair to  
23 say, since at least three of us have spent much of our  
24 careers in occupational health, that this notion that  
25 people wear these self-contained breathing apparatus so

1 you don't go above 5 is fanciful, to say the least. I  
2 mean it just -- it's just not the way the workplace works.

3 PANEL MEMBER BYUS: So what is your pleasure  
4 about this statement now?

5 PANEL MEMBER BLANC: Well, I think --

6 PANEL MEMBER BYUS: Because I don't have a  
7 consensus of it. I don't know whether anyone else does.

8 PANEL MEMBER BLANC: Well, one thing is that I  
9 wouldn't want to be approving a document which in its body  
10 says something about how great it is because nobody's ever  
11 exposed over 5 ppm. Because if they were, they would have  
12 to wear a respirator. And, therefore, they aren't  
13 because -- you know, so -- and so that should --

14 PANEL MEMBER BYUS: We'll take care of that.  
15 I've got that.

16 PANEL MEMBER BLANC: -- be out of the body of the  
17 document. Or -- yeah, well I would actually like to see  
18 the body of the document if there are data on the number  
19 of violations that occur per year in application that are  
20 violations related to potential overuse or over exposure,  
21 since that's directly relevant to how much then could leak  
22 out of the buildings. Those data should be summarized in  
23 the body of the document, not through a table or through  
24 some lengthy thing, but they should be -- it should be  
25 alluded to, I would think. And similarly, if there are

1 500 inspections a year and of 500 there have only been  
2 three per year where it's been found that there's been  
3 overuse, I think that would be quite reassuring also.

4 DPR ASSISTANT DIRECTOR JONES: This is Tobi  
5 Jones.

6 Lori, help me out here. But, Paul, I don't  
7 believe that in our risk assessment documents we go into  
8 the enforcement detail of our program as it's exercised  
9 with our county agricultural commissioners. So I think  
10 the kind of -- I mean what Randy has told you is in fact,  
11 yes, there have been citations of structural pest control  
12 operators regarding the use of this material. But it's  
13 not something that we go into detail on in our risk  
14 assessment documents.

15 PANEL MEMBER BLANC: Typically I could see why  
16 that would be not that relevant. Because, for example,  
17 for agricultural applications you have data at the margins  
18 of the fields and so forth. But here if much of the  
19 argument on low risk of exposure is predicated on the  
20 presumption that applications are being done  
21 appropriately, under the scenario of appropriate  
22 application the bystander exposure risk is such and such.  
23 And you have data on the other hand which indicate that in  
24 fact there is minimal or there is frequent misapplication.  
25 I would say that in this particular model it's more

1 relevant than it might be in other pesticides where you  
2 don't generally get into enforcement issues. So here I'm  
3 not -- I think the relevance of the enforcement data is  
4 how much does it support your presumptions of --

5 CHAIRPERSON FROINES: Hearing you talk and  
6 hearing Tobi, I think we should drop anything from the  
7 report and anything from this discussion -- finding about  
8 any assumption about 5 parts per million.

9 PANEL MEMBER HAMMOND: Well, that's what my  
10 original point was, to go back -- is to say that there is  
11 no place for such an assumption, especially when the  
12 assumption is based on the fact that you're not supposed  
13 to do it. Children don't watch more than one hour of TV a  
14 day because they're not supposed to. So I mean --

15 PANEL MEMBER BYUS: No, no, no, no. They've --  
16 no, no. They've modeled this and measured it and they're  
17 all -- all the exposure's all modeled. I mean they've  
18 just done a few experiments here.

19 PANEL MEMBER HAMMOND: No, I under --

20 PANEL MEMBER BYUS: And then they do it and it's  
21 5 parts per million, and that's what they're saying: If  
22 you do it properly this is the way it is. But that goes  
23 for every aspect of exposure --

24 PANEL MEMBER HAMMOND: No, no, no, no, no, no.  
25 That is -- they went beyond that. They actually had in

1 places in the document -- and I didn't mark them when I  
2 found these before, but there were places where the  
3 statements were made that they assumed it didn't go above  
4 5 ppm because that was the standard. And that's not -- I  
5 understand if you do a modeling and you get an assumption.  
6 That's not my concern. My concern at the moment -- we  
7 could talk about the concerns of that modeling. My  
8 concern is the -- what I think is a fallacy of making an  
9 assumption that people never go above where the  
10 recommended levels are. In fact, the assumption was  
11 because the label said it wasn't supposed to be above 5  
12 ppm. And that's not sufficient reason to assume it  
13 doesn't go above 5 PPM.

14 PANEL MEMBER ATKINSON: Then all the exposures,  
15 we'll just scale with whatever the value really is, which  
16 means that the report is meaningless.

17 PANEL MEMBER HAMMOND: And then if they have no  
18 data -- I think what happened was -- you know, I would  
19 agree, they should work from what was really there. My  
20 understanding from the last meeting was that the answer  
21 was there was no data whatsoever in those areas. And I  
22 think at that point you need to say there is no data.  
23 When there's no data, you say that. You don't make an  
24 assumption.

25 PANEL MEMBER BYUS: Well, in reality what you're

1 saying is that you ought to monitor, measure how many  
2 parts per million in every house after you take the tent  
3 off or whatever --

4 PANEL MEMBER HAMMOND: That's not what I'm  
5 saying.

6 PANEL MEMBER BYUS: -- before you let people back  
7 in. That is not what is done.

8 PANEL MEMBER HAMMOND: That's not what I'm  
9 saying. I'm saying don't make an assumption that  
10 something is true because you -- if there are no data --  
11 and I understand when there are no data -- then just say  
12 there are no data. But don't make an assumption, because  
13 I think that's very dangerous.

14 PANEL MEMBER BYUS: And we will go back over --

15 PANEL MEMBER HAMMOND: And as a corollary to  
16 that, then I might also say I'd like them to start making  
17 measurements. But that's a secondary thing. The first  
18 thing is don't say something -- don't give a value that  
19 you have no data for.

20 PANEL MEMBER BYUS: Okay. We will make sure --  
21 we'll check that point carefully.

22 CHAIRPERSON FROINES: Well, this 7 I think has to  
23 go.

24 PANEL MEMBER HAMMOND: Yeah, I don't think 7 -- I  
25 hope that we don't need to have 7 in there.

1           CHAIRPERSON FROINES: This is an occupational  
2 statement.

3           PANEL MEMBER HAMMOND: Well, it's not --  
4 actually, first of all, John, there are lots of occupa --  
5 if you were to go back to the document, it's full of  
6 occupational exposure data.

7           CHAIRPERSON FROINES: Oh, that's part of the  
8 problem we have.

9           PANEL MEMBER HAMMOND: Well, I mean -- well, I'm  
10 not even convinced that's part of the problem. That's a  
11 different issue, but that didn't come up before. But  
12 there's a huge amount of the documents about occupational  
13 exposure and worker exposure. So that I disagree with you  
14 on.

15           But I hope that Point 7 will totally disappear,  
16 because it will have been -- the concerns will have been  
17 incorporated into the final report. And I say that not  
18 because I want to win my battle, but because I'd like the  
19 report to be as accurate as possible. And I think that's  
20 to everyone's benefit.

21           PANEL MEMBER BYUS: Okay. So let make sure I've  
22 got this correct. Although this is all exposure. I don't  
23 why I'm talking about it, because I don't know much about  
24 it.

25           (Laughter.)

1 PANEL MEMBER BYUS: But I will.

2 (Laughter.)

3 PANEL MEMBER BYUS: Because I didn't -- I want  
4 you to know I didn't read it all. If nothing else, I  
5 found it fascinating.

6 So we will correct the language about the 5 parts  
7 per million exposure, make sure that it's very carefully  
8 understood where that was modeled data and where it is  
9 assumptions. And if it's assumptions, we were not going  
10 to use it.

11 PANEL MEMBER HAMMOND: And sometimes it's not  
12 modeled -- it's not even modeled.

13 PANEL MEMBER BYUS: Well, we're going to go take  
14 another look at that.

15 And the other thing is we will insert  
16 theoretically into the report, hopefully, both -- this is  
17 now report, not findings. We will -- you know, I believe  
18 in Paul's discussion here about some understanding of the  
19 numbers of violations per year related to overuse and  
20 inspections, because that would implicate that assumption.

21 CHAIRPERSON FROINES: I think Tobi's saying that  
22 that's not an option.

23 PANEL MEMBER BYUS: You're saying that's not an  
24 option?

25 DPR ASSISTANT DIRECTOR JONES: This is Tobi

1 Jones.

2 No, I didn't say that's not an option. I said  
3 incorporating enforcement data in to our risk assessments  
4 is not normally what we have done. That's all I said.

5 And I would really have to -- and I don't know if  
6 Lori or Randy have a handle on this -- really have to go  
7 back and ask what kind of data is available. Because  
8 these kinds of enforcement actions are taken at the county  
9 level.

10 PANEL MEMBER BYUS: Okay. If data are not  
11 available, we won't -- or it's inappropriate, we won't put  
12 it in. But I mean I think some discussion of the  
13 assumption that it's 5 parts per million ambient is  
14 implicit -- or more than implicit is required, clear  
15 language in the body of the report.

16 CHAIRPERSON FROINES: I don't understand. I'm  
17 sorry. I don't understand. I think that the assumption  
18 of 5 parts per million, that it never goes above that is  
19 fallacious and that there is -- unless there is an  
20 evidentiary basis, I don't see the reason that we should  
21 get into saying that that assumption is appropriate.  
22 There is no -- unless there is an evidentiary basis, it  
23 becomes speculation. And somebody can argue with me and  
24 say that that's a reasonable speculation, that's one  
25 thing. But I think that we should go on the science that

1 we have before us, not upon the speculation that something  
2 never gets above -- I mean we know in occupational health  
3 settings that things go above what people say they should  
4 be all the time. That's why we have OSHA.

5 PANEL MEMBER BLANC: Yeah, I think everybody's in  
6 agreement with that.

7 PANEL MEMBER BYUS: I understand.

8 PANEL MEMBER BLANC: I think -- I don't think  
9 that's what he was just saying --

10 PANEL MEMBER BYUS: I'll have to go back and look  
11 at the exact language throughout the document and how it  
12 applies.

13 CHAIRPERSON FROINES: It seems to me that the  
14 exposure should reflect the measured exposures that have  
15 been determined and not be based on necessarily a 5 part  
16 per million modeling, because I don't think it's valid.  
17 So I think what I'm saying -- Paul may say you all agree.  
18 But I'm saying that in sections 8, 9 and 10, those need to  
19 reflect experimental data from which conclusions can be  
20 drawn as opposed to an assumption, that I think is an  
21 incorrect assumption, that nothing ever gets above 5 parts  
22 per million.

23 DR. LIM: This is Lori. Can I make a comment?

24 Usually that the -- the problem with sulfuryl  
25 fluoride is that we already have registered uses. And

1 notice was -- say something about the risks associated  
2 with the use. That's why we have the -- we say an  
3 assumption that assume exposure. But if we just go ahead  
4 and say we don't have data for that use, and then the risk  
5 would not be calculated for that use and then there  
6 would -- you know, then what do you do the step after  
7 that? So at least at this point we could say if  
8 everything is done by label, we have this risk, and then  
9 it's not good. So -- in fact, the label is too high, so  
10 we need to work on getting it down. So it does give you  
11 some idea of what the risk is out there.

12 PANEL MEMBER BYUS: Shall we keep going here? Or  
13 anyone have any --

14 CHAIRPERSON FROINES: You say the estimated acute  
15 exposure for bystanders exceeded 1/10 of the reference  
16 concentrations and, thus, would meet the criteria  
17 established by DPR for listing under AB 1807.

18 When you say that they exceeded 1/10 of the  
19 reference concentrations, what is that based on?

20 DR. LIM: Is that a question to me?

21 CHAIRPERSON FROINES: Yep.

22 DR. LIM: Oh. Because the criteria is 1/10 of  
23 the reference concentration that -- I guess we decided  
24 that's the limit. And we want to be tenfold lower than  
25 the reference concentration for a chemical to be listed.

1           CHAIRPERSON FROINES: I understand all that. But  
2 I'm asking you: What was the basis of the statement, the  
3 estimated exposure concentration -- acute exposure for  
4 bystanders exceeded 1/10 of the reference concentration.  
5 What was the basis for that determination? Because that's  
6 the basis upon which this is being recommended as the TAC.

7           DR. LIM: Okay. I understand. See, the  
8 bystander for the structural is based on monitoring data.  
9 The non -- the only function with a 5 ppm was when we're  
10 talking about the non-fluid use commodities fumigation in  
11 which we don't have monitoring data.

12          CHAIRPERSON FROINES: Well, if the -- if the  
13 basis for recommending this as a TAC derives from  
14 monitoring data, then that's the data that forms the basis  
15 for the decision and that's the central data in terms of  
16 our finding.

17          If model data based on a 5 part per million is  
18 not part of a decision matrix, then that's not relevant to  
19 this particular determination?

20          Am I wrong?

21          You don't know what I'm saying?

22          PANEL MEMBER HAMMOND: Huh-uh.

23          CHAIRPERSON FROINES: We're in to a lengthy  
24 discussion about this 5 part per million estimate of  
25 theirs. And I'm saying that the -- on number 18 --

1 PANEL MEMBER HAMMOND: What number 18? Findings.

2 CHAIRPERSON FROINES: Point 18.

3 See, there has -- the decision -- this is  
4 something that leads you to a decision. That's what the  
5 findings are. And it says here under 18, "The estimated  
6 acute exposure for bystanders exceeded 1/10 of the  
7 reference concentrations and thus would meet the criteria  
8 established by DPR for listing under the AB 1807 Toxic Air  
9 Contaminant Program." Are you with me?

10 PANEL MEMBER HAMMOND: (Nods head.)

11 CHAIRPERSON FROINES: Okay. That is the  
12 decision, that's the fundamental decision that we are  
13 speaking to. The exposure -- because even though we may  
14 disagree with the MOE, that's what exists. And what  
15 they're saying is that the basis for the recommendation of  
16 it being a TAC is that the acute exposure exceeded 1/10 of  
17 the reference concentration. And what she -- Lori just  
18 said is that's based on monitoring data, that's based on  
19 actual exposure assessment.

20 PANEL MEMBER HAMMOND: Well, there's a lot of  
21 monitoring data in here.

22 CHAIRPERSON FROINES: That's my point. My point  
23 then is that when we have findings that relate to the  
24 exposure aspect, it should reflect that information that  
25 ultimately leads to the decision. And anything else based

1 on modeling assumptions should not be included.

2 PANEL MEMBER HAMMOND: And I keep wanting to  
3 correct it. It's not a modeling. I'm not objecting to  
4 modeling anyway. We're not talking about modeling data.  
5 I'm objecting to assumption data -- assumptions.  
6 Non-data --

7 PANEL MEMBER BYUS: I got you.

8 PANEL MEMBER HAMMOND: But, John, I agree with  
9 you.

10 CHAIRPERSON FROINES: What I'm saying is that 8,  
11 9 and 10 should reflect the data that is used to make the  
12 decision.

13 PANEL MEMBER ATKINSON: Well, in 8, but it's true  
14 if you took out the first sentence.

15 CHAIRPERSON FROINES: Okay. Good.

16 In other words, the question is: What are we  
17 using the information in 8, 9 and 10 for besides -- is  
18 this not a -- we're not writing an encyclopedia. This is  
19 a process to which we come to a conclusion.

20 So the question is -- where we've got three major  
21 paragraphs here about exposure. But where does it lead  
22 to? What does it ultimately lead to in terms of the  
23 ultimate conclusion?

24 And why then, if it doesn't go somewhere, if  
25 it's -- we have to decide what factual material has

1 relevance and why.

2           For example, it says that -- on the bottom of 8  
3 and 9 it says, "Estimates of air concentrations following  
4 use of sulfuryl fluoride at the maximum allowed  
5 application rate of 160 grams per meter<sup>3</sup> were estimated by  
6 multiplying the estimated sub-maximal air concentrations  
7 by ten." I have no idea what that has to do with anything  
8 that leads us to defining this as a toxic air contaminant.  
9 Is that information of value? I don't think it is. But I  
10 don't -- I'm maybe missing something.

11           And the same kind of estimates of air  
12 concentration in part 10, talks about 160 grams per cubic  
13 meter were estimated when multiplying blah, blah, blah. I  
14 don't know why we have that in there.

15           PANEL MEMBER ATKINSON: Well, the first part in  
16 each one as the measured data are at 16 grams per cubic  
17 meter. And everything is taken to scale with the  
18 application rate. And the 160 is the maximum allowed.

19           Am I correct?

20           PANEL LIAISON BEHRMANN: That's correct.

21           Dr. Froines, the point being made there was that  
22 the measured -- the monitored values were from experiments  
23 or applications where a lower than maximal application  
24 rate was used. In other words, the potential for public  
25 exposure could be much greater.

1 PANEL MEMBER ATKINSON: Than those measured  
2 values.

3 PANEL LIAISON BEHRMANN: Than those measured  
4 values.

5 PANEL MEMBER ATKINSON: By about an order of  
6 magnitude.

7 CHAIRPERSON FROINES: Okay.

8 PANEL MEMBER BLANC: But are --

9 CHAIRPERSON FROINES: I'm still asking the same  
10 question. Of those three paragraphs, what is it that  
11 leads you to your final conclusion? Because we need to  
12 highlight -- we need to highlight the information that we  
13 consider the most relevant for the ultimate determination.  
14 Otherwise it's a series of facts, which I think all may be  
15 interesting, but they don't help me say -- so when I get  
16 to number 18, I don't know from 8, 9 and 10 where 18 comes  
17 from, and nobody in this Panel can tell me where it came  
18 from.

19 PANEL MEMBER BLANC: John, I suggest we take a  
20 slight break from our transcriptions.

21 CHAIRPERSON FROINES: We will. But I want -- I  
22 just -- Roger and Craig, I don't know how you get to 18  
23 from 8, 9 and 10.

24 PANEL MEMBER BYUS: I didn't write it.

25 PANEL MEMBER HAMMOND: May we take a break?

1 CHAIRPERSON FROINES: Yes. Let's take a break.

2 (Thereupon a recess was taken.)

3 CHAIRPERSON FROINES: Stan's not here, but we'll  
4 go ahead without Stan.

5 So am I right to assume that we're leaving  
6 paragraphs 8, 9, 10 and 11 to Craig and Roger and out of  
7 that -- and Joe.

8 PANEL MEMBER LANDOLPH: No, I just want to ask a  
9 question, when you're leaving a 10 --

10 CHAIRPERSON FROINES: And Kathy then should give  
11 any comments that she thinks are appropriate to Craig and  
12 Roger after this meeting. And so that -- and of course  
13 anybody else can too.

14 Go ahead, Joe.

15 PANEL MEMBER LANDOLPH: Yeah, I'll give them a  
16 comment too. And I just wanted to make sure it was  
17 appropriate.

18 At the end of 8 I just thought of putting a  
19 sentence in there to the effect that people really  
20 shouldn't go into these houses until the concentration of  
21 this material is down to below .25 parts per million,  
22 which would take about three days to flush it out. I'm  
23 just concerned about people going into the houses when  
24 it's around 5 parts per million. It's way, way too high.  
25 So I was thinking about putting a sentence for them in

1 there to that, if that's appropriate.

2 PANEL MEMBER HAMMOND: Well, maybe -- that  
3 almost --

4 CHAIRPERSON FROINES: It's not risk assessment.

5 PANEL MEMBER LANDOLPH: Well, I'm concerned  
6 because of the neurotoxicity and also possible  
7 carcinogenicity of this material.

8 CHAIRPERSON FROINES: Well, I think that we've  
9 never in our findings have given instructions for what  
10 people should do. We basically evaluate the science. We  
11 don't necessarily give the prescriptive approach to how  
12 one should deal with diesel exhaust, for example. We  
13 don't say people shouldn't, you know, go into a train yard  
14 and stand next to a locomotive -- I mean -- because of  
15 those exposures.

16 So that to the degree that we become  
17 prescriptive, we're -- I'm not convinced it's within  
18 our -- I think it's moral and ethically okay. But I'm not  
19 sure it's within our purview.

20 PANEL MEMBER LANDOLPH: Well, I was dealing with  
21 the former.

22 CHAIRPERSON FROINES: I understood.

23 What do you think?

24 PANEL MEMBER BLANC: Well, first of all, it can't  
25 be a finding if this -- unless there's a body of

1 evidence -- if there was evidence in the report which  
2 says -- if the report said it is dangerous to be in  
3 exposures even below those levels which are prescribed or  
4 if there were findings -- if there was data in the report  
5 that was relevant to the comment, then there could be a  
6 finding which summarizes, you know, that part of the  
7 document and states whether we think the science supports  
8 the statement. But if the report doesn't have data that's  
9 relevant to that, then there can't really be a finding  
10 related to that. There could be a finding that there  
11 seems to be a lack of data in a key area relevant to what  
12 transpires in exposures in a certain range.

13 PANEL MEMBER LANDOLPH: Well, the carcinogenicity  
14 data's admittedly thin. Just the fact that there is some  
15 I find a little bit worrisome --

16 CHAIRPERSON FROINES: But that's so thin for  
17 fluoride.

18 PANEL MEMBER LANDOLPH: -- going back 5 parts per  
19 million.

20 CHAIRPERSON FROINES: I think the fluoride's  
21 going to turn out to be more --

22 PANEL MEMBER BLANC: Well I think it's a separate  
23 question about how you would -- how the findings are going  
24 to approach -- as I understand it, it's a bit complex  
25 about how the findings are going to approach or not

1 approach the issue of carcinogenicity. But I probably  
2 would link that with the reentry question.

3 CHAIRPERSON FROINES: I just think one thing,  
4 Craig, that's very important, and we'll come to this, is  
5 that what comes out of 8, 9, 10, and 11, which is quite  
6 lengthy, there needs to be out of that perhaps a  
7 paragraph, because 18 says the estimated acute exposure  
8 for bystanders exceeded 1/10 of the reference  
9 concentrations. But we don't know what -- where that  
10 comes from. So it's too vague. There's no connection  
11 between the sections, and so that's -- and I think that --  
12 that should -- Paul's -- in that respect, that has to come  
13 out of the report. So it has to also be in the report  
14 very clearly stated so we see what the logic for the  
15 decision is.

16 Am I okay on this?

17 So we're now over to --

18 PANEL MEMBER BLANC: -- 12?

19 CHAIRPERSON FROINES: -- Point 12.

20 PANEL MEMBER BYUS: I think we were going to  
21 insert the table, either figure 25 in Lori's presentation,  
22 or the OEHHA Table 1, which lists the reference  
23 concentrations and gives a lot more -- it's actually  
24 quite -- either -- they're both fine.

25 CHAIRPERSON FROINES: I would vote for the OEHHA

1 one.

2 PANEL MEMBER BYUS: The OEHHA. I was going to  
3 say -- I couldn't find it the other day. I did find it.  
4 I think I like the OEHHA one better as well.

5 CHAIRPERSON FROINES: Well, the good thing about  
6 the OEHHA is that it gives an NOEL and it gives an RFC.

7 PANEL MEMBER BYUS: Right. So I would suggest  
8 that we put that in the findings because it does -- it's  
9 very well done, very clear. And plus it has a lot of the  
10 assumptions in the bottom of it in the legend.

11 PANEL MEMBER BLANC: And it's a table which is in  
12 the report?

13 PANEL MEMBER BYUS: No, it's in OEHHA's --

14 PANEL LIAISON BEHRMANN: -- it's in OEHHA's  
15 findings, which are --

16 PANEL MEMBER BYUS: -- OEHHA's findings. And  
17 then they pulled the data out of the report and summarized  
18 it I think quite well. So I mean it's all in there. It's  
19 just in there in various places.

20 So I think the OEHHA table we will reinsert into  
21 the findings, such that it will make -- and the rewrite,  
22 those 8 through --

23 CHAIRPERSON FROINES: I don't understand one  
24 thing though. It says here -- under the DPR table you  
25 have one duration, one to two weeks, and it says the

1 critical NOEL is 100 parts per million. And is that  
2 consistent with the OEHHA 7.2 milligram per kilogram data?

3 DR. LIM: Excuse me, John. That point --  
4 actually you don't want slide 25, because that talks about  
5 the repeated exposures.

6 CHAIRPERSON FROINES: I'm sorry?

7 DR. LIM: Slide number 25 in my presentation,  
8 that doesn't have any acute information in there. My  
9 presentation actually I laid out the acute toxicology  
10 information from the repeated exposure information.

11 CHAIRPERSON FROINES: I have no idea what you're  
12 talking about, and neither does anybody else.

13 PANEL MEMBER BYUS: No, I understand what she's  
14 saying. It's -- we'll make sure that everything is  
15 consistent. Everything is consistent to my reading of it  
16 between OEHHA and DPR. It's just -- it's very complicated  
17 about all the different exposure scenarios.

18 CHAIRPERSON FROINES: Well, the problem that I  
19 had is you can't decipher one table from another when you  
20 look at them. So that all I wanted to make sure was that  
21 we were -- that both agencies were consistent with respect  
22 to the numbers.

23 DR. LIM: If you want a table with the NOELs, the  
24 sort of air concentration, then the OEHHA Table 1 is the  
25 best use. If you only want NOELs and reference

1 concentrations, there's Table 18 in the RCD that can be  
2 used.

3 CHAIRPERSON FROINES: I don't know what that is.  
4 That's not what we have, right? That's in the  
5 document.

6 DR. LIM: Yeah, that's in the document.

7 CHAIRPERSON FROINES: Then, Craig, why don't you  
8 guys decide. I mean it looks like Table 1 here from OEHHA  
9 is fine. But if there's something that would amplify it,  
10 then go ahead and include it.

11 PANEL MEMBER BYUS: We will.

12 PANEL MEMBER BLANC: Point 12 -- are we at Point  
13 12 now?

14 CHAIRPERSON FROINES: Yes.

15 PANEL MEMBER BYUS: I think I added --

16 PANEL MEMBER BLANC: Is this where you want your  
17 line moved to from your suggested Point 2?

18 PANEL MEMBER BYUS: Correct. I did add that "Are  
19 also lethal to human beings." But I can reinsert that  
20 statement.

21 CHAIRPERSON FROINES: I would take out the "at".  
22 I would just say, "The applied concentrations of sulfuryl  
23 fluoride sufficient to kill insects and rodents in tented  
24 buildings and containers are lethal to human beings." We  
25 don't need the "also," we don't need "these

1 concentrations," we don't need "at". I think it's more  
2 declarative, if accurate.

3 PANEL MEMBER BYUS: It's accurate.

4 PANEL MEMBER BLANC: And you don't mean just  
5 that there have only been three human fatalities?

6 PANEL MEMBER BYUS: Where does it say three?

7 PANEL MEMBER HAMMOND: It doesn't say three.

8 PANEL MEMBER BLANC: So you said several. So why  
9 don't you get rid of "several". It's just unintentional  
10 cases, right? I mean you don't try and imply three or  
11 four, right?

12 CHAIRPERSON FROINES: Where are you at, Paul?

13 PANEL MEMBER BLANC: The next sentence.

14 CHAIRPERSON FROINES: Oh, yes.

15 PANEL MEMBER BLANC: And then just in terms of  
16 the order of this -- well, first of all, its signs and  
17 symptoms. Hypotension is not a symptom. It's a sign.

18 But I would suggest you reorder it so that you  
19 talk about the nonfatal and then talk about the fatal at  
20 the end. It's not -- you know, it's a more logical  
21 progression. You have a sentence about what, you know,  
22 postmortem findings are.

23 PANEL MEMBER BYUS: Actually it's probably better  
24 to do it the other way around because the non-lethal and  
25 even in the better -- we probably ought to break out the

1 non-lethal and lethal completely.

2 PANEL MEMBER BLANC: Yeah, but I would move up  
3 the chain so you end with the lethal if you --

4 PANEL MEMBER BYUS: Okay. Well, then I'll have  
5 to rearrange both, move them completely.

6 PANEL MEMBER BLANC: Yeah.

7 And you have pulmonary edema -- I'm not sure  
8 what -- "Postmortem evaluations typically revealed severe  
9 pulmonary edema, respiratory and lung mucosa, and brain  
10 edema." So I would just say, "Postmortem evaluations  
11 typically revealed severe pulmonary and brain edema."

12 PANEL MEMBER BYUS: Okay.

13 PANEL MEMBER BLANC: And I would actually get rid  
14 of the word "hyperexcitability," because I'm not sure what  
15 that means.

16 PANEL MEMBER BYUS: Okay.

17 CHAIRPERSON FROINES: Have you finished 12?

18 PANEL MEMBER BYUS: Everybody okay with 12?  
19 Thirteen?

20 CHAIRPERSON FROINES: See, Stan, this is what we  
21 felt like the day we did lead.

22 PANEL MEMBER GLANTZ: I'm sorry.

23 CHAIRPERSON FROINES: Now, you should -- you'll  
24 know what pain people were in.

25 PANEL MEMBER GLANTZ: But we had no choice.

1 CHAIRPERSON FROINES: Yeah, I understand.

2 PANEL MEMBER GLANTZ: At least you're not talking  
3 about where the commas should be.

4 CHAIRPERSON FROINES: Thirteen? I had one --  
5 Craig, I only had one.

6 PANEL MEMBER BYUS: Sure, anything.

7 CHAIRPERSON FROINES: The next to the last -- the  
8 last sentence, it says, "The significant findings from  
9 reproductive and developmental toxicity..." And I added  
10 "studies".

11 PANEL MEMBER BYUS: Okay.

12 CHAIRPERSON FROINES: And that's all I had.

13 PANEL MEMBER GLANTZ: Gee, Peter just pointed out  
14 this is the same room we had the lead meeting in. Maybe  
15 it's something about the air.

16 PANEL MEMBER BYUS: All right. Should we move on  
17 to 14?

18 CHAIRPERSON FROINES: Yep. And we agreed that  
19 Table 1 from OEHHA should be the table.

20 PANEL MEMBER BYUS: Right.

21 CHAIRPERSON FROINES: But we're going to check on  
22 the report to see if there's anything that would amplify  
23 it.

24 PANEL MEMBER BYUS: Right. And Lori's data.  
25 I'll talk with her about what will give us a complete

1 picture between everything.

2 CHAIRPERSON FROINES: On 15, I added after  
3 Appendix B "of the report". I assume that that's what you  
4 were referring to.

5 PANEL MEMBER BYUS: Right.

6 CHAIRPERSON FROINES: And I'm not sure you need  
7 to say, fluoride ions (referred to as 'fluoride')." I  
8 think you can say, "Fluoride is a metabolite of sulfuryl  
9 fluoride." I don't think we need -- I think that that's  
10 reasonably clear.

11 PANEL MEMBER HAMMOND: That's what fluoride  
12 means.

13 PANEL MEMBER BYUS: I know. I just want to make  
14 sure they -- I took this language right out of the book.

15 CHAIRPERSON FROINES: Now, what --

16 PANEL MEMBER BYUS: And I've actually en route  
17 said fluoride is a toxic metabolite of sulfuryl fluoride.  
18 I mean no where in there did I actually say that fluoride  
19 was toxic.

20 CHAIRPERSON FROINES: And do you think this --

21 PANEL MEMBER BYUS: The review presented in  
22 the -- I mean this was a major thing that I asked DPR and  
23 Lori to do, was really put this -- and a discussion of  
24 fluoride toxicity in general and then a discussion, a  
25 comparative of the fluoride load that you would get from

1 various sources. I mean she did a marvelous job on this.  
2 I mean this is very, very well done, in my opinion. Very  
3 objective, very thorough, if you want to lead it. I mean  
4 she really did a great job on it.

5           So I mean I just think -- and it is an important  
6 issue. So I mean I think it's excellent in Appendix B,  
7 and we should refer to it as that. And if there's any  
8 other way you want to feature it here in my language,  
9 please do. I mean I didn't agonize over all the words.  
10 But I mean I think it's very well done.

11           PANEL MEMBER BLANC: This is consistent with  
12 previous approaches that we've taken, in particular -- I'm  
13 trying to remember the discussion we had on something  
14 where there were multiple roots of exposure. Do you  
15 remember what the compound was? There was a lot of  
16 potential dietary exposure and we had a very long  
17 discussion.

18           Jim, do you remember sometime in the last three  
19 years that something -- before ETS obviously. Is this  
20 sounding familiar?

21           PANEL MEMBER GLANTZ: Yeah. No, I remember the  
22 discussion. I don't remember the compound.

23           CHAIRPERSON FROINES: Well, we haven't done -- it  
24 could have been one of the OEHHA RELs.

25           PANEL MEMBER BYUS: Okay. You want to move on?

1 PANEL MEMBER BLANC: Yeah. The only thing I'd  
2 suggest, if you figure out what that was and if it's  
3 appropriate, it would be nice to cite that we -- you know,  
4 as with --

5 CHAIRPERSON FROINES: So 16 is a point of  
6 contention. And I don't know what's in the report about  
7 the NAS study and about the osteosarcomas.

8 Joe.

9 PANEL MEMBER LANDOLPH: So why not for 16 just  
10 make some -- I suppose it's a reference to the NAS  
11 report -- just reference the fact that fluoride has been  
12 shown to cause osteosarcomas in rats. And there may be  
13 some development in human data, and just let it go at  
14 that.

15 CHAIRPERSON FROINES: Well, the thing you --  
16 again, in the attempt to be consistent with the report,  
17 you need to see what Lori's done on that in the report.

18 PANEL MEMBER BYUS: Right. Yeah, we will.

19 CHAIRPERSON FROINES: But why don't you be  
20 responsible for writing a sentence or a couple sentences.  
21 And basically what we're doing is saying there is some  
22 preliminary or existing data -- it's not very preliminary.  
23 Actually it goes back quite awhile.

24 PANEL MEMBER BYUS: Yeah, the data's -- I mean  
25 as I again -- now I'm beginning -- I've been ciphering my

1 notes here. It has a lot to do with -- I think most of  
2 the data comes from fracture rate data and fluoride  
3 concentrations in the diet. And out of that, has a lot to  
4 do with the age. And apparently these osteosarcomas occur  
5 in young children. It has to do -- I mean at least the  
6 increased incidents. I hadn't seen the clinical trial.  
7 It's actually done by Loma Linda, people in China. And  
8 there's -- the problem with fluoride is that it's one of  
9 these level phenomenon. If it's too high -- if it goes  
10 from being beneficial to being nonbeneficial as you  
11 compete with other ions, calcium, et cetera, for  
12 deposition in the bone.

13           And it's because it's so prevalent and it varies  
14 so much in the diet is what happens, depending on where  
15 the plants were grown, I believe. It's kind of variable.  
16 But that is where the human osteosarcoma data comes out  
17 of, that study, I believe. And --

18           PANEL MEMBER LANDOLPH: Well, why don't you write  
19 that part up.

20           PANEL MEMBER BYUS: But I've only heard this by  
21 word of mouth. I haven't -- I don't have the data. I've  
22 only heard this by word of mouth from someone at EPA that  
23 I've talked to about --

24           PANEL MEMBER BLANC: So what data are in the  
25 document? I guess that's the question.

1           PANEL MEMBER BYUS: Well, there is but -- NAS is  
2 doing a review of it, I mean in -- a very careful study,  
3 as per review, as best they can. And that data is  
4 apparently going to be released some time early next year.

5           PANEL MEMBER BLANC: So then it would be possible  
6 to craft a finding which says that we recognize that the  
7 data reviewed in the report on carcinogenicity are  
8 extremely limited, but --

9           PANEL MEMBER BYUS: No, it's not extremely  
10 limited. That data was reviewed extremely well. There is  
11 this other study --

12          PANEL MEMBER BLANC: Okay. So then you're going  
13 to --

14          PANEL MEMBER BYUS: -- which is primarily based  
15 on fluoride, which is clearly relevant here. But I have  
16 not seen -- I can't say the data is -- that there is --  
17 then there's someone else's thesis data, which I haven't  
18 seen either.

19          CHAIRPERSON FROINES: The Harvard study.

20          PANEL MEMBER BYUS: Right.

21          PANEL MEMBER HAMMOND: And that's not published?

22          PANEL MEMBER BYUS: That is not published.

23          PANEL MEMBER HAMMOND: We went through that last  
24 time.

25          PANEL MEMBER BYUS: And I hate, you know --

1 PANEL MEMBER BLANC: Yeah, yeah. I understand.

2 PANEL MEMBER BYUS: It is of -- there is some  
3 question.

4 PANEL MEMBER HAMMOND: They're not releasing  
5 the --

6 PANEL MEMBER BYUS: Well, there's question, and  
7 I --

8 PANEL MEMBER BLANC: So all I'm asking is this:  
9 It's the direction of what you would -- of what the  
10 Finding 16 would be would be a comment on two things: One  
11 is that it would be a comment on what is stated in the  
12 report one way or another. And then it would also be a  
13 caveat saying that new data may or may not emerge, for  
14 example, through a pending NAS report. So Is that  
15 basically what -- so that the finding will not only allude  
16 to the document itself but to the potential for other data  
17 that are emerging? But what I think the finding should  
18 not comment on is in some way trying to directly review  
19 other literature that's not reviewed in the document.

20 PANEL MEMBER BYUS: Correct.

21 PANEL MEMBER LANDOLPH: And there's also that  
22 animal study from NIEHS, must be 20 years old now, where  
23 they got a dose dependent deduction of osteosarcoma. So  
24 it's the same cite.

25 PANEL MEMBER BYUS: But from fluoride?

1 PANEL MEMBER LANDOLPH: For fluoride.

2 PANEL MEMBER BYUS: From fluoride. And I don't  
3 know the -- I haven't seen that. And if you want to  
4 come --

5 PANEL MEMBER BLANC: No, but I don't think we  
6 should comment on that. I don't think we should -- I  
7 think it's enough to -- there should be a caveat there.  
8 You should comment on what's in the report. We can't have  
9 a finding on the outside literature. It's not out -- if  
10 you think so strongly that this report needed to review  
11 that literature, that's a different issue.

12 CHAIRPERSON FROINES: Does the NTP study -- is it  
13 in the report?

14 DR. LIM: Yes, it is, in Appendix 4.

15 PANEL MEMBER LANDOLPH: And then Lori reviewed  
16 it. Then she -- they've already --

17 PANEL MEMBER BLANC: Well, then to that extent --

18 CHAIRPERSON FROINES: I think it needs -- to the  
19 degree that it's in there, it needs -- we don't need to do  
20 a major review. We need to say basically that there is --  
21 and the word -- say limited evidence of osteosarcoma  
22 associated with fluoride exposure, an NAS report will  
23 emerge next year to address the issue. And that's pretty  
24 much what we have to say, I think.

25 PANEL MEMBER BYUS: Okay.

1 CHAIRPERSON FROINES: I don't think we should get  
2 into a literature review. I think that's where -- I think  
3 we're all in --

4 PANEL MEMBER HAMMOND: Yeah, that makes me  
5 think -- people alluded to the multiple sources of  
6 fluoride and what percentage these might represent. To  
7 the degree we're going to bring issues like this up, maybe  
8 one of our findings should include that, something about  
9 what the potential -- you know, like is this potentially  
10 how much of a total --

11 PANEL MEMBER BYUS: It's too -- I mean in my  
12 opinion, it's too speculative to do it.

13 PANEL MEMBER HAMMOND: Okay, okay. I just --

14 PANEL MEMBER BYUS: I mean I really -- I mean I  
15 think it's just -- there's nothing to hang your hat on  
16 here. I think she really did a great job, an excellent  
17 job, if you read that -- it's worth reading over, because  
18 there's very little, you know, additive toxicity type  
19 data.

20 PANEL MEMBER HAMMOND: Is this in the new report?

21 PANEL MEMBER BYUS: No, it's in the original --

22 PANEL MEMBER HAMMOND: It is. Okay. Just don't  
23 remember it.

24 PANEL MEMBER BYUS: It's in the original that  
25 provides --

1 CHAIRPERSON FROINES: No, no, version.

2 But I think the report changed as a result of  
3 Joe's comments.

4 PANEL MEMBER BYUS: Right. Correct, correct,  
5 correct. No, the correct --

6 PANEL MEMBER LANDOLPH: Yeah, if they could put  
7 that in the appendix. She made a lot of changes.

8 PANEL MEMBER BYUS: She made a lot of changes.

9 So I mean it does actually give you a perspective  
10 of what the load of sulfuryl fluoride exposure would be  
11 versus total fluoride from diet and all kinds of other  
12 sources and tooth paste and whatever.

13 And it's very well done. And I think a  
14 statement -- I mean I would use the word "limited  
15 evidence," because I think that -- and that's -- I'm  
16 taking from you because I think that's probably correct.  
17 So I'll use that word, and reference the fact that an NAS  
18 report is forthcoming. I mean that's -- I do agree with  
19 you. I don't think we should really say more than that,  
20 because I really haven't seen the data. And I have no  
21 idea which way it's going to go.

22 PANEL MEMBER LANDOLPH: I agree with that. And I  
23 think there's -- you know, until there's replication of  
24 the NIEHS experiment or better human epi data I think  
25 there is some skepticism about the data, I think there is

1 some skepticism about the data. But it's a positive.

2 CHAIRPERSON FROINES: Well, I think -- I think  
3 we're all in complete agreement. I'll just make one side  
4 comment, which is: As a person who's deeply involved in  
5 the issue of acrylamide, it has become very, very  
6 controversial because it's in our french fries, right?

7 So that we're all -- so the level of evidence  
8 that's being required to demonstrate a positive conclusion  
9 is affected by the implications of the finding. And  
10 fluoride is clearly right centerpiece in that. I mean  
11 there -- with methylene chloride we went on the basis of  
12 one NTP study. And here there are a lot of studies, but  
13 nobody's said it, yes. And in part I think some of the  
14 decision may reflect the fact that we have fluoride in our  
15 water and toothpaste. And so this is an issue that really  
16 does need to get sorted out, because it has such immense  
17 societal implications.

18 PANEL MEMBER BLANC: Can we move on to Point 17?

19 CHAIRPERSON FROINES: Yes.

20 PANEL MEMBER BLANC: Point 17 was moved in this  
21 revision from something that was earlier up, right, in the  
22 first version?

23 PANEL MEMBER BYUS: No, I think I added it.

24 PANEL MEMBER BLANC: Well, there was something in  
25 the previous version --

1 PANEL MEMBER BYUS: I don't know. Did I add it?

2 I don't know. No, maybe it was --

3 PANEL MEMBER BLANC: -- Point 3 in the previous  
4 version, "A recently approved new use of sulfuryl fluoride  
5 as a commodity fumigant was not evaluated in this report  
6 and, therefore, not included in this review." And that  
7 point was deleted. Was this in lieu of that?

8 PANEL LIAISON BEHRMANN: Yes.

9 PANEL MEMBER BYUS: There you go.

10 PANEL LIAISON BEHRMANN: Point 17 replaces the  
11 old Point 3.

12 PANEL MEMBER BLANC: So there was a --

13 PANEL MEMBER BYUS: I mean this is what I -- I  
14 wrote there is an anticipate -- I mean it is an  
15 anticipation -- it's just you do anticipate this, so I  
16 mean I'm not putting words in their mouth -- by DPR that  
17 there is an increased proposed use of sulfuryl fluoride --

18 PANEL MEMBER BLANC: It's an approved -- it's not  
19 proposed -- isn't it?

20 PANEL LIAISON BEHRMANN: It's actually approved,  
21 isn't it?

22 DPR ASSISTANT DIRECTOR JONES: Um-hmm.

23 PANEL LIAISON BEHRMANN: Yeah, it's approved.

24 PANEL MEMBER BLANC: And the document says that's  
25 it's approved?

1 PANEL MEMBER ATKINSON: -- use has been approved.

2 PANEL MEMBER BLANC: Okay. And was there a  
3 reason to take out the language that said it was -- this  
4 was -- this use however was not evaluated in this report?

5 PANEL MEMBER BYUS: No. Put it back in.

6 PANEL LIAISON BEHRMANN: Okay.

7 CHAIRPERSON FROINES: But my question is: In the  
8 report, Tobi, does it say that you anticipate higher  
9 exposures and lower margins of exposure than those  
10 calculated in a current risk assessment document? Is that  
11 an accurate statement from the report?

12 PANEL MEMBER BYUS: That's where I took it from.

13 DR. LIM: Yes. This is Lori. Yes, it is. The  
14 exact statement in the conclusion was that, "Furthermore,  
15 expanded uses in food commodity fumigation result in  
16 higher exposures and lower margins of exposures than those  
17 calculated in this OCD."

18 CHAIRPERSON FROINES: Do you give some reason for  
19 that conclusion? Do you give a justification in the  
20 report?

21 DR. LIM: It's discussed in the -- fact that  
22 there would be more uses and more frequent uses.

23 CHAIRPERSON FROINES: And that means that there  
24 will be more exposure necessarily?

25 DR. LIM: Yes.

1 CHAIRPERSON FROINES: Are you sure?

2 DR. LIM: More people would be involved in terms  
3 of -- not necessarily the highest level, but more people  
4 would be exposed and would probably go into repeated  
5 exposure scenarios.

6 CHAIRPERSON FROINES: All I'm saying is that when  
7 you make a statement that says there's going to be higher  
8 exposures and lower margins of exposures, there has to be  
9 a justification for that statement.

10 DR. LIM: Yes.

11 CHAIRPERSON FROINES: And that's all I care  
12 about, that we don't -- I keep -- I've said it two or  
13 three times today. I want to keep us away from being  
14 speculative in our findings. So we have to justify what  
15 we say.

16 PANEL MEMBER BLANC: What's a lower margin of  
17 exposure?

18 PANEL MEMBER HAMMOND: I think it -- is this --  
19 this is the ratio of the exposure to the reference  
20 standard -- reference concentration?

21 CHAIRPERSON FROINES: What she's saying is I  
22 think is that it's more likely to exceed their MOE  
23 guidelines for risk. Is that correct?

24 DR. LIM: Yes. The equation is MOE equals to the  
25 NOEL over exposure.

1 CHAIRPERSON FROINES: Now, the fact that Paul  
2 didn't understand what that meant means that that should  
3 be changed to be a little bit more clear.

4 PANEL MEMBER BLANC: Explicit. I would just  
5 explicitly say what you mean.

6 CHAIRPERSON FROINES: Yeah.

7 PANEL MEMBER BLANC: And when you say higher  
8 exposures, you mean -- first of all, based on what your  
9 verbal comments -- you mean greater numbers of persons  
10 exposed. Does higher exposures also mean greater peak  
11 exposures for those that are exposed? Or does higher  
12 exposures mean greater numbers of persons exposed?

13 DR. LIM: I think both cases could be possible.

14 CHAIRPERSON FROINES: Well, we just need to make  
15 sure it's in your report --

16 PANEL MEMBER BYUS: It's in there.

17 CHAIRPERSON FROINES: -- and justified.

18 PANEL MEMBER HAMMOND: Also, back to the MOE. I  
19 was wondering what the reference concentrations were. It  
20 would seem to me that it would be appropriate in the  
21 finding, to be explicit as to -- because there are  
22 multiple ones that could be used. You may as well be  
23 explicit that you're using this one.

24 CHAIRPERSON FROINES: Are we ready to move on?

25 PANEL MEMBER BYUS: No.

1 CHAIRPERSON FROINES: No?

2 PANEL MEMBER BYUS: Hold on. Give me a minute.

3 PANEL MEMBER BLANC: I think if I'm going to be  
4 consistent with John's earlier comments, the last line of  
5 this point, which is "This aspect should be considered in  
6 the regulation" --

7 PANEL MEMBER BYUS: You should drop it.

8 PANEL MEMBER BLANC: Yeah. What I think our  
9 findings should be is that there should be a  
10 supplemental -- yeah, either supplemental measurement  
11 or -- and we'd be happy to, you know, review data. We  
12 look forward to reviewing data -- relevant data, whatever  
13 it is. But not, you know --

14 CHAIRPERSON FROINES: I think we're talking here  
15 about subsequent characterization of exposure, not  
16 regulations.

17 PANEL MEMBER BYUS: I think we should just leave  
18 it as -- take that last sentence out and leave it, because  
19 I think it makes the point.

20 PANEL MEMBER BLANC: That's fine.

21 PANEL MEMBER BYUS: I think we should leave it  
22 out. After listening to you this morning, John, I do  
23 believe it. So we'll just make the point.

24 PANEL MEMBER HAMMOND: Although it is -- if  
25 there's a new use and then -- new increased use, then

1 probably -- I don't see why it wouldn't be a finding  
2 saying that there's inadequate exposure data on this and  
3 that we urge them that they collect exposure data on the  
4 new use.

5 CHAIRPERSON FROINES: Well, you can put in a  
6 sentence that says additional monitoring when this new use  
7 is -- is it new use that's about -- so when the new use,  
8 you know, emerges, we should be careful to do monitoring  
9 of exposure.

10 PANEL MEMBER BLANC: I know that Point 18 is  
11 going the change in light of how, you know, 9, 10 and 11,  
12 or whatever it is, change. But --

13 PANEL MEMBER BYUS: Well, this is pulled  
14 directly -- I've added this -- pulled this directly out of  
15 the document, more or less from the conclusions. This is  
16 their conclusions. And I concur with all of them. And  
17 this is the way they state them, which wasn't in the  
18 original sort of draft findings. But it really gives you  
19 the understanding that it exceeds these MOEs in a whole  
20 variety of exposure scenarios, just not for one exposure  
21 scenario. So in all these different scenarios, we seize  
22 them.

23 PANEL MEMBER BLANC: Doesn't it say it did not  
24 meet the benchmark?

25 Am I misinterpreting what the whole last

1 two-thirds --

2 PANEL MEMBER BYUS: So for all these exposure  
3 scenarios it's dangerous -- it's not good. It's a problem  
4 is really -- that's what it means.

5 PANEL MEMBER BLANC: What is not meeting the  
6 benchmark?

7 PANEL MEMBER ATKINSON: Benchmark has to be  
8 greater than --

9 PANEL MEMBER BYUS: Benchmarks are greater.  
10 Lori, are you over there?

11 DR. LIM: Yes, I am.

12 PANEL MEMBER BYUS: Could you explain this?

13 DR. LIM: Okay. The benchmark is like a line  
14 that we draw. So that we want the modern exposure to be  
15 greater than the benchmark. So anything that's less than  
16 the benchmark, that means there's a risk that we should be  
17 concerned about.

18 PANEL MEMBER HAMMOND: Actually this is a misuse  
19 of the term "benchmark".

20 CHAIRPERSON FROINES: Yes.

21 PANEL MEMBER BLANC: That's what I'm trying --  
22 that's where I'm going with this.

23 DR. LIM: Well, that's -- I mean that's a term  
24 that we used in our document. And --

25 PANEL MEMBER HAMMOND: No, benchmark -- that's

1 not what benchmark means. The benchmark dose is a dose  
2 where you see something.

3 DR. LIM: I know. But we're not calling it  
4 benchmark dose. We just call it a benchmark.

5 PANEL MEMBER HAMMOND: Let's not use that word,  
6 because in this world it has a very specific and different  
7 meaning, and it's misleading. So you could say target.

8 CHAIRPERSON FROINES: Criteria.

9 PANEL MEMBER BYUS: Okay. Wait a minute now.

10 CHAIRPERSON FROINES: Use the word "criteria".

11 PANEL MEMBER BYUS: Where is this? So what  
12 sentence?

13 PANEL MEMBER BLANC: This whole last part, "The  
14 margin of exposure for the following scenarios and  
15 exposure did not meet the benchmark of 100."

16 PANEL MEMBER HAMMOND: And it shouldn't be  
17 benchmark. It didn't meet the target.

18 CHAIRPERSON FROINES: If it does not meet the  
19 benchmark, does that mean that it is problematic or not  
20 problematic?

21 DR. LIM: It is problematic.

22 CHAIRPERSON FROINES: Well, this -- then this --  
23 you can read this both ways. It's very confusing.

24 PANEL MEMBER HAMMOND: But don't use the word  
25 "benchmark".

1 CHAIRPERSON FROINES: All right.

2 PANEL MEMBER BYUS: Well, what should we use?

3 PANEL MEMBER BLANC: All right. Well, the way

4 you said it in the first sentence.

5 PANEL MEMBER BYUS: This is the -- look. First

6 of all, this is how it is written in the document that --

7 PANEL MEMBER BLANC: All right. Well, I would

8 suggest that you both --

9 PANEL MEMBER BYUS: Quote, word by word. So I

10 just --

11 PANEL MEMBER BLANC: Right, right.

12 PANEL MEMBER BYUS: So if we want to change

13 something, we should probably change the document as well,

14 theoretically.

15 PANEL MEMBER HAMMOND: "The margin of exposure

16 for the following scenarios and exposure duration did not

17 meet the target of less than 100."

18 DR. LIM: And we want it to be greater than 100.

19 PANEL MEMBER HAMMOND: Oh, this is a margin.

20 Right. Okay.

21 PANEL MEMBER BYUS: So what is it, Kathy? I'm

22 writing.

23 PANEL MEMBER HAMMOND: It did not meet the

24 target.

25 PANEL MEMBER BLANC: Well, wait.

1           Okay. Can I just clarify something, why it's  
2 worded -- can you explain to me why it's worded the way it  
3 is in the first sentence -- the first sentence when it --  
4 second sentence, it says, "The estimated acute exposure  
5 for bystanders exceeded 1/10 of the reference  
6 concentrations and, thus, would meet the criteria  
7 established by DPR for listing under AB 1807 Toxic Air  
8 Contaminant Program." I got that part.

9           Okay. So that's bystanders. It exceeded 1/10 of  
10 the reference.

11           "The margin of exposure for the following  
12 scenarios and exposure durations" -- I guess -- "did not  
13 meet the benchmark of 100 occupational" -- so is that --  
14 what does --

15           PANEL MEMBER BYUS: Wait a minute. We're  
16 changing those words. What are the words now, "Did not  
17 meet the target of greater than 100"?

18           PANEL MEMBER BLANC: Is this a different way of  
19 getting at it than the 1/10 of the reference  
20 concentrations?

21           PANEL MEMBER HAMMOND: Yes.

22           PANEL MEMBER BLANC: So a totally different  
23 criteria, is that right?

24           CHAIRPERSON FROINES: No. It's just two ways of  
25 looking at the same thing. One is the MOE and one is the

1 reference concentration.

2 PANEL MEMBER BYUS: Depends on what data they  
3 have.

4 PANEL MEMBER BLANC: Okay. So the reference  
5 concentration --

6 PANEL LIAISON BEHRMANN: We will come up with a  
7 much easier --

8 PANEL MEMBER BYUS: First of all, this is  
9 their -- this is DPR'S exact language from the conclusions  
10 of the document. So we can --

11 PANEL MEMBER BLANC: So change it in both places.

12 CHAIRPERSON FROINES: But here's the issue. This  
13 is the findings of the Scientific Review Panel. And I --  
14 I'll come back to DPR in a second. This needs to be able  
15 to be read by an intelligent person who is a member of the  
16 public and understands what being said. At this point,  
17 this paragraph isn't even clear to this committee. And so  
18 somebody in the back of the room who reads Scientific  
19 American, for example, should be able to understand this.  
20 And it's not clear. And so it needs to be changed.

21 Second is I'm not sure why we have workers in  
22 here. It's not within our purview.

23 PANEL MEMBER HAMMOND: The entire document has  
24 workers.

25 CHAIRPERSON FROINES: I understand it has

1 workers. But our findings don't -- we're the Scientific  
2 Review Panel that deals with environmental exposures. We  
3 don't deal with worker exposure. So why should we be  
4 having findings about workers? Can somebody explain that  
5 to me? I'm happy to believe in God and be for motherhood  
6 and apple pie and I'm for workers. But that's not within  
7 my legislative mandate. So why should I have it in my  
8 findings? Why should we have it in our findings?

9 PANEL LIAISON BEHRMANN: It's very easy to  
10 remove.

11 CHAIRPERSON FROINES: If somebody -- I mean I  
12 understand why one would want it emotionally. But I don't  
13 understand why one would want it legislatively.

14 PANEL MEMBER BLANC: Well, I think your point's  
15 well taken. It should be just taken out of there. Those  
16 scenarios are not relevant to our --

17 PANEL MEMBER BYUS: So you're saying to hell with  
18 workers, right, John? Is that --

19 (Laughter.)

20 PANEL MEMBER BYUS: Just teasing.

21 Don't type that.

22 No, no, no. That's okay.

23 CHAIRPERSON FROINES: When we -- when we're  
24 litigated, that's going to be --

25 (Laughter.)

1 PANEL MEMBER BYUS: All right. I'll -- this was  
2 a joke.

3 PANEL MEMBER GLANTZ: Yes.

4 PANEL MEMBER BYUS: You are correct. You are  
5 correct.

6 PANEL MEMBER BLANC: There's one other --

7 PANEL MEMBER BYUS: This is an unusual compound,  
8 you know, because of the way it's applied and because of  
9 the way it's handled and because of the way the risk  
10 assessment was done to include a variety of individuals  
11 that are likely to be exposed to it at the same times that  
12 other people are exposed. That's why it was included.

13 Had DPR not included workers and exposure  
14 scenarios for workers in this document, it would have --  
15 we would have probably asked that question, "Well, what  
16 happens to the workers?" So the point that -- the reason  
17 they included it --

18 CHAIRPERSON FROINES: I wish it were as simple as  
19 what you just said. Because there is a point of  
20 disagreement between the SRP and DPR vis-a-vis risk  
21 assessments that include everything versus what we're --  
22 what our mandate is. And so this is a complicated issue  
23 which we certainly don't want to even get within 100 miles  
24 of. But it is -- this isn't a trivial issue.

25 PANEL MEMBER BYUS: No. But I do think in this

1 case -- and I will say that -- I still think in this case  
2 it would have been very difficult for me to interpret this  
3 as the lead without the worker data. Whereas in other  
4 instances, I will agree with you, it's not necessarily.  
5 But in this case it provided the really appropriate  
6 framework to understand --

7 CHAIRPERSON FROINES: Can you imagine how long it  
8 would have taken us to have gotten through lead if we had  
9 workers in there as well.

10 PANEL MEMBER BYUS: No, but that's --

11 PANEL MEMBER HAMMOND: No, no. The point is --  
12 the point is that worker data informs the emissions, which  
13 therefore inform the ambient exposures.

14 PANEL MEMBER BLANC: And I don't think John is  
15 saying take the worker data out of the document. Take it  
16 out of the finding --

17 PANEL MEMBER HAMMOND: So I think the data remain  
18 in the report, but they shouldn't be in the findings.

19 PANEL MEMBER BLANC: But --

20 PANEL MEMBER BYUS: Right. He's absolutely  
21 correct, as usual.

22 (Laughter.)

23 PANEL MEMBER BLANC: -- tangentially related to  
24 the workers you might want to consider if it can be easily  
25 inserted into one of the existing findings, since you talk

1 about it in the toxicity, that another group of exposed  
2 people aside from the bystanders and the residents are  
3 persons who go into -- non-resident intruders into  
4 residentially treated spaces. Which will become also  
5 quite relevant later on for the commodity uses, because  
6 you get other people exposed also who are not bystanders,  
7 in the way they're using the term "bystanders" here, and  
8 are not residents. And for those people of course the  
9 exposures more closely approximate and exceed the  
10 occupational exposures. That's why I thought of it in  
11 that context.

12 CHAIRPERSON FROINES: Okay. So, Craig, can you  
13 work with Lori and Randy and whomever Tobi thinks is  
14 appropriate to -- and Jim -- to get this clarified.

15 I do think that there needs to be a sentence  
16 about what is the estimated exposure that results in that  
17 estimated exposure conclusion. In other words, I don't --  
18 what I'm saying is from what I hear, is that there are a  
19 number of different results, so it may be -- I don't know  
20 what I'm saying. What I'm saying is: Can there be some  
21 justification as a prior sentence to that conclusion that  
22 makes it more explanatory? So you see where either in the  
23 earlier sections or in this section where you see how it  
24 connects.

25 PANEL MEMBER BYUS: All right. And we wanted to

1 be able to be understood by someone who reads Scientific  
2 American; is that correct? We'll work on it.

3 CHAIRPERSON FROINES: I don't think I can  
4 understand Scientific American anymore, so it may be too  
5 high a standard, but we'll see.

6 PANEL MEMBER BYUS: We'll work on it.

7 CHAIRPERSON FROINES: We're about to lose Paul  
8 and we're going to lose Gary.

9 And I think we're done with Vikane for the day.  
10 And so we'll finalize it at the next meeting.

11 PANEL MEMBER BYUS: Thank you.

12 CHAIRPERSON FROINES: And, you guys, I'm sorry  
13 that there's a lot of work left to go.

14 PANEL MEMBER BYUS: That's fine.

15 CHAIRPERSON FROINES: I think it's clear what has  
16 to be done.

17 Thanks Paul. Thanks, Gary.

18 Stay as long as you want.

19 PANEL MEMBER FRIEDMAN: Well, no, this would be a  
20 good time.

21 CHAIRPERSON FROINES: Can I -- thanks, Tobi. I  
22 hope it wasn't too painful.

23 DPR ASSISTANT DIRECTOR JONES: Instructive.

24 CHAIRPERSON FROINES: It was all friendly and  
25 well meaning.

1           Here's my question. It always happens, doesn't  
2 it, that you assume that everything's going to be a slam  
3 dunk and it could take five minutes and you're going to be  
4 out of here by 10 o'clock, and it never works.

5           And so -- I don't know who is -- oh, George is  
6 back there, or Melanie is here. We've lost two people.

7           Melanie, what do you think about -- let's -- why  
8 don't we do gasoline and maybe hold -- I hate to have Paul  
9 and Gary not here for the children's. Would that really  
10 be a problem for you if we didn't take up children?

11           OEHHA SUPERVISING TOXICOLOGIST MARTY: That's  
12 fine. Whatever you want to do is fine.

13           CHAIRPERSON FROINES: Well, the children's --  
14 everybody was so interested in the children's thing, I  
15 hate to have -- but I'm ready to stay here for the  
16 duration, and I think everybody else is. So what does the  
17 Panel think?

18           OEHHA SUPERVISING TOXICOLOGIST MARTY: Well, just  
19 to comment on the children's health update, we're -- from  
20 OEHHA's perspective, we wanted to lay out what you folks  
21 are going to see coming down the pike in terms of peer  
22 review of documents related to implementing SB 25. So it  
23 would be nice if Gary and Paul were here to hear that.

24           CHAIRPERSON FROINES: How long do you think that  
25 would take?

1           OEHHA SUPERVISING TOXICOLOGIST MARTY: My  
2 presentation could be pretty fast.

3           I mean we could do it next time, you know,  
4 because --

5           CHAIRPERSON FROINES: Well, why don't we do it  
6 this time. I mean maybe I'm --

7           PANEL MEMBER GLANTZ: Let's do that. And if you  
8 could -- they can be brief.

9           CHAIRPERSON FROINES: And we can brief them.

10          PANEL MEMBER GLANTZ: Because somebody else will  
11 not be here next time.

12          CHAIRPERSON FROINES: You know, if it's a -- it's  
13 obviously descriptive, and so it's going to be no more  
14 than a half hour to an hour, I would guess.

15          OEHHA SUPERVISING TOXICOLOGIST MARTY: Oh, much  
16 less than that. Yeah, much less time than that. We could  
17 tack it on after --

18          PANEL MEMBER GLANTZ: With respect to the DPR  
19 side --

20          OEHHA SUPERVISING TOXICOLOGIST MARTY: They're  
21 laughing.

22          PANEL MEMBER HAMMOND: That's before we start  
23 talking.

24          PANEL MEMBER BYUS: This is Panel time, right?  
25 Panel time, half an hour to an hour, yeah --

1 CHAIRPERSON FROINES: Well, let me ask you  
2 question.

3 PANEL MEMBER GLANTZ: That's how close to the  
4 speed of light you're moving.

5 (Laughter.)

6 PANEL MEMBER GLANTZ: We should proceed.

7 CHAIRPERSON FROINES: I would like to ask a  
8 subsequent question, which is: How long do you think --  
9 and this one I think is hard to predict -- how long do you  
10 think the gasoline is going to take?

11 OEHHA SUPERVISING TOXICOLOGIST MARTY: That might  
12 be an hour.

13 CHAIRPERSON FROINES: An hour. And so we're  
14 talking about an hour and a half from now.

15 And so the question I have for the Panel is: Do  
16 we want to break for lunch now and come back or do you  
17 want to work through lunch?

18 PANEL MEMBER BYUS: As long as I make my flight.

19 PANEL MEMBER GLANTZ: Is there any way to get  
20 lunch?

21 PANEL MEMBER HAMMOND: We just have it brought  
22 in.

23 PANEL MEMBER GLANTZ: So just have -- I mean are  
24 you -- maybe Peter can do his thing and get us some  
25 sandwiches and we can just work all through lunch.

1 CHAIRPERSON FROINES: Is that possible?

2 MR. MATHEWS: Yes.

3 PANEL MEMBER BYUS: I would suggest we continue  
4 to work. Because otherwise we won't make our air flight.

5 CHAIRPERSON FROINES: Okay. Let's take a  
6 five-minute break. And Peter can talk to each person  
7 and -- Peter can see if there's a sandwich option, in  
8 which case people can tell him what they want. And then  
9 we can proceed.

10 Is that all right?

11 That will give you a break as well.

12 Five-minute break.

13 (Thereupon a recess was taken.)

14 CHAIRPERSON FROINES: We will reconvene the  
15 meeting officially.

16 I know that was painful, but I think this  
17 document will end up being -- the findings and the  
18 document will end up being improved.

19 I don't know who's starting. Sara?

20 George.

21 OEHHA DEPUTY DIRECTOR ALEXEEFF: Hello. I'm  
22 George Alexeeff of the Office of Environmental Health  
23 Hazard Assessment.

24 So I thought I would just provide some context  
25 for this report that we're presenting today. You know,

1 when the Toxic Air Contaminant Program was --

2 CHAIRPERSON FROINES: George, let me just say one  
3 thing first.

4 I just have a question. Jim is not here. Do we  
5 have a quorum? Because Roger is not -- he's not counted  
6 as a quorum at this point.

7 No, because he's an author.

8 So we have 1, 2, 3, 4 -- 5. So we're okay.

9 But just so the Panel knows, that Roger is not  
10 part of the deliberation. He's part of the --

11 OEHHA DEPUTY DIRECTOR ALEXEEFF: -- presentation?

12 CHAIRPERSON FROINES: -- presentation.

13 PANEL MEMBER HAMMOND: He has a different hat.

14 CHAIRPERSON FROINES: So we can throw daggers  
15 at --

16 PANEL MEMBER GLANTZ: You mean me or Roger?

17 (Laughter.)

18 PANEL MEMBER GLANTZ: We'll treat Roger like  
19 Melanie.

20 CHAIRPERSON FROINES: Don't go there, Stan.

21 Let's go, George.

22 OEHHA DEPUTY DIRECTOR ALEXEEFF: Okay. So I'm  
23 George Alexeeff. I just wanted to give some context for  
24 this report.

25 You know, when the Toxic Air Contaminant Program

1 was started in the mid-eighties -- '84, '85 -- many of the  
2 first chemicals picked were those that were components of  
3 gasoline or gasoline emissions. And then when MTBE was  
4 found in a lot of drinking water, there was concern about,  
5 you know, whether it was an effective oxygenator and  
6 whether ethanol would be an effective oxygenator and its  
7 replacement. And a report was commissioned both to the  
8 University of California -- and also we were asked, that  
9 is to say, OEHHA, in combination with the Air Resources  
10 Board, to look at the relative benefits -- or health risks  
11 and benefits of ethanol in gasoline versus MTBE in  
12 gasoline. And we did that report. We brought it to this  
13 Panel.

14 In that report, we quickly found out that it  
15 would be very difficult to do a comprehensive evaluation  
16 of the health effects of gasoline. So instead, that  
17 report simply tried to compare the differences between a  
18 gasoline with ethanol versus a gasoline with MTBE,  
19 assuming many components stayed the same.

20 So at that time we also felt it was important,  
21 and we had some funding provided -- limited funding and  
22 some legislative approval, to proceed on a report to look  
23 more comprehensively at the health impacts of gasoline.

24 CHAIRPERSON FROINES: What year was the ethanol  
25 report?

1           OEHHA DEPUTY DIRECTOR ALEXEEFF: Well, it was  
2 finalized in the year 2000. But it was written in the  
3 year 1999.

4           CHAIRPERSON FROINES: I have no recollection  
5 whatsoever of that report.

6           OEHHA DEPUTY DIRECTOR ALEXEEFF: Yeah.

7           CHAIRPERSON FROINES: Well, we brought that --  
8 Oh, I see. I guess the part you we -- you're right. I  
9 guess we brought that report. It was a Cal EPA -- no, I  
10 guess it was a UCOP, University of California Office of  
11 President review. But I think it was a special  
12 environmental -- Environmental Policy Council of the  
13 Environmental Protection Agency, which consists of the  
14 directors of the --

15          CHAIRPERSON FROINES: I remember the MTBE report  
16 that we approved.

17          OEHHA DEPUTY DIRECTOR ALEXEEFF: Right. And  
18 we -- and ours was similar to that. It was an MTBE and  
19 ethanol report.

20          CHAIRPERSON FROINES: Do you remember that, Stan?

21          PANEL MEMBER GLANTZ: (Shakes head.)

22          OEHHA DEPUTY DIRECTOR ALEXEEFF: Okay. Well --

23          PANEL MEMBER GLANTZ: I remember the -- I didn't  
24 remember ethanol being there.

25          CHAIRPERSON FROINES: I don't remember ethanol.

1           OEHHA DEPUTY DIRECTOR ALEXEEFF: Okay. Well, we  
2 brought MTBE to the Panel.

3           PANEL MEMBER GLANTZ: That I remember.

4           OEHHA DEPUTY DIRECTOR ALEXEEFF: Okay, as a unit  
5 risk in terms of evaluating the health impacts of --

6           PANEL MEMBER GLANTZ: Right.

7           OEHHA DEPUTY DIRECTOR ALEXEEFF: Okay. So  
8 possibly I've misspoken in terms of that report coming to  
9 this Panel.

10           In any case, we did prepare a report comparing  
11 the relative merits of ethanol and MTBE in gasoline. And  
12 it was from that where we felt it was more important to do  
13 a more comprehensive evaluation of gasoline.

14           So Dr. Sara Hoover, who was sort of the -- has  
15 been the lead of this project -- we started by having two  
16 workshops in -- one in northern California and one in  
17 southern California. The one in southern California was  
18 at UCLA and the one in northern California was in Oakland,  
19 where we got input from a number of stakeholders as to  
20 what issues we should be considering as we're looking at  
21 gasoline emissions.

22           And this is the first of, we hope, several  
23 reports where, first, we'll be looking at the -- in this  
24 case, the formation of pollutants and then we'll be  
25 looking at exposure assessment and then we'll be looking

1 at more health information on the particular components  
2 that we can find health information on and put a  
3 comprehensive report together.

4 As you can see, it's a --

5 PANEL MEMBER GLANTZ: Can I just ask one question  
6 about --

7 OEHHA DEPUTY DIRECTOR ALEXEEFF: Yes.

8 PANEL MEMBER GLANTZ: I mean this is not my total  
9 area of expertise. But when you were talking about this,  
10 were you talking about emissions of combustion products  
11 from burning gasoline or also gasoline evaporat --

12 OEHHA DEPUTY DIRECTOR ALEXEEFF: Both.

13 PANEL MEMBER GLANTZ: Okay. Both.

14 CHAIRPERSON FROINES: But -- well, he's going to  
15 explain.

16 OEHHA DEPUTY DIRECTOR ALEXEEFF: Ultimately  
17 that's the plan, yes.

18 As you can tell, it's a collaborative effort  
19 between OEHHA and the University of California at  
20 Riverside. Dr. Atkinson and Dr. Arey assisted us and gave  
21 us much of the information -- or most of the information  
22 for this report. So hell be assisting us in answering  
23 questions on it.

24 But I'll turn it over to Sara Hoover to introduce  
25 the report.

1 (Thereupon an overhead presentation was  
2 Presented as follows.)

3 OEHHA RESEARCH SCIENTIST HOOVER: Okay. Thanks,  
4 George.

5 So just to give you -- I'm going to give you a  
6 little bit of background and context for the report, and  
7 then Roger's going to talk more about the details in the  
8 report.

9 So as George was talking about, the project grew  
10 out of our MTBE and ethanol assessments. The concept is  
11 for us to try to evaluate the potential health risks  
12 associated with the exposure to gasoline-related  
13 pollutants in California.

14 And really this part of the project that we're  
15 talking about today is just the first step, which is  
16 identifying chemicals of potential concern. We're looking  
17 at the directly emitted chemicals that are known and some  
18 portion of the secondary products. We'll then proceed to  
19 review the toxicity of these chemicals, with a focus on  
20 chronic respiratory toxicity and carcogenicity. And,  
21 again, as George mentioned, we're going to attempt an  
22 exposure assessment for -- and we're interested in  
23 inhalation exposures, so we'll be looking at statewide  
24 averages and concentrations in specific air basins. And  
25 then ultimately attempt again to estimate risk by

1 combining available health assessment values such as unit  
2 risk values with the estimated exposure.

3 --000--

4 OEHHA RESEARCH SCIENTIST HOOVER: So this  
5 particular report, the objective was to identify observed  
6 and predicted atmospheric transformation products  
7 associated with gasoline-related pollutants and assess the  
8 atmospheric lifetimes of gasoline-related pollutants.

9 --000--

10 OEHHA RESEARCH SCIENTIST HOOVER: Now, because of  
11 the scope of the chemicals in gasoline emitted from  
12 gasoline combustion and evaporative emissions, we had to  
13 select certain chemicals. We couldn't look at everything.  
14 It's just -- the scope is just too large. So the basis  
15 for selecting the chemicals is laid out here.

16 We did it two different ways -- well, primarily  
17 two different ways. The first was a mass emissions  
18 ranking. So using ARB data and with input from ARB, we  
19 identified the gasoline-related chemicals that have been  
20 speciated in California Reformulated Gasoline Phase 2 and  
21 the associated mass emissions with those gasoline-related  
22 chemicals. And those were then ranked. And the top 25  
23 chemicals were included in the atmospheric chemistry  
24 analysis.

25 Then we also did a screening of the

1 gasoline-related chemicals that we identified in the first  
2 part of the slide and looked for chemicals that had  
3 particular toxicological concerns: Carcinogens and  
4 potential respiratory toxicants. And then we also used  
5 expert nomination. For example, although we based the  
6 first part of this information on our RFG2, we wanted to  
7 look at ethanol because of future use of ethanol.

8 --oOo--

9 CHAIRPERSON FROINES: Within that context then,  
10 the second bullet -- my concern is always when you go to a  
11 regulatory agency to ask them what to study, they tell you  
12 what they regulate. And so you end up focusing on the  
13 same kinds of substances. So I'm assuming that bullet 2  
14 is where you actually went beyond --

15 OEHHA RESEARCH SCIENTIST HOOVER: Yeah, we did  
16 go -- that partly is why we're calling it preliminary tox  
17 screening, because what was done there was taking a list  
18 of something like 300 or so chemicals that have been  
19 speciated associated with gasoline and doing a screening  
20 using secondary sources and looking for evidence of  
21 carcinogenicity as well as chronic respiratory toxicity.  
22 Now, we did use sources like Prop 65, IARC, that -- things  
23 that are known. And then we used other sources like Score  
24 Card to identify potential toxicants, which we then did a  
25 little bit more research on to just try to pick out things

1 of interest.

2 But you are right, that you end up with a lot of  
3 chemicals that are known toxicants. However, that's just  
4 in the selection for atmospheric chemistry review.

5 So in the overall report we'll be looking at --  
6 we'll be presenting the information on all of the  
7 chemicals and the screening that was done. And it will be  
8 shown -- in fact how limited the data are in terms of  
9 making such an evaluation.

10 So then just to briefly summarize from this  
11 report, there were 43 gasoline-related VOCs or classes of  
12 VOCs that were looked at. And from those there were 150  
13 known reaction products identified and 100 -- about 140  
14 additional predicted products. And then these  
15 approximately 300 products will be screened for toxicity  
16 and exposure data.

17 And I'm going to turn it over to Roger.

18 --000--

19 PANEL MEMBER ATKINSON: Okay. Roger Atkinson,  
20 University of California at Riverside.

21 So the report is really in two sections. The  
22 first section is an overview of atmospheric chemistry.  
23 The second section, which is the longest of these, is  
24 actually an appendix which deals with the 43 chemicals or  
25 classes of chemicals.

1           So in the overview there's a discussion of the  
2 physical make up of the atmosphere, the potential loss  
3 processes or removal processes for organic compounds in  
4 the lower atmosphere, the troposphere; an assessment of  
5 the atmospheric lifetimes -- or actually an estimation of  
6 the atmospheric lifetimes and typical reactions of  
7 gasoline-related VOCs; a little bit of a mention on gas  
8 particle partitioning, which is mainly important for  
9 reaction products, although it does impact the PAHs and  
10 nitro PAHs.

11                               --o0o--

12           PANEL MEMBER ATKINSON: So there's a discussion  
13 of photolysis -- the potential loss processes for VOCs.  
14 The photolysis, which is really only -- appears to be only  
15 important for reaction products, at least out of those  
16 that we looked at in the appendix. Reaction with hydroxyl  
17 radical during -- mainly during daytime hours; nitrate  
18 radical during evening and nighttime; ozone, whenever it's  
19 around. And a discussion, fairly brief, of the physical  
20 removal processes ease of wet and dry deposition.

21           As you'll see later, the hydroxyl radical  
22 reaction is the dominant loss process of nearly all the  
23 organics we considered in the appendix.

24                               --o0o--

25           PANEL MEMBER ATKINSON: There's a discussion of

1 the atmospheric sources and concentrations of ozone; OH  
2 radicals; NO<sub>3</sub> radicals; and some mention of chlorine  
3 atoms, which have been postulated as being potentially of  
4 some significance in coastal areas. We talk about -- or  
5 at least we mention seasonal and diurnal dependence of  
6 these concentrations of these species. So there's a  
7 reasonable good overall, fairly -- well, fairly brief, but  
8 still a concise overview of the atmospheric chemistry as  
9 regards the loss processes of VOCs.

10 --oOo--

11 PANEL MEMBER ATKINSON: And so we use those data.  
12 It's the typical concentrations of ozone, OH, NO<sub>3</sub>, typical  
13 photolysis lifetime to calculate the VOC lifetimes with  
14 respect to each of those individual reactions and an  
15 overall reaction -- an overall lifetime.

16 And there's a table with all of these data in it.

17 And the calculations, as I mentioned, are based  
18 on assumed concentrations of radicals or in ozone.

19 There are measurements certainly of ozone, some  
20 measurements of OH, some of NO<sub>3</sub>, but they're essentially a  
21 global tropospheric average that was used. But you can  
22 readily calculate the -- recalculate the lifetime for any  
23 individual conditions that you want to and visit. Okay.

24 --oOo--

25 PANEL MEMBER ATKINSON: So the loss processes of

1 the compounds looked at in both the appendix and discussed  
2 in the overview are alkanes, which react with OH radicals;  
3 alkenes, which react with OH, ozone and NO3; aromatic  
4 hydrocarbons, which react with OH; ethers, alcohols,  
5 carboxylic acids, which react with OH; and carbonyl  
6 compounds, which react with OH and undergo photolysis.

7 And there's a discussion of the atmospheric  
8 chemistry, fairly brief and concise, of each of these  
9 classes of compounds in the overview.

10 --o0o--

11 PANEL MEMBER ATKINSON: VOCs by definition are  
12 essentially largely or totally in the gas phase. There is  
13 some mention of gas partitioning, it's important for  
14 reaction products, and obviously very important for the  
15 formation of secondary organic aerosol. We don't discuss  
16 the formation of secondary organic aerosol in this  
17 document. And of course gas particle partitioning is  
18 important for PAHs and nitro PAHs, which are distributed  
19 between gas and particle phase. And that's dealt with in  
20 the individual appendices dealing with those classes of  
21 compounds.

22 --o0o--

23 PANEL MEMBER ATKINSON: So the appendix is --  
24 Sara mentioned the appendix deals with 43 compounds or  
25 classes of compounds. The PAHs are one class, nitro PAHs

1 are in another class. Most of these are directly emitted.  
2 Some of are both directly emitted and formed in the  
3 atmosphere. Formaldehyde being an excellent example of  
4 that. In the L.A. Basin in summertime about 80 percent of  
5 the formaldehyde present is due to atmospheric reactions;  
6 the other 20 percent due to direct emissions. And a few,  
7 primarily PAN, peroxyacetyl nitrate, is formed only as an  
8 atmospheric reaction product. It's not emitted.

9           And we only deal with the first generation  
10 products of the compounds looked at. Obviously those  
11 first generation products can continue on to react. And  
12 it gets to be -- if we were to attempt to follow that  
13 through, it would get to be extremely complex and a fairly  
14 horrendous thing for anybody to read. So we stop at first  
15 generation products. But what we find, for example, is  
16 some of the first generation products of chemical X are  
17 dealt with somewhere else in the appendix as either an  
18 emission or as potentially a secondary product.

19                               --o0o--

20           PANEL MEMBER ATKINSON: And I'm going to walk you  
21 through one example. There are 43 of these things, and  
22 I'm not about to try and go through them in any detail.  
23 But in a brief sort of way, I've taken this example,  
24 2,3-dimethylbutane emitted in vehicle exhaust. Presumably  
25 it's also an evaporative emission.

1           So we went through the atmospheric chemistry,  
2 what happens to this thing in the atmosphere. The rate  
3 constants for its reactions with OH and NO<sub>3</sub> have been  
4 measured. No reaction with ozone is expected. Alkanes do  
5 not react with ozone. There are no carbon metal bonds.  
6 The dominant trop -- and there's no photolysis. They  
7 don't absorb in the region above 290 nanometers. And a  
8 dominant loss process a reaction with OH radicals. And if  
9 you use a global tropospheric OH radical concentration,  
10 the lifetime's about a couple of days. So it could be  
11 transported a reasonable distance.

12                               --oOo--

13           PANEL MEMBER ATKINSON: The reaction --

14           PANEL MEMBER GLANTZ: Then the lifetime is the  
15 time constant?

16           PANEL MEMBER ATKINSON: Oh, if I took a  
17 half-life, it's 1.4 days for it to -- half of it to react.

18           PANEL MEMBER GLANTZ: Okay.

19           PANEL MEMBER ATKINSON: And that's all defined in  
20 the introduction in the overview, the difference between  
21 lifetime and half life.

22           If you look at that molecule, you'll see there  
23 are really -- the OH reaction, I should start off with.  
24 The OH reaction proceeds by H-atom abstraction from a CH  
25 bond. There's only two types of CH bonding in that: The

1 primaries, of which there are 12 of them; and the 2  
2 tertiary CHs.

3           It can be estimated or it is estimated that 88  
4 percent or about 88 percent of the reaction proceeds by  
5 H-atom abstraction from the two tertiary CH groups; the  
6 rest from the primary CH groups. In all cases, if you use  
7 RH equals the dimethylbutane, then there's a series of  
8 four reactions: The OH radical abstracts hydrogen; the  
9 alkyl radical; immediately adds oxygen -- or very rapidly  
10 adds oxygen. Lifetime on the time scale for that  
11 reaction's about a microsecond. In the presence of NO  
12 typical of an urban area, the organic peroxy radical R02  
13 reacts with NO by two pathways. One to generate an alkoxy  
14 radical, the RO and NO2. The NO2 photolyzes and gives you  
15 ozone. And the other pathway is to form an alkyl -- in  
16 this case a C8 alkyl nitrate.

17                               --o0o--

18           CHAIRPERSON FROINES: Wait. Can I ask you a  
19 question about that?

20           PANEL MEMBER ATKINSON: Yes.

21           CHAIRPERSON FROINES: In periods when the NO  
22 concentrations are low, do you end up getting the  
23 peroxide?

24           PANEL MEMBER ATKINSON: The R02 radicals in that  
25 case start reacting H02 and R02. Ambient conditions you'd

1 need to be below about 30 parts per trillion of NO.

2 Pretty low. But it certainty would -- could occur or does  
3 occur downwind situations.

4 Chemistry gets more complex. But you do form  
5 organic hydroperoxides. We do go through that chemistry  
6 in the case of ethane, whose lifetime is long enough that  
7 it gets into the -- essentially into the remote  
8 troposphere.

9 For the rest of them we pretty well limit -- it's  
10 limited to conditions when NO's around. Otherwise things  
11 get more complex. And in most cases there are no data on  
12 the system in the absence of NO.

13 CHAIRPERSON FROINES: I just wondered because of  
14 the general question of the significance of organic  
15 peroxides.

16 PANEL MEMBER ATKINSON: Yeah, yeah. That's one  
17 way to form them, yeah.

18 --000--

19 PANEL MEMBER ATKINSON: So in the presence of NO  
20 the reaction then leads to these two alkyl nitrates and  
21 the two alkoxy radicals, the two things at the bottom.

22 --000--

23 PANEL MEMBER ATKINSON: And those can react --  
24 the alkoxy radicals can react on by three pathways. They  
25 can react with O<sub>2</sub>. They can undergo uni-molecular

1 decomposition, or they can isomerize. And the  
2 isomerization proceeds through a six-member transition  
3 state.

4 Not all these processes are feasible for a  
5 specific alkoxy radical. The one's shown can only  
6 decompose. There isn't a hydrogen on the carbon where the  
7 alkoxy always. And it doesn't have a sufficient number of  
8 carbons in a row to undergo the isomerization.

9 So you have to consider all three. And many  
10 cases only one or two of those reactions can actually  
11 occur.

12 --o0o--

13 PANEL MEMBER ATKINSON: If we work our way  
14 through the entire reaction scheme and it's laid out in  
15 reasonable detail in each of the appendices, we end up for  
16 this particular compound -- and these are molar yields --  
17 with acetone being the major product. So you can -- I  
18 mean another way of saying that is that one mole of  
19 2,3-dimethylbutane is predicted to lead to 1.74 moles of  
20 acetone, followed by all the other compounds.

21 Those are what we predict to come out of it.

22 --o0o--

23 PANEL MEMBER ATKINSON: The next one has the only  
24 product study for this compound, carried out in 1980.  
25 They observed acetone in about 150 percent molar yield.

1 Reasonably -- not too bad against the estimate of a -- the  
2 guesstimate of 174 percent. They saw C6-alkyl nitrate and  
3 a propyl nitrate. We predict two C6-alkyl nitrates. We  
4 predict two propyl nitrates to be formed. The results are  
5 reasonably consistent with the predictions.

6           So we go through all of these 43 compounds or  
7 classes of compounds. In some cases experimental products  
8 data are available, pretty well allowing a fairly complete  
9 carbon balance to be obtained. There are some cases where  
10 there are absolutely no product data or even kinetic data,  
11 and everything is by estimation. There are methods  
12 available in the literature largely developed at UC  
13 Riverside for estimating the initial rate constants and  
14 for the reaction mechanisms and product yields.

15           So most of them it's a mixture of some  
16 experimental data, and the blanks being filled in by  
17 predictions.

18           So that's it. When we go through these 43  
19 compounds, it's clearly -- as Sara said, it's clearly a  
20 very minor subset of the hundreds of chemicals that are  
21 being identified in gasoline vehicle exhaust and of course  
22 the thousands of chemicals that are present in the  
23 atmosphere from both gasoline and other sources.

24           PANEL MEMBER GLANTZ: I can understand why you  
25 just did the first order. But do you have any sense, you

1 know, of if you went one more cycle through? Will that  
2 change things very much, do you think?

3 PANEL MEMBER ATKINSON: Well, yes. Those  
4 compounds will react on further. Some will degrade down  
5 to smaller carbon numbers. Some will not.

6 I mean the problem is you've essentially got an  
7 exponential growth. You've gone from 43 compounds to 300  
8 on the first shot. The next shot will increase it by --  
9 probably not quite that amount, because -- well, a lot of  
10 them are redundant. But you get the same compound from  
11 many. But, yeah, you would push it up by another order of  
12 magnitude.

13 So in other words for every product -- well, this  
14 particular one we got, let's say, half a dozen products.  
15 You would then have to follow that by six times as many  
16 data sheets to fill out that.

17 So things get a bit more tricky.

18 Some of them are dealt with. Not very many of  
19 them, but some of them. Formaldehyde, for example, is in  
20 the list. Ethanol, which is an atmospheric reaction  
21 product or could be, is in the list. But it just gets --  
22 it gets extremely complex as you go along if you follow it  
23 all the way down to the end of the chain. I mean but that  
24 is done in chemical mechanisms. But it would become a  
25 rather major undertaking even for 43 compounds.

1 CHAIRPERSON FROINES: Can we have the lights  
2 back. I think we're done with the slides.

3 PANEL MEMBER HAMMOND: I think you're a bit  
4 modest. There are a lot more than 43 compounds of course,  
5 because you have all these PAHs. I mean there are 43  
6 entries, right?

7 OEHHA RESEARCH SCIENTIST HOOVER: Yes.

8 PANEL MEMBER ATKINSON: Yes. Essentially two  
9 classes -- of the 43, there are 2 classes. The PAHs being  
10 one where there's -- I guess there's something of the  
11 order of -- probably deal with about 15, I would guess, of  
12 the PAHs, because they're mainly gas phase. And the nitro  
13 PAHs, where there's again probably a dozen or more.

14 PANEL MEMBER HAMMOND: You did talk about  
15 particle phase P --

16 PANEL MEMBER ATKINSON: There is some mention of  
17 particle phase, but not a lot, because the database is not  
18 overly great and it's somewhat -- I wouldn't necessarily  
19 use the word "contradictory," but it's a bit difficult to  
20 draw firm conclusions from the particle phase.

21 PANEL MEMBER HAMMOND: Well, first of all, I just  
22 really want to commend you on this. This is just -- to me  
23 it's overwhelming. It's wonderful that this -- it's  
24 really quite impressive. And just thank you very much. I  
25 think it's very good. And thank you.

1           And in the beginning -- in the main text you talk  
2 about the alkanes, but you don't talk about the alkanes in  
3 the appendix.

4           PANEL MEMBER ATKINSON: The appendix has a lot of  
5 Alkanes in it.

6           PANEL MEMBER HAMMOND: It has a few specif --

7           PANEL MEMBER ATKINSON: Yeah, ethane, the  
8 dimethyl pentanes, dimethyl butane. There's about seven  
9 or eight of them.

10          PANEL MEMBER HAMMOND: But you said you thought  
11 you were only covering a small portion -- it's only a  
12 small portion of maybe the identified chemicals. But it's  
13 probably a large proportion of the actual mass of the  
14 gasoline, right, if you were to take --

15          PANEL MEMBER ATKINSON: The alkanes account for  
16 about 50 percent of gasoline.

17          PANEL MEMBER HAMMOND: Fifty?

18          PANEL MEMBER ATKINSON: Yeah. It's about 50  
19 percent -- alkanes, 50 percent; aromatics, 20; alkenes are  
20 about 5.

21          PANEL MEMBER HAMMOND: So I think you've really  
22 covered in here a very high percentage of the composition  
23 if you did it by mass.

24          PANEL MEMBER ATKINSON: If you did it -- yeah,  
25 maybe, yeah.

1 PANEL MEMBER HAMMOND: Not by identified  
2 compounds.

3 PANEL MEMBER ATKINSON: Not by identified  
4 compounds, right.

5 PANEL MEMBER HAMMOND: But this is just quite  
6 encyclopedic?

7 PANEL MEMBER ATKINSON: Yeah, we do cover most --  
8 it does cover most of the aromatics that are present,  
9 that's true.

10 PANEL MEMBER HAMMOND: I don't know what we're  
11 supposed to do with this. But I just have to say I'm  
12 impressed.

13 CHAIRPERSON FROINES: Well, we're going to come  
14 back to you in a second.

15 And, Melanie or Martha or Sara, one of the three,  
16 needs to tell us as a panel what you would like the Panel  
17 to do with the -- in terms of our review and approval.

18 OEHHA DEPUTY DIRECTOR ALEXEEFF: George Alexeeff.

19 Yeah, I guess we were -- we're asking you to  
20 treat it like in terms of a peer review. So, say, if you  
21 were just peer reviewing this, provide us any comments or  
22 changes; also to -- you know, any -- you know, maybe  
23 suggestions for improvements, and any thoughts either now  
24 or in the future regarding where we're going with this  
25 project, that would be helpful, just so you kind of

1 know -- now you have a little glimpse of our plan. And so  
2 that's what we're hoping for, just -- there's not a  
3 requirement to approve it, because it's not an official  
4 toxic contaminant document or a specific air toxics  
5 document. But since this fits clearly within this  
6 jurisdiction of I think your Panel, I think your Panel is  
7 best qualified to look at this type of information.

8 CHAIRPERSON FROINES: So what I would propose  
9 then to the Panel is that since we don't need a vote on  
10 approval, we probably won't have any trouble getting a  
11 consensus on its quality, that I would then propose, Joe  
12 and Kathy and Stan, that we -- as a result of this  
13 presentation we send a letter to Joan Denton as Director  
14 of OEHHA saying that we've reviewed the document, that we  
15 formed the following view of it and therefore we -- we say  
16 whatever we think should happen as a result of this  
17 process.

18 And I'm willing to write that document. And  
19 Kathy is the lead, so I would send the draft to her, and  
20 then we would probably -- since this would be informal, I  
21 don't think we could -- I think we could agree by E-mail  
22 and send the letter out without bringing it back to  
23 another meeting.

24 PANEL MEMBER LANDOLPH: So you want us just to  
25 send our comments to you to compile them, any comments we

1 have?

2 CHAIRPERSON FROINES: Well, you -- no, I think --  
3 no, I think right now we want comments for the record now.  
4 But what I'm saying is in terms of, quote, findings, that  
5 we would do it in the form of a letter to Joan, and that  
6 we would circulate the draft letter to the Panel by E-mail  
7 and then send it off to Joan when it's complete.

8 So is that, Stan, okay with you?

9 PANEL MEMBER GLANTZ: Um-hmm.

10 PANEL MEMBER LANDOLPH: That's fine.

11 CHAIRPERSON FROINES: Kathy?

12 So that at this point what we basically need is  
13 comments from the Panel.

14 And Kathy and I were the leads. So why don't I  
15 turn back to Kathy and put her on the hot spot, since  
16 she's already given this glowing comment, if you had any  
17 other points to make.

18 PANEL MEMBER HAMMOND: In terms of -- as a -- I  
19 wasn't sure what criteria I was supposed to use and what  
20 the context of all this was. But, as I say, I'm really  
21 glad I'm going to be tested on this afterwards.

22 CHAIRPERSON FROINES: On the what?

23 PANEL MEMBER HAMMOND: I wasn't going to be  
24 tested on the contents afterwards.

25 You know, this is really -- it's really quite

1 impressive.

2 I don't know that anything's been compiled like  
3 this, and this is -- it's great. I'm sure, you know, one  
4 could sit there and, you know, pick at this and that. But  
5 I think it's really great.

6 I don't know if this -- I was personally curious  
7 about -- the outcomes were based on predictions you made  
8 that were based on models that you've been developing, is  
9 that it, the combustion products?

10 PANEL MEMBER ATKINSON: Well, yeah, they're based  
11 upon -- I wouldn't call them models as such, but on  
12 predictive schemes being developed from lab-based data.

13 PANEL MEMBER HAMMOND: Right. And that's all  
14 published elsewhere in reference to yourself?

15 PANEL MEMBER ATKINSON: Oh, yeah. It's all in  
16 the peer-reviewed literature.

17 PANEL MEMBER HAMMOND: Right. So given all  
18 that's here -- I mean one part of me would like to see  
19 that. But then the other part of me says that this is  
20 already pretty large. So --

21 CHAIRPERSON FROINES: But most of it --

22 PANEL MEMBER HAMMOND: But maybe a little bit of  
23 talking about the underlying basis of it, you know.

24 PANEL MEMBER ATKINSON: Well, the underlying  
25 basis -- I mean, true, the underlying basis is really the

1 discussion in the overview of the reactions -- the  
2 reaction mechanisms. So that's really the underpinnings  
3 of it.

4 PANEL MEMBER HAMMOND: Okay. Yeah.

5 PANEL MEMBER ATKINSON: And --

6 PANEL MEMBER HAMMOND: So basically that was --

7 PANEL MEMBER ATKINSON: -- the estimation methods  
8 that are used are predicted methods based upon just the  
9 database available.

10 PANEL MEMBER HAMMOND: It's the percentages that  
11 blew me away when you were doing the talk here. How you  
12 could say 174 percent would go to acetone, I mean it's  
13 like --

14 PANEL MEMBER ATKINSON: Yeah. Well, most of  
15 the -- so that just means that most of the compound ends  
16 up as acetone -- molecules of acetone.

17 PANEL MEMBER HAMMOND: Right. Well, no -- I mean  
18 a hundred seventy -- you get a hundred -- 1.7 times as  
19 many acetone molecules every model you can put in, right.

20 PANEL MEMBER HAMMOND: Yeah, you just break it up  
21 into two almost.

22 PANEL MEMBER HAMMOND: But I mean I just was  
23 surprised. I don't know how you got that.

24 PANEL MEMBER ATKINSON: Oh, well, yeah.

25 (Laughter.)

1 PANEL MEMBER ATKINSON: It gets into the gory  
2 details, yes.

3 PANEL MEMBER HAMMOND: Well, yeah, probably it's  
4 not worth it --

5 PANEL MEMBER ATKINSON: I mean actually you do  
6 bring up a point. I mean one way of seeing to that would  
7 be to go through one example in an appendix.

8 PANEL MEMBER HAMMOND: Maybe in the -- I don't  
9 know how -- would that be 500 more pages or would that  
10 be --

11 PANEL MEMBER ATKINSON: No, I mean one fairly  
12 simple example could be run all the way through with the  
13 numbers.

14 PANEL MEMBER HAMMOND: It might be nice just so  
15 people know, you know, the underlying basis. Because  
16 otherwise it is kind of a -- you know, it'd just be nice  
17 to see --

18 CHAIRPERSON FROINES: Kathy, what are you saying?  
19 You're saying going through the whole process

20 PANEL MEMBER HAMMOND: Yeah, for one compound.

21 CHAIRPERSON FROINES: So that what happens with  
22 cinnamaldehyde after --

23 PANEL MEMBER HAMMOND: No, no, not all the steps.  
24 Taking one chemical; and as you look at all the results we  
25 have here, but showing how did we get to that. You know,

1 just so people understand the --

2 PANEL MEMBER ATKINSON: Yeah, it's going a little  
3 more detail --

4 PANEL MEMBER HAMMOND: -- Process by which people  
5 go. Again, it wouldn't be all the calculations and all of  
6 that, but just showing enough where people can --

7 PANEL MEMBER ATKINSON: Okay. We can try that.

8 PANEL MEMBER HAMMOND: I mean that's at least --  
9 that's my own -- I don't know whether that's getting too  
10 picky for what this purpose is of the document. That's  
11 where I'm not so sure. And a lot of it just has to do  
12 with my own wanting to know. But I do think it's -- as I  
13 say, I was quite impressed.

14 Do you need more comments from me at this point?  
15 It's not very explicit.

16 CHAIRPERSON FROINES: No, we're fine. We will --  
17 I'm not concerned.

18 PANEL MEMBER GLANTZ: I mean one thing I -- I  
19 mean this is not my area of expertise either. But I don't  
20 quite understand what you're going to use this for though,  
21 other than having this inventory basically. I mean how  
22 will that then be used?

23 OEHHA RESEARCH SCIENTIST HOOVER: Well, like I  
24 briefly mentioned, basically I'm tabulating all the  
25 chemicals that we can actually identify associated with

1 gasoline. So part of it comes from ARB, this information  
2 on what they called profiles, where they speciate these  
3 different profiles. And then they told us how to use  
4 their codes basically to pull out the gasoline-related  
5 profiles and have all the speciated chemicals. So that's  
6 within Appendix 2 basically. And then to add to that the  
7 secondary products.

8           So we're trying to look -- we started off the  
9 project, we were interested in how do we look at gasoline.  
10 So one of the things we considered was looking at  
11 mixtures, for example, and trying to look at mixture  
12 toxicology. But, you know, the basic fact is that there's  
13 just not enough information at this point to go that  
14 route. So we went the same old inadequate route of  
15 looking chemical by chemical.

16           So the idea is to try to tabulate as many  
17 chemicals relevant to inhalation exposure of  
18 gasoline-related pollutants. And then do a big survey of  
19 the toxicology of these chemicals. And then, you know, a  
20 very small subset actually has data. And then we'll look  
21 at what has monitoring data, which is an even smaller  
22 subset of that. And then we'll proceed through with those  
23 chemicals to a risk characterization.

24           But actually even just the hazard identification  
25 part is very interesting just to see what data are

1 available and how much of a knowledge gap there is. So  
2 that's part of what this is about, just to demonstrate how  
3 little is known.

4 PANEL MEMBER GLANTZ: It looks like a lot was  
5 known. There seemed to be a lot that was known.

6 So would this ultimately have some role as  
7 gasoline formulations are changed?

8 OEHHA RESEARCH SCIENTIST HOOVER: That's sort of  
9 the idea, yeah. That's partly why we looked at RFG2, is  
10 that was the idea, to have a baseline and look at, okay,  
11 here's the baseline. Now, what happens when we change?  
12 So actually we're already proceeding on and looking at,  
13 for example, the list of chemicals we generate based on  
14 2004 profiles. So then that's the change in gasoline.

15 So, yeah, it's to look at what happens. And  
16 that's the idea.

17 PANEL MEMBER HAMMOND: For something like that,  
18 it might be worthwhile, if you're able to predict some of  
19 what's emitted, to come up with a summation through a  
20 gallon of gas. I mean you're going to have acetone  
21 created by many different routes. So how much acetone  
22 comes -- is that -- but I don't know if that's adding too  
23 much to the -- but thinking what you just said, I'm  
24 thinking -- do you follow what I'm saying? If you could  
25 say --

1 OEHHA RESEARCH SCIENTIST HOOVER: Yeah.

2 -- given all these different routes, we've got  
3 all this acetone formed, here's an estimate for a gallon  
4 of gasoline. Because if you were going to reformulate and  
5 if you can run this through your magic machines that make  
6 this -- which I know are not that simple -- then you could  
7 predict what the change in the emissions of acetone would  
8 be as a result of a certain reformulation.

9 PANEL MEMBER ATKINSON: Yeah, that's correct, if  
10 you -- you would need the acetone yield from every single  
11 compound.

12 PANEL MEMBER HAMMOND: Well, do you feel that  
13 your close -- I mean, again, in terms of the percentage of  
14 the mass that's in a gallon of gas, I mean you close  
15 enough to be able to at least get close -- you know, have  
16 a reasonable estimate?

17 PANEL MEMBER ATKINSON: Yeah. I mean actually if  
18 you are interested in just acetone, you could look at the  
19 structure. It would be fairly easy to pull out --

20 PANEL MEMBER HAMMOND: Well, I just pulled that  
21 out of the air.

22 PANEL MEMBER ATKINSON: -- exactly which  
23 compounds would lead to that. But, yeah, it could be --  
24 it can certainly be done. It would require -- you'd have  
25 to pretty well be careful about looking at things. So

1 it's possible for some compounds that the major source  
2 could be a fairly minor compound.

3 PANEL MEMBER HAMMOND: I guess what I'm thinking  
4 about is that, again, if it's to be used for things  
5 like -- I'm thinking about reformulated gasoline, you  
6 might want to be able to say, "Well, how much are you  
7 going to switch?" at least for things we might be most  
8 concerned about. Guessing.

9 OEHHA RESEARCH SCIENTIST HOOVER: I would say one  
10 of the things we could add based on your comment earlier  
11 is to say how much of the mass that is covered by that.  
12 So I can pull that out and add it.

13 OEHHA DEPUTY DIRECTOR ALEXEEFF: Also, sort of  
14 a -- hopefully a related comment. One of the issues that  
15 came up with ethanol was formaldehyde formation from that.  
16 So that definitely fits in with your -- one of the  
17 concerns when we were doing the ethanol report is how much  
18 formaldehyde is likely to be produced? Because that was  
19 the bigger issue.

20 PANEL MEMBER HAMMOND: And in a sense back --  
21 harking back to earlier this morning, how much is going to  
22 be produced compared to how much was produced from other  
23 things that are already there that are being produced? So  
24 if you're increasing the amount of by .01 percent, you  
25 have a different sense of it.

1           CHAIRPERSON FROINES: What I don't understand --  
2 because this ethanol report is really interesting. You  
3 have production of formaldehyde from a number of different  
4 sources. You certainly have a lot of acetaldehyde  
5 produced from ethanol. You have -- from ethane you have  
6 acetaldehyde and ethanol, and so on and so forth.

7           Based on this and the report that we don't  
8 remember seeing, we are all about to be breathing gasoline  
9 that comes from a lot of ethanol being added to it in  
10 place of MTBE. And are you in the process of looking at  
11 that as an important issue?

12           OEHHA DEPUTY DIRECTOR ALEXEEFF: Well, you know,  
13 we looked at it a few years ago, and we didn't see a  
14 substantial increase in risk, because there was some  
15 decrease in risk and some increase in risk. I think it  
16 was primarily from -- well, we look at it both from  
17 chronic respiratory effects as well as cancer. Andy might  
18 be able to answer that since he actually wrote the report.  
19 But what -- I think it was Martha that indicated what  
20 we're trying to establish here is the baseline for this  
21 particular fuel, so we get a sense as to what kinds of  
22 products are produced so we'll have a better  
23 understanding -- as they reformulate in the future for  
24 some purpose, we'll know if maybe some other chemical  
25 might be produced at a much greater extent.

1 CHAIRPERSON FROINES: Well, I understand that.  
2 And we'll come back to that when I get to make comments.  
3 But ethanol is MTBE all over again. So that --  
4 and --

5 PANEL MEMBER GLANTZ: What do you mean?

6 CHAIRPERSON FROINES: It's an additive to  
7 gasoline. And that MTBE is no longer an additive to  
8 gasoline because of the controversy that erupted as a  
9 result of it. And everybody -- you know, Al Gore  
10 campaigns in Iowa in 2000 to use ethanol in gasoline. And  
11 every Senator in Congress seems to be pushing for ethanol.  
12 And so we have an enormous political inclination towards  
13 the use of ethanol.

14 And there are then people like me who say, "Hold  
15 on. We've been through MTBE. What about the products  
16 that result from ethanol," including PAN, including  
17 acetaldehyde, including formaldehyde? We've got some bad  
18 actors. Trouble with PAN is we don't know enough about  
19 how bad of an actor it is. And that may -- PAN is one of  
20 the gaps that I think really is a problem from a  
21 toxicologic standpoint. And so the question is: Are  
22 we -- is ethanol MTBE?

23 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT  
24 CHIEF SALMON: This is Andy Salmon with the Office of  
25 Environmental Health Hazard Assessment.

1           I can just very briefly describe the conclusions  
2 of our report. This was the report which George was  
3 referring to, which was produced in response to the  
4 Governor's Executive Order.

5           What we basically did in that report was that the  
6 Air Resources Board ran a series of air shed models for  
7 South Coast District based on the expected emissions  
8 inventory given the comparison of either what was then the  
9 standard gasoline, which contained MTBE, or a projected  
10 equivalent gasoline, which was hydrocarbon only. It  
11 didn't contain either MTBE or ethanol or the proposed  
12 ethanol-containing gasoline which would replace the MTBE  
13 gasoline. And we basically looked at the projected levels  
14 of different products that we knew about, concentrating on  
15 the compounds which we saw as being different based on the  
16 Air Board's model.

17           Now, I'm not saying that we had as comprehensive  
18 a coverage of all the possible products, as certainly as  
19 we're seeing this report now. But the major ones were  
20 identified.

21           The overall conclusions was that the actual  
22 changes in gasoline composition didn't make a very large  
23 difference. Obviously, you know, some are more exotic  
24 products and not anywhere associated with the ethanol or  
25 the MTBE or the alkanes. You know, the assumption was

1 that the aromatic content, for instance, would be similar  
2 in any case.

3 The things where we did see a change was -- we  
4 saw very little change indeed in formaldehyde. And the  
5 main reason for that is -- Dr. Atkinson will I'm sure  
6 correct me here. But my understanding is that well in  
7 excess of 70 percent of the formaldehyde is a secondary  
8 product and was, therefore, in effect, similar across all  
9 formulations.

10 There's a little bit --

11 CHAIRPERSON FROINES: Across all four what?

12 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT

13 CHIEF SALMON: I'm sorry?

14 CHAIRPERSON FROINES: I didn't get that last  
15 word.

16 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT

17 CHIEF SALMON: The --

18 CHAIRPERSON FROINES: Similar across all four --

19 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT

20 CHIEF SALMON: -- all formulations.

21 CHAIRPERSON FROINES: Oh, formulations.

22 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT

23 CHIEF SALMON: For three formulations.

24 And the one which, as you would probably expect,  
25 did show a modest increase was a little bit more

1   acetaldehyde in the ethanol case. And there are one or  
2   two products which were very slightly increased as a  
3   result of the MTBE.

4           But, in fact, the important lesson was that the  
5   oxygenate additives did not make a big difference in the  
6   spectrum of air pollutants that were being produced.  
7   There were some minor decreases in some components and  
8   minor increases in others. But overall there were not  
9   large changes.

10           I think what the -- the overall conclusion of the  
11   report was that the concern with MTBE primarily was the  
12   adverse impact on groundwater. And of course our report  
13   and the Air Resources Board report was also coupled with a  
14   report which came out subsequently, because it took a lot  
15   longer to produce, which the Water Resources Control Board  
16   commissioned. And a lot of that was done by Lawrence  
17   Livermore Laboratory and their various people. And that  
18   was looking at the groundwater impacts. And the overall  
19   grand conclusion was that the air pollution impacts were  
20   not very large, but obviously the major concern between  
21   the three alternatives was that MTBE because it's  
22   persistent in the groundwater was a much bigger problem  
23   than either of the other two options.

24           CHAIRPERSON FROINES: Well, since I wrote the  
25   health effect section of the MTBE -- of an MTBE report,

1 I'm happy to not talk about MTBE, believe me.

2 But I am curious about this issue of acetaldehyde  
3 and formaldehyde from ethanol, which I think is -- I think  
4 there's a certain amount of glibness going on with respect  
5 to that particular issue at this point.

6 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT

7 CHIEF SALMON: Well, based on the model --

8 CHAIRPERSON FROINES: And we're about to start  
9 doing a study in Columbia, Latin America, on measuring  
10 those kinds of things in the atmosphere.

11 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT

12 CHIEF SALMON: Yes, which -- one of the things which the  
13 ethanol report did note was that the proposed ethanol  
14 gasoline that we were looking at was a relatively low rate  
15 of incorporation of ethanol. And certainly it -- I mean  
16 there are real data based on the experience I think  
17 particularly in Brazil, with the much higher levels of  
18 incorporation of ethanol, where the amounts of additional  
19 acetaldehyde in particular were very large. But the  
20 particular scenarios which were looked at in the report  
21 which we did didn't result in a particularly substantial  
22 increase than in -- we were still in the ethanol content  
23 range where the majority of both aldehydes were in fact  
24 being derived by secondary reaction from the alkanes and  
25 things like that.

1 PANEL MEMBER ATKINSON: Yeah. And those were  
2 with vehicles with catalysts.

3 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT  
4 CHIEF SALMON: Exactly. This was with -- this was the  
5 project --

6 PANEL MEMBER ATKINSON: Whereas I assume the  
7 Brazil study was originally many years ago with -- so,  
8 yeah, I mean I've seen those data for -- they were used on  
9 a national academy study of the effects of MTBE and  
10 ethanol on urban ozone. But also it did have data in on  
11 various toxics. And, yeah, there's a modest increase on  
12 the California data and some industry data on -- modest  
13 increase in acetaldehyde.

14 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT  
15 CHIEF SALMON: But formaldehyde is very --

16 PANEL MEMBER ATKINSON: It's not -- the  
17 relationship goes up by maybe 50 percent in the emissions.

18 PANEL MEMBER HAMMOND: Were those increases  
19 because of the combustion products of MTBE or ethanol, or  
20 were they -- the presence of those led to different  
21 chemical reactions to the other components?

22 PANEL MEMBER ATKINSON: Probably the combustion  
23 products of ethanol and MTBE.

24 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT  
25 CHIEF SALMON: It's primarily the emissions, because --

1 you know, California vehicles are relatively well  
2 controlled as far as passive -- you know, evaporative  
3 emissions. And there's a lot of control over how the  
4 materials handled. So the inventory that you see in the  
5 models we looked at is primarily the result of, you know,  
6 the -- and, as I say, the acetaldehyde with the California  
7 formulation, California vehicle is modestly increased.  
8 Almost no change in formaldehyde because so much of that  
9 is secondary anyway.

10 OEHHA CANCER TOXICOLOGY AND EPIDEMIOLOGY SECTION  
11 SUPERVISOR SANDY: Martha Sandy with OEHHA.

12 To get to your question, Dr. Hammond. Our plan  
13 for this series of reports is to use the air monitoring  
14 data from ARB to look at and compare the emissions -- you  
15 know, what's monitored and what the gasoline attributable  
16 portion of these different emissions are from the 1998 to  
17 2000 period, and then later on once most of the fuel did  
18 contain ethanol to see if the models predictions hold true  
19 in the real world.

20 PANEL MEMBER HAMMOND: That'd be very  
21 interesting.

22 CHAIRPERSON FROINES: Stan, do you have any  
23 comments?

24 PANEL MEMBER GLANTZ: Well, I don't have any  
25 substantive comments about this because I'm not a chemist.

1 But I was impressed by it.

2           The one health point that I would make, when you  
3 get down the road and start using this stuff for health  
4 risks assessments, I hope you won't just look at cancer,  
5 because several of these things, like 1,3-butadiene and  
6 some of the PAHs are atherogenic and are -- you know,  
7 increased heart disease too. And a lot of the, you know,  
8 work looking at air pollution and heart disease as we're  
9 looking at particulates, which are certainly -- probably  
10 the most important thing are probably the particulates.  
11 But some of these other compounds also have important  
12 effects and they probably affect other -- some of them are  
13 very strong oxidants and affect oxidant loads and lipid  
14 metabolism and things like that. So I think -- you know,  
15 that's probably a ways off.

16           But I think some of these things could -- that  
17 that should go into the model. And it may well be more  
18 important than the cancer effects.

19           OEHHA RESEARCH SCIENTIST HOOVER: Yeah. So  
20 actually as part of the hazard ID we're going to provide  
21 sort of preliminary screening data of that sort, like  
22 identifying a whole bunch of different health effects.  
23 And then we're going to focus in on a couple to start with  
24 in terms of actually characterizing risk. But, yeah,  
25 that's -- the future idea is to go beyond cancer and

1 respiratory toxicity.

2           PANEL MEMBER GLANTZ: Yeah, I mean there are  
3 direct experiments with -- animal experiments with  
4 1,3-butadiene where they expose -- I can't remember which  
5 animal it was, but they would expose them to varying  
6 levels of 1,3-butadiene, and they got a dose response  
7 increase on atherosclerosis pretty quickly, and within a  
8 few weeks.

9           CHAIRPERSON FROINES: Well, can I comment on --  
10 are you -- I don't want to cut you off.

11           PANEL MEMBER GLANTZ: And that was basically all  
12 I had to say. And I guess -- well, one other thing, and  
13 maybe this was just reflecting my own ignorance, was  
14 the -- you know, it wasn't totally clear to me if you were  
15 talking about gasoline combustion point of view or --  
16 gasoline combustion products or gasoline evaporation.  
17 And --

18           OEHHA RESEARCH SCIENTIST HOOVER: So clarify  
19 that?

20           PANEL MEMBER GLANTZ: Yeah, that -- that can be  
21 clarified. And then I guess the one other thing I'd  
22 thought of that -- and this gets back to a comment Kathy  
23 made -- is I was sort of hoping for some pie chart that  
24 said, you know, for a gallon of gasoline here's what ends  
25 up in the air, you know; which is probably more than you

1 could reasonably expect. But at least if you could get  
2 some of the bigger pieces of the pie, that would have at  
3 least been interesting to me. And I think if you're going  
4 to be getting into your -- actually into some kind of  
5 quantitative risk assessment, you're going to need at  
6 least a first pass at that. But that was -- I was totally  
7 intimidated by it.

8 (Laughter.)

9 PANEL MEMBER GLANTZ: There wasn't a single P  
10 value that I could find.

11 (Laughter.)

12 CHAIRPERSON FROINES: I want to follow -- I want  
13 to give --

14 PANEL MEMBER GLANTZ: Or any of the cohort  
15 studies even.

16 CHAIRPERSON FROINES: I want to give Craig and  
17 Joe a chance to comment.

18 George, don't run away. I think you may find --  
19 or Melanie, I don't -- doesn't matter to me.

20 OEHHA SUPERVISING TOXICOLOGIST MARTY: We're  
21 interchangeable?

22 (Laughter.)

23 CHAIRPERSON FROINES: I want to follow up on  
24 Stan's comment because I think it's highly relevant. And,  
25 that is, that I had a debate yesterday with Bart Croes at

1 ARB on this issue that we're talking about here. And I  
2 asked him what his interest in vapors was as a  
3 co-pollutant to particles. And he basically said that ARB  
4 was not -- thought that the impact of some of these  
5 compounds that we're talking about here today was  
6 relatively negligible, and therefore wasn't sure of its  
7 importance. And I pointed out the fact that in southern  
8 California, 95 to 99 percent of the PAHs is naphthalene,  
9 which is -- Roger got 99 percent in his Glendora study  
10 years ago, and .018 percent was BaP, benzoatepyrine. So  
11 if you have 99 percent versus .02 percent, there is a  
12 difference. And --

13 PANEL MEMBER HAMMOND: What's P value?

14 PANEL MEMBER ATKINSON: That's gas phase PAH  
15 versus particle phase --

16 CHAIRPERSON FROINES: Yeah, versus particle phase  
17 BaP.

18 And the point I'm making is that -- is that the  
19 PAH that dominates southern California at least is  
20 naphthalene and the second highest is phenanthrene. Now,  
21 the point I want to make is that those are both in the  
22 vapor phase and those both undergo atmospheric chemistry  
23 that we've seen to form highly toxic quinones. And that  
24 how much is a question that we're all still debating and  
25 working on. But the quinone stand that are formed are

1 going to result in the formation of reactive oxygen  
2 species internally, they're going to result in the  
3 production of oxidative stress, they're going to produce  
4 oxidized cholesterol, they're going to end up producing  
5 atherosclerosis or at least the enhancement of  
6 atherosclerosis, and that they actually are very  
7 important.

8           Because in part what Bart was arguing -- and this  
9 is the point that I think is most important -- is when you  
10 look at things like the PM2.5 epidemiology, and you look  
11 at Arden Pope's work, what Arden Pope's work shows is the  
12 cardiovascular effects far outweigh the cancer in terms of  
13 significance. And so you can say, "Well, there's a bunch  
14 of these vapors that are carcinogenic, but they don't  
15 really count for much relative to the atherosclerosis."

16           But my point yesterday with Bart was that these  
17 vapors are very likely to be active toxicologic agents  
18 with respect to atherosclerosis. And so if you don't take  
19 99 percent of the naphthalene into consideration -- he  
20 says that the unit risk value for the cancer associated  
21 with naphthalene is so low that it doesn't account for  
22 much cancer. But that's --

23           OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT  
24 CHIEF SALMON: That's not true.

25           CHAIRPERSON FROINES: I know that. I know that.

1 I wasn't going to get into that argument. But I'm arguing  
2 atherosclerosis, Andy.

3 (Laughter.)

4 OEHHA SUPERVISING TOXICOLOGIST MARTY: I think  
5 OEHHA would have a different reply.

6 CHAIRPERSON FROINES: I know what you're going to  
7 say. But -- I know what you're going to say.

8 What I'm saying is that there are other -- you  
9 are absolutely right, there are other toxicologic  
10 endpoints that are really important that these vapors may  
11 contribute to, and we need to put a lot of attention to  
12 that issue.

13 PANEL MEMBER GLANTZ: Yeah, the -- and I can't  
14 remember if it's acetaldehyde or acrolein. But one of  
15 those has a very long half-life in blood. And it's a  
16 hugely potent oxidizing agent. And in addition to the  
17 atherosclerotic effects we were talking about before,  
18 there's some evidence that, you know, this cause is  
19 related to acute responses to inflammation, platelet  
20 activation -- all that stuff in the ETS report, the  
21 altered vascular property stuff that you talked about in  
22 there, seems to be tied up with -- I can't remember which  
23 of them it is.

24 You know, and the other thing, if you go back to  
25 the ETS report, the attributable deaths for heart disease

1 are an order of magnitude bigger than cancer. And it's  
2 not nicotine that's doing it. It's all that other  
3 combustion stuff. And the -- you know, it's an  
4 interesting question, because everybody -- you know, for  
5 years when you talked about air pollution and heart  
6 disease, it was like, oh, that's silly. But now people  
7 have realized it's not so silly. But most -- as John  
8 said, most of the attention has been on the particulates.  
9 And I mean they're definitely -- that's definitely a big  
10 issue.

11 But I think these other things are very, very  
12 important. And I think that in addition to the sort of  
13 longer term atherosclerotic effects, probably some of  
14 these things are also mediating through acute changes in  
15 platelet function, nitric oxide, all that kind of stuff  
16 too.

17 And I'll bet you when the dust settles or the --  
18 whatever gases settle, whatever, that those effects are  
19 going to be bigger than the cancer effects, at least some  
20 of them.

21 CHAIRPERSON FROINES: Well, I know Andy wants to  
22 jump in here. But I want to -- I just want to say one  
23 thing. We can show that these naphthalene derivatives  
24 inhibit irreversibly an enzyme called PT1B, which then  
25 sets in motion a whole downstream process affecting signal

1 transduction and that you end up with very clear  
2 enhancement of asthma from, again, naphthalene  
3 derivatives.

4           And so that we have the potential for  
5 inflammatory processes and oxidative stress. In terms of  
6 atherosclerosis, we have asthma enhancement. So that I  
7 think one of the things that should go into my letter is  
8 that these compounds are -- have potentially important  
9 endpoints that need further investigation.

10           And I -- you're more than welcome to tell me that  
11 the cancer risk assessment on naphthalene is worse than  
12 what I said. But, remember, you're picking on Bart now,  
13 not me. And I don't know whether it's entirely fair --  
14 well, I don't want to pick on -- I mean I just used that  
15 as an example. I didn't want to create an interagency --

16           OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT  
17 CHIEF SALMON: Andy Salmon again here.

18           I wasn't actually going to say that at all. What  
19 I was going to say was I wanted to slightly reemphasize  
20 what I was saying about the ethanol report as a whole. It  
21 certainly wasn't the case that the various observed vapor  
22 phase components didn't have important impacts. We didn't  
23 know as much about the naphthalene side when that report  
24 was written in 2000 as we do now. But, you know, though  
25 certainly we didn't discount the impact of those

1 fractions. We merely said that it was going to be the  
2 same regardless of which formulation we looked at. And  
3 the same is substantially true for the aldehydes.

4 But certainly in the aldehyde cases and other --  
5 you know, the respiratory irritant endpoint group which we  
6 selected, which included acrolein, acetaldehyde,  
7 formaldehyde, we were predicting as an index of well  
8 above -- well, you know -- of well above 1 just in  
9 ordinary ambient background conditions for aldehydes as  
10 respiratory irritants.

11 And also the other thing, which we were somewhat  
12 concerned about because it's something which is  
13 potentially increased with ethanol, is the peroxyacetyl  
14 nitrate side of things. So, you know, the eye irritants,  
15 the PAN and the various other congeners, as it were, in  
16 that series.

17 So there were some very substantial health  
18 impacts predicted for any of the three formulations we  
19 looked at. It's just that they weren't very substantially  
20 different between the three cases. That was the point I  
21 wanted to make.

22 But I'll shut up about naphthalene also.

23 PANEL MEMBER GLANTZ: You know, the one other  
24 thing --

25 CHAIRPERSON FROINES: No, it's fine.

1           PANEL MEMBER GLANTZ:  -- that it seems to be  
2 clear though is some of these things which are currently  
3 viewed as respiratory irritants are actually having  
4 cardiovascular effects too, because they trigger the  
5 inflammatory process which is triggered in the lungs,  
6 releases things like CRP and things like that, which then  
7 have other effects.  So I think -- and these are things  
8 that are just being figured out now.  But I think there  
9 are things you ought to -- I mean to put into the equation  
10 as you move forward, after Roger gets the pie all divided  
11 up on the chemicals.

12           CHAIRPERSON FROINES:  I wanted to give -- I have  
13 some comments, but I wanted to give Craig and Joe a  
14 chance --

15           PANEL MEMBER BYUS:  I think it's an outstanding  
16 job, typical of much of the work that's done at the  
17 University of California Riverside, I might say.

18           (Laughter.)

19           PANEL MEMBER BYUS:  Another example of  
20 outstanding science coming from our institution.

21           (Laughter.)

22           PANEL MEMBER BYUS:  And probably Janet did most  
23 of the work actually.

24           CHAIRPERSON FROINES:  I think that --

25           PANEL MEMBER ATKINSON:  Careful there.

1 (Laughter.)

2 CHAIRPERSON FROINES: Come on, Joe, bring out the  
3 negatives. Because between Kathy and Craig, we've got  
4 flowers being strewn around the room.

5 PANEL MEMBER LANDOLPH: No, I do think it's a  
6 great report. I didn't have anything negative to say.  
7 It's a lot of work. It's a huge amount of work. And it's  
8 very well done, it's very well written up.

9 And I had a couple of questions which are more of  
10 a scientific interest than it being negative or anything.

11 One was your statement the experimental data  
12 indicate that the gas phase PAH don't photolyze under  
13 atmospheric conditions. Why is that? Is the wavelength  
14 of light getting through too short to hit the excitation  
15 spectrum?

16 PANEL MEMBER ATKINSON: They undoubtedly -- they  
17 do absorb radiation, but they just don't photo decompose.  
18 So it gets internally converted.

19 PANEL MEMBER LANDOLPH: They just --

20 PANEL MEMBER ATKINSON: They don't photolyze. I  
21 mean there's no evidence for the gas phase PAH  
22 photolyzing. There is evidence for particle phase.

23 PANEL MEMBER LANDOLPH: Do you get fluorescence  
24 or intersystem cross phosphorescence or --

25 PANEL MEMBER ATKINSON: It's got to be into

1 intersystem cross --

2 PANEL MEMBER LANDOLPH: And what about the -- I  
3 guess you would call stuff like benzoatepyrine, that would  
4 be more of a particulate phase, so you may --

5 PANEL MEMBER ATKINSON: Right. There is evidence  
6 for photolysis of those. But it depends what type of  
7 particle it's on, whether it's a -- I mean a sub-particle  
8 versus fly ash versus whatever. So it's very difficult to  
9 come up with any atmospherically relevant numbers.

10 PANEL MEMBER LANDOLPH: And I'm going to guess  
11 with benzoatepyrene you probably get one electron-induced  
12 quinone formation?

13 PANEL MEMBER ATKINSON: I don't know. The major  
14 loss process for BaP in the atmosphere appears to be an  
15 ozone reaction on the particles. That's -- at least you  
16 can rationalize it that way, with a lifetime of a few  
17 hours.

18 PANEL MEMBER LANDOLPH: And what products do you  
19 see from ozone adduction?

20 PANEL MEMBER ATKINSON: Offhand I couldn't tell  
21 you.

22 CHAIRPERSON FROINES: I bet it's going to be a  
23 quinone.

24 PANEL MEMBER ATKINSON: It might be. But people  
25 have never reported it.

1 PANEL MEMBER LANDOLPH: And also you see a  
2 hydroxyl radical reacting with benzoatepyrine to give you  
3 hydroxyl benzoatepyrine?

4 PANEL MEMBER ATKINSON: There's no evidence on  
5 atmospherically relevant particles. People have seen it  
6 on -- oh, on the laboratory-generated particles. But  
7 that's -- they're not the same. So it's very difficult to  
8 go from -- to look at particle reactions and say that  
9 they're relevant to the atmosphere.

10 PANEL MEMBER LANDOLPH: And I was looking at your  
11 xylene on page A-189, which is interesting.

12 So a lot of those reactions that occur on xylene  
13 you can't extrapolate with big molecules like  
14 benzoatepy --

15 PANEL MEMBER ATKINSON: You could extrapolate  
16 them to naphthalene, but you can't extrapolate them to --  
17 not to the particle associated.

18 PANEL MEMBER LANDOLPH: That's very interesting.

19 PANEL MEMBER ATKINSON: And naturally there are  
20 differences between the monocyclic aromatics and the  
21 polycyclic aromatics, even in the OH experiment -- Oh  
22 systems.

23 CHAIRPERSON FROINES: You know, one thing that's  
24 interesting. Roger McClellan in 1983 did a paper on  
25 putting BaP on carbon black. And what was interesting was

1 that they got about 20 percent yield of quinones in the  
2 animal when they looked in their lungs. And what was  
3 interesting is they did not find any products of the diol  
4 epoxide or the radical cation. In other words, it  
5 appeared that -- every toxicology textbook shows you the  
6 diol epoxide as the primary pathway.

7 But in fact the quinones dominated the  
8 metabolism. And so that what every little toxicology  
9 student learns is, so oversimplified, that it's just --  
10 it's a mistake, because the quinones are really quite  
11 dangerous because they can redox cycle catalytically. And  
12 so you're generating millions of ROS molecules. Whereas  
13 the diol epoxide's an electrophilic attack, and so it's  
14 stoichiometric.

15 As soon as you go through the phenols, it's easy  
16 to interoxidize the quinones, that -- process.

17 Then I had another question for OEHHA themselves.  
18 You know, it struck me a lot of effort and resources are  
19 going into these risk assessment calculations. Did you  
20 ever do one or think of doing one -- which would be an  
21 imaginary type of experiment. Suppose all the cars in  
22 California were replaced with gas-electric hybrids, the  
23 average gas-electric hybrid. How much of the projected  
24 cancer incidents would go down in this state? Do you have  
25 any feel for that in terms of orders of magnitude? Have

1 you ever thought about that?

2           OEHHA SUPERVISING TOXICOLOGIST MARTY: We haven't  
3 done any calculations like that. But the whole idea of  
4 the hybrid vehicle is to reduce the toxics emissions as  
5 well as CO2 emissions, reduce all of the NOx, reduce  
6 ozone, you know. So it's sort of an across the board  
7 "let's reduce what's out there." Presumably if you assume  
8 a linear dose response for most environmental carcinogens  
9 at exposures currently experienced, then there should be a  
10 reduction by whatever percentage you can push down  
11 emissions.

12           PANEL MEMBER LANDOLPH: So that might be a  
13 simple --

14           OEHHA SUPERVISING TOXICOLOGIST MARTY: That's  
15 pretty simplistic. But --

16           PANEL MEMBER LANDOLPH: No, it's a reasonable  
17 place to start. So you might just simply look at how  
18 much, say, gasoline's consumption decreased and then go to  
19 your -- go lower down on the curve to that new figure. So  
20 you might actually already have the data in your office,  
21 huh?

22           OEHHA SUPERVISING TOXICOLOGIST MARTY: Well, not  
23 entirely.

24           OEHHA CANCER TOXICOLOGY AND EPIDEMIOLOGY SECTION  
25 SUPERVISOR SANDY: The whole point of the exercise we're

1 going through in this project is to come up with some way  
2 to try to characterize the cancer risks with a baseline  
3 gasoline. But we acknowledge up front we'll have many  
4 data gaps because we have chemicals that are identified as  
5 carcinogens emitted in gasoline combustion processes  
6 which -- for which we have no emissions data. So we're  
7 going to have gaps. So any attempt to do a cancer risk  
8 for California gasoline use is going to have a lot of  
9 uncertainties.

10 OEHHA SUPERVISING TOXICOLOGIST MARTY: To some  
11 extent you end up looking under the lamppost because  
12 that's where you have the data. But we're trying to get  
13 away from that as much as possible.

14 PANEL MEMBER GLANTZ: It is though a really  
15 interesting question though, because I think -- I think  
16 that the -- we have a hybrid. And I think that the -- as  
17 I recall then reading about it that the emissions drop by  
18 more than the mileage improves, because they don't idle.  
19 So I mean it would actually be a really interesting  
20 exercise to do.

21 PANEL MEMBER LANDOLPH: Well, the reason I asked  
22 that question is it's pretty clear, you know, the  
23 standards are getting heightened tightened, and yet still  
24 we're having more people come into the state, emissions  
25 are going up. So there's a point at which we're going to

1 be going backwards, no matter how stringent the standards  
2 are. If we make the standards too tight, we won't have  
3 any more industry left. So clearly we need some kind of  
4 technological fix along the way. That certainly is one  
5 way out of the box.

6 CHAIRPERSON FROINES: Can I comment on this, in a  
7 sense. Melanie and these folks know what I'm about to  
8 say. But the -- we did a study at the Caldecott Tunnel --  
9 you know where the Caldecott is -- and we looked at bore 1  
10 and bore 2. Bore 1 has both kinds of vehicles, that is,  
11 diesel and gasoline. Bore 2 -- I may have it backwards.  
12 But one of them is only light-duty vehicles and one of  
13 them is a mixture. And the -- we had results from 1997  
14 where a similar study had been done. And what we were  
15 able to show is that the PM2.5 levels have dramatically  
16 decreased since 1997 to 2004. But the number of particles  
17 has dramatically increased during that same time period.  
18 In other words we are reducing the mass concentration and  
19 at the same time we are increasing the number of  
20 particles.

21 Now, if those ultrafine particles that are  
22 increasing are more toxic than what you've reduced, then  
23 your toxicity will have gone up. So that to do a risk  
24 assessment, we're going to have to figure out the level of  
25 toxicity of ultrafine particles so we can actually do a

1 proper risk assessment. And at this point we really can't  
2 do that, I think.

3           And what we found, Stan, is that the -- I sent --  
4 you got the E-mail with the slide. In terms of redox  
5 activity, the gasoline ultrafines were twice as toxic as  
6 the diesel ultrafines. And so not only is -- so that the  
7 toxicologic data that we're generating seems to indicate  
8 that, yes, cars put out a lot less than diesel trucks do,  
9 but it's not clear what the relative toxicity has to do in  
10 terms of -- and that's defined by composition and it's  
11 defined by a whole series of the nature of the generation  
12 of the ultrafines.

13           And so I think that gasoline is something that is  
14 an extremely high priority at this point. And so that  
15 this is like really quite crucial what they've done,  
16 because I think that there's a possibility that  
17 gasoline -- that we should have declared gasoline a TAC a  
18 long time ago, if you want my honest opinion.

19           And so hopefully this will lead to gasoline  
20 coming before this Committee at some point. Because I  
21 think it's absurd that we're in 2000 -- almost 2006 and we  
22 haven't yet decided what we think about gasoline.

23           Now, I don't -- so the experimental data that  
24 we're collecting seems extremely interesting on the  
25 gasoline issue. One has to take it quite seriously, I

1 think, because we've had such an emphasis on particle  
2 toxicology, toxicity.

3 Joe, were you finished?

4 PANEL MEMBER LANDOLPH: Yeah, I think the report  
5 was terrific. I think you put a lot in to it. It's very  
6 rigorously written. It's very informative. I enjoyed  
7 reading it.

8 CHAIRPERSON FROINES: So I -- just a few  
9 comments.

10 This report focuses on atmospheric  
11 transformations. And yet obviously when you start to  
12 think about gasoline and vapors vis-a-vis regulatory  
13 decision making, you want to know what the importance of  
14 emissions that are oil based -- you know what I mean? -- I  
15 mean crankcase oil -- we need to know what the components  
16 of gasoline are relatively speaking, we need to look at PM  
17 from vapor condensation, we need to look at secondary  
18 organic aerosols, and we need to look at PM within this  
19 context. So it seems to me that this is one piece of what  
20 looks to be about a five or six piece endeavor. Is that a  
21 fair comment?

22 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yeah, I  
23 think if --

24 CHAIRPERSON FROINES: What I'm trying to --

25 OEHHA SUPERVISING TOXICOLOGIST MARTY: -- if

1 we're going to keep moving forward.

2 CHAIRPERSON FROINES: I want to write something  
3 that says what you should do. And so tell me if you think  
4 that's right.

5 OEHHA SUPERVISING TOXICOLOGIST MARTY: Well, I  
6 think that's a very valid comment.

7 CHAIRPERSON FROINES: Then --

8 OEHHA SUPERVISING TOXICOLOGIST MARTY: That this  
9 is just one piece -- a small piece of the pie. There's a  
10 lot more work that could be done to develop more  
11 information on the public health impacts of gasoline usage  
12 essentially.

13 PANEL MEMBER GLANTZ: What's the next -- I mean  
14 in reading this I had the sense that this was the first of  
15 a series.

16 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yeah.

17 PANEL MEMBER GLANTZ: What are you planning next?  
18 What's the sequel?

19 OEHHA RESEARCH SCIENTIST HOOVER: Well, I say  
20 that -- I mean the comments you're making, there's a lot  
21 that's planned and there's a lot more that we know that we  
22 could do. So the first element is what I was talking  
23 about, which is looking at identifying the chemicals,  
24 screening for toxicity and then looking at what data do we  
25 actually have in California on monitoring data, looking at

1 population-weighted exposure estimates for those  
2 chemicals, and also doing a source apportionment for that  
3 exposure so that you can attribute what portion of that  
4 can be attributed to gasoline use in California. So  
5 that's all planned.

6 And then the next piece that's planned is to look  
7 for available health assessment values that relate to  
8 cancer -- so unit risk values -- and chronic respiratory  
9 toxicity. And generally speaking we're talking about  
10 CRELs in that case. So doing that.

11 Now, another piece that is envisioned is actually  
12 doing more assessment of chemicals that haven't been  
13 assessed but actually have data, because that's also true.  
14 There's some chemicals in here that don't have values now  
15 but could have values. So that's another part that's  
16 planned.

17 An then there's -- you know, it just kind of gets  
18 bigger and bigger, because then there's all these other  
19 health effects that you could look at as well. So  
20 that's --

21 CHAIRPERSON FROINES: But you're not planning to  
22 do -- you said toxicologic screening. You mean --

23 OEHA RESEARCH SCIENTIST HOOVER: Not --  
24 literature screening, literature screening.

25 Yeah, that's another thing that can be done. And

1 actually that was -- in some of the meetings that we had,  
2 you know, there was discussion about some of the work  
3 that's being done on lab screening of gasoline-related  
4 compounds that's being done.

5 But, yeah, that's not something that we do at  
6 OEHHA.

7 CHAIRPERSON FROINES: Stan, there's a -- I  
8 think -- correct me if I'm wrong. But at the risk of --  
9 well, no. Correct me if I'm wrong, but there are -- some  
10 of the work that Roger is talking about derives from  
11 chamber studies, and there is not literature on what are  
12 in the -- what's in the ambient concentration in, say,  
13 southern California, and that that's -- some of that's  
14 still -- much of that is still being determined. And so  
15 one issue is an ARB issue, which is: To what degree does  
16 Lynn Baker and others start looking at some of these  
17 airborne concentrations that we haven't measured? And so  
18 we really don't know what the size of the problem is. Is  
19 that reasonable?

20 PANEL MEMBER ATKINSON: Yeah. I mean there's a  
21 fair number of these products that have not been measured  
22 in number. Some haven't been measured in the line either.

23 CHAIRPERSON FROINES: So this is a big issue I  
24 think of -- of all the things that he was predicting,  
25 nobody's really looked for them in the air. And so

1 it's --

2 PANEL MEMBER HAMMOND: But that's part of what  
3 you were saying that they were going to start doing with  
4 ARB, right? Just don't have an opportunity to do that.

5 CHAIRPERSON FROINES: Did she say that?

6 PANEL MEMBER HAMMOND: Did somebody --

7 CHAIRPERSON FROINES: I didn't hear that.

8 OEHHA SUPERVISING TOXICOLOGIST MARTY: Well, it's  
9 really up to ARB on, you know, what they have the -- first  
10 of all, many of these things probably do not have standard  
11 methods for just putting a monitor out there and  
12 measuring. And so developing the methodology is a huge  
13 issue. They had to do that with acrolein recently, which  
14 was difficult to measure. And they had to go out and  
15 develop the method. So that's step 1.

16 And step 2 is, you know, how much money does  
17 their monitoring, the labs division have to go out and do  
18 those kinds of things, you know. Which is a question I  
19 can't answer and probably folks here can't answer either.

20 Which also --

21 CHAIRPERSON FROINES: Yeah, I think I -- that was  
22 one of my comments, is I think we also have to say that  
23 there are important analytical issues that need to be  
24 addressed, because that's -- we always talk about going  
25 out and measuring things. And obviously the analytical

1 questions are really quite central, most the -- acrolein  
2 being a classic example.

3 I think ARB now has an acrolein method for  
4 monitoring. Is it Judy Charles?

5 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yes.

6 CHAIRPERSON FROINES: No?

7 Your own lab.

8 Because we supported Judy Charles when she was  
9 alive to develop the method.

10 Now, acrolein clearly needs to be tested in an  
11 NTP bioassay too, because it's a Class 3 carcinogen. And  
12 it clearly undergoes cycloaddition reaction. So it's a  
13 powerful electrophile. And yet it shouldn't be a Class 3  
14 at this point.

15 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yeah, as I  
16 recall that one of the problems with acrolein is it's so  
17 irritating that when you give it ventilation, you can only  
18 use really low doses.

19 CHAIRPERSON FROINES: Well, the trouble is the  
20 animals shut -- their lungs shut down.

21 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yeah. So  
22 that they've had trouble even trying to test it over long  
23 term.

24 CHAIRPERSON FROINES: Absolutely.

25 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT

1 CHIEF SALMON: I was just going to say that with a  
2 reactive and highly irritant compound like this, next to  
3 impossible to do a long-term study at all with animals.  
4 So it's not surprising that the result isn't there.

5 CHAIRPERSON FROINES: But there has to be -- we  
6 need somehow to develop more information on the  
7 genotoxicity and carcinogenicity of acrolein, because it  
8 can't just stay as a Class 3 carcinogen. That's -- it's  
9 just absurd.

10 OEHHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT

11 CHIEF SALMON: There's some interesting things going on in  
12 terms of relatively short-term indicators of biochemical  
13 and genetic endpoints that happen, you know, when you do  
14 inhalation carcinogens. I mean I know that there's  
15 been -- we'll a number of people have been looking at that  
16 sort of thing. But, you know, there are a number of  
17 things which might be done that would be very interesting,  
18 if somebody has the money and the equipment.

19 CHAIRPERSON FROINES: I also think --

20 OEHHHA SUPERVISING TOXICOLOGIST MARTY: We have  
21 most --

22 CHAIRPERSON FROINES: Oh, sorry.

23 OEHHHA SUPERVISING TOXICOLOGIST MARTY: I'm sorry.

24 Most airborne concentration estimates of acrolein  
25 are above our chronic reference exposure level.

1           CHAIRPERSON FROINES: Yeah. I think, by the way,  
2 one of the things that would useful at some point is to  
3 figure out all the compounds that we're talking about that  
4 can undergo reactive oxygen species formation and look at  
5 them as a group in terms of what can produce oxidative  
6 stress collectively. And it seems to me that we need to  
7 look at electrophiles as well collectively in terms of  
8 potential health effects.

9           But, anyway, we can write a letter -- we can  
10 write a letter that's 70 pages long saying everything that  
11 needs to be done on gasoline.

12           When we write the letter, I'm going to call on  
13 you folks for help to make sure that we don't make a  
14 70-page letter; that it's focused on what might be  
15 practical.

16           Sara, were you going to say something?

17           OEHHA RESEARCH SCIENTIST HOOVER: No. I was just  
18 moving forward to listen to you.

19           CHAIRPERSON FROINES: All right.

20           OEHHA SUPERVISING TOXICOLOGIST MARTY: Funding is  
21 always an issue. Funding for OEHHA to do this work is an  
22 issue.

23           CHAIRPERSON FROINES: Well, Janette said she's  
24 going to contribute a few million dollars.

25           (Laughter.)

1 CHAIRPERSON FROINES: So thank you. I think this  
2 is more than enough. I think we're -- are we okay, I  
3 mean -- we're about to close?

4 PANEL MEMBER GLANTZ: Well, No. I thought --  
5 well, aren't you going to do -- have a brief presentation?

6 CHAIRPERSON FROINES: Yeah, yeah, yeah. No, but  
7 on gasoline?

8 PANEL MEMBER BLANC: Come on. We're running out  
9 of time. We've got to be out of here --

10 PANEL MEMBER ATKINSON: -- another 15 minutes.

11 PANEL MEMBER BLANC: -- 15, 20 minutes.

12 PANEL MEMBER HAMMOND: But she said it's pretty  
13 short.

14 CHAIRPERSON FROINES: She's going to do it in 15  
15 minutes.

16 OEHHHA SUPERVISING TOXICOLOGIST MARTY: We have  
17 very similarly named files.

18 CHAIRPERSON FROINES: So, Andy, we should talk  
19 about the naphthalene unit risk value sometime, because  
20 you certainly jumped out of your seat.

21 (Laughter.)

22 OEHHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT  
23 CHIEF SALMON: Maybe I was overreacting.

24 (Laughter.)

25 CHAIRPERSON FROINES: Well, it was a friendly

1 discussion with Bart. We were trying to figure out  
2 priorities. I'm not trying to say it was a big  
3 disagreement. I don't want to go on record as -- I'm  
4 saying that --

5 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT  
6 CHIEF SALMON: I don't want to go on record as disagreeing  
7 with him either.

8 (Laughter.)

9 CHAIRPERSON FROINES: No, no. It's an issue of  
10 what the epidemiology shows in terms of cardiovascular  
11 effects, because it so overwhelms everything else.

12 OEHHA AIR TOXICOLOGY AND RISK ASSESSMENT UNIT  
13 CHIEF SALMON: I think -- yeah, I mean I agree with you on  
14 that point. It's exactly the cardiovascular points that  
15 definitely dominates the --

16 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF  
17 BARHAM: We need to talk after the meeting. There's more  
18 to it than just those effects, with regard to Bart's  
19 comment on the -- what it really comes down to is there  
20 are deaths attributable to PM. It's very clear. You can  
21 do the dollar calculations of those deaths. And those  
22 dollar calculations far outweigh the cost you controls.  
23 And those are the kinds of arguments we have to make in  
24 Business, Housing & Transportation, within the  
25 administration, or other places where we're saying you

1 have to put on gigabucks worth of controls. And if we  
2 can -- if any kind of information's available for those  
3 other effects, that would be great. But I don't -- it  
4 doesn't sound like we're there yet.

5 PANEL MEMBER GLANTZ: Oh, no. There's some of it  
6 is.

7 CHAIRPERSON FROINES: Well, naphthalene is the  
8 one that's so important because there's so much out there.

9 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF  
10 BARHAM: And actually --

11 PANEL MEMBER GLANTZ: Either acetaldehyde or  
12 acrolein -- I can't remember which one -- there's a lot  
13 about acute cardiovascular effect. Not a lot but --

14 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF  
15 BARHAM: Well, acrolein is one of the things we're looking  
16 at under this.

17 PANEL MEMBER GLANTZ: No, I know.

18 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF  
19 BARHAM: Well, let's --

20 CHAIRPERSON FROINES: No, it's no problem. I  
21 don't -- I wasn't really saying there was a big  
22 disagreement. It's realizing, as Stan said, that there  
23 are other endpoints. And it's not just looking at the  
24 cancer risk unit for naphthalene. You've got to look at  
25 the full toxicity.

1 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

2 BARHAM: Well, we've really shifted our focus away from  
3 cancer, away from other health effects, and really are  
4 focusing on PM and mortality rates associated with PM.  
5 There has been a shift in thinking in the organization in  
6 the last probably two years.

7 CHAIRPERSON FROINES: But I think frankly that --  
8 I understood that. But I think that when you look at  
9 components and what components cause of health effects and  
10 you eliminate 99 percent of your PAHs, that's a mistake.  
11 That's something that needs to be taken --

12 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

13 BARHAM: No, and I agree with that. And I'm going to  
14 touch on that a little bit in my presentation.

15 CHAIRPERSON FROINES: Go ahead. Shoot.

16 PANEL MEMBER GLANTZ: And I don't want to prolong  
17 this. But I think in terms of some of these  
18 cardiovascular effects, that the -- if you go look at the  
19 ETS report, that section on altered vascular properties, a  
20 lot of the things are the same. And there's -- and the  
21 American Heart -- and I'm pretty sure it's cited in there.  
22 But the American Heart Association about two years ago put  
23 out a -- a sort of scientific position paper review was  
24 published in circulation on air pollution as a cause of  
25 heart disease. And it talked about -- it had a lot of

1 this stuff in there too. I don't know if you're -- if you  
2 can't find it, I'll find it. I think Pope actually may  
3 have been the guy who headed the writing committee.

4 But, you know, these other -- these acute  
5 oxidizing agents -- or these oxidizing agents have  
6 powerful acute effects. So I just think they ought to be  
7 thrown into the mix as well as particulates.

8 But, anyhow, I've said enough.

9 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

10 BARHAM: Well, what I'm going to do is just provide some  
11 quick introductory information on SB 25 --

12 CHAIRPERSON FROINES: Give him your name.

13 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

14 BARHAM: Oh, Bob Barham, the Air Resources Board.

15 -- and then describe a little bit about what  
16 we've been doing over the last five or so years with  
17 regard to implementation of SB 25.

18 (Thereupon an overhead presentation was  
19 Presented as follows.)

20 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

21 BARHAM: SB 25 required us to evaluate ambient air quality  
22 standards, monitoring a toxics program --

23 --o0o--

24 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

25 BARHAM: -- in the context of children's health, and make

1 a determination as to whether or not those programs were  
2 adequately protecting public health, but specifically  
3 children and infant health.

4 We've looked at, as I said, air quality  
5 standards, we're looking at our monitoring program and  
6 we're looking at our toxics program. And what I'm going  
7 to do in the next few minutes is just briefly describe to  
8 you what we've done in each of those areas.

9 --000--

10 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

11 BARHAM: With regard to the air quality standards program,  
12 we've reviewed the standard for PM10, PM2.5, ozone, and  
13 nitrogen oxide, and found those to be the highest  
14 priority. Lead, carbon monoxide, and hydrogen sulfide are  
15 pollutants of concern but not as high a priority as the  
16 others.

17 --000--

18 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

19 BARHAM: This is just a summation of the actions that  
20 we've taken with regard to PM over the last few years.  
21 The bottom line of all of this is that it was -- it was  
22 based on mortality data, Epi studies, hospital admission,  
23 cardiopulmonary studies, a wide range of information. And  
24 we estimate that in children in ages from 7 to 14 there'll  
25 be about 400,000 fewer respiratory symptoms per year

1 because of the reduction in these standards.

2 --o0o--

3 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

4 BARHAM: Ozone was reviewed and the standard was lowered.

5 And we did this again in conjunction with OEHHA. Ozone

6 was -- ozone is under review again, as I understand it.

7 And in this review we're looking at a standard perhaps as

8 low as .06. Is that right, the submitted information?

9 That's what Bart said.

10 So, anyway -- so we're currently in the process

11 of looking at ozone.

12 --o0o--

13 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

14 BARHAM: We're in the process of doing it. But I thought

15 we were -- Bart was saying something about a re-review of

16 ozone. Is that not right?

17 OEHHA SUPERVISING TOXICOLOGIST MARTY: That will

18 occur in the -- down the pike.

19 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

20 BARHAM: Oh, Okay. That's not recent.

21 Okay. And we're also looking -- we're in the

22 process of looking at NO2 now.

23 --o0o--

24 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

25 BARHAM: In terms of our air monitoring activities, we

1 assessed the network. And some changes were recommended  
2 in terms of improving how the network works. Currently  
3 there are about a thousand air monitoring devices around  
4 the state. But the problem is primarily that those look  
5 at ambient background concentrations.

6 And what we found, particularly with the toxics  
7 program, is that more focused work needs to be done in  
8 certain areas. We've done some of the work in Barrio  
9 Logan, Boyle heights, the locations listed there. But  
10 we've also determined that the classic monitoring systems  
11 that we use to do these kinds of analyses in these focused  
12 hot spot areas is cumbersome, and so there are contracts  
13 underway or in place to look at developing monitoring  
14 systems that are much more user friendly. They can be put  
15 out and determined what the concentrations are of the  
16 pollutants that we're concerned about in a much more  
17 cost-effective way than we're currently doing it.  
18 Hopefully that work will be done in the next year or two.

19 --o0o--

20 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF  
21 BARHAM: Monitoring -- mobile monitoring has also been  
22 done in a number of locations. And I mentioned the lower  
23 cost monitoring methods.

24 --o0o--

25 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

1 BARHAM: With regard to toxics, there's been a lot done  
2 since OEHHA recommended the five TACs for us to evaluate  
3 as part of this program.

4 --000--

5 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

6 BARHAM: The five are diesel, dioxins, lead, acrolein and  
7 PAHs. And I'll just briefly go over what we've been doing  
8 with those pollutants over the last several years.

9 --000--

10 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

11 BARHAM: A number of air toxic control measures have been  
12 adopted. They're listed there. In addition, we've  
13 lowered the sulfur content of diesel fuel. And the reason  
14 that's important is that it's necessary in order for the  
15 controls to work, particularly the diesel particulate  
16 filters on the diesel engines.

17 New diesel standards have been adopted. The main  
18 focus of the program initially was to retrofit diesel  
19 particulate controls on older diesel and have them  
20 installed on the newer diesels as they come into the  
21 market.

22 What we found was that the diesel particulate  
23 filters are very difficult to install on a retrofit basis.  
24 So what we're really focusing on now is a faster turnover  
25 of the newer technologies.

1 --o0o--

2 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

3 BARHAM: And this is just a summary of the controls that  
4 will be going forward over the next year or two in  
5 relation to diesel.

6 PANEL MEMBER GLANTZ: Is there any -- we were  
7 talking about hybrids earlier. I've read that there are  
8 now some diesel-electric hybrids --

9 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

10 BARHAM: Yeah, I think UPS has a few of them.

11 PANEL MEMBER GLANTZ: Do those have much promise  
12 for helping with this, do you think?

13 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

14 BARHAM: Well, they've got to get the costs way down.  
15 Those tend to be a lot more expensive because you're --  
16 you're usually looking at a very heavy-duty vehicle  
17 hauling around, you know, 20,000 pounds -- 10, 20,000  
18 pounds. And those systems tend to cost more -- much more  
19 proportionately than the systems do on the smaller -- like  
20 the Prius or the Honda Insight or something.

21 So it's out there. I don't know in the market  
22 how that's all going to shake out.

23 CHAIRPERSON FROINES: Speaking of this diesel,  
24 I'll just -- we should find out in the next month or two  
25 on the litigation on diesel, I think.

1           In which case, if it comes out badly, we start  
2 over again, Stan.

3           (Laughter.)

4           PANEL MEMBER GLANTZ: With no jokes.

5           (Laughter.)

6           PANEL MEMBER GLANTZ: Although we could invite  
7 Garson back.

8           CHAIRPERSON FROINES: Go ahead, Bob.

9           PANEL MEMBER GLANTZ: I wonder if he would change  
10 his mind.

11          CHAIRPERSON FROINES: Bob, go ahead.

12          ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF  
13 BARHAM: This is all a joke.

14          PANEL MEMBER GLANTZ: It is not. I was just  
15 wondering if he would change his mind again. But  
16 anyway --

17          ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

18 BARHAM: With regard to dioxins, we adopted -- or we  
19 reviewed the medical incineration rule. We adopted a reg  
20 which prohibited the use of outdoor burn barrels basically  
21 in 2002. There was some legislation that passed that  
22 required us to look at cruise ships, which was adopted in  
23 November -- just this past November. And there was an  
24 amendment made to that legislation a year or so ago which  
25 required us to look at all oceangoing vessels. And that

1 work will be done in the next year or so.

2 --o0o--

3 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

4 BARHAM: We've also had some air quality monitoring work  
5 going on, ambient monitoring of dioxins. The data is  
6 collected. It's currently being analyzed.

7 CHAIRPERSON FROINES: When will that be  
8 available, do you think?

9 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

10 BARHAM: Some of it is out there. But it's like -- as I  
11 understand it, it's done by months or something --

12 OEHHHA SUPERVISING TOXICOLOGIST MARTY: I think  
13 right now there -- they actually have a couple of years of  
14 data that have already gone through their QAQC process.  
15 And they're doing the rest of the QAQC now on the third  
16 year of data. And once that's all completed, they are  
17 going to post it on their web. So it's pretty close  
18 actually to being finalized.

19 CHAIRPERSON FROINES: Go ahead.

20 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

21 BARHAM: Lead. We've reviewed the ATCM for non-ferrous  
22 metal melting and determined that no further action was  
23 needed. And we're not seeing any additional ATCMs on the  
24 horizon.

25 --o0o--

1 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

2 BARHAM: Acrolein, POMs, PAHs. The needs assessment is  
3 under development. Acrolein is a little farther ahead in  
4 the process. POMs, we've had an internal discussion about  
5 three months ago on our PO -- basically PAH monitoring and  
6 the determined that just looking at the particulate phase  
7 wasn't good enough. We needed to expand that, to look at  
8 particulate and the vapor phase. And so we shut down the  
9 particulate phase. We're in the process of looking at  
10 contracting out the work to look at both particulate and  
11 vapor phase.

12 So as to where the contract is, I can't tell you  
13 offhand, but it's something that is in the works.

14 --o0o--

15 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

16 BARHAM: So that just basically summarizes where we're at.

17 Do you want to --

18 CHAIRPERSON FROINES: Are we going to get another  
19 list of chemicals to add to the list of five at some  
20 point?

21 ARB STATIONARY SOURCE ASSISTANT DIVISION CHIEF

22 BARHAM: That's --

23 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yeah. I'm  
24 going to talk about that right now.

25 PANEL MEMBER GLANTZ: You're supposed to say,

1 "I'm glad you asked that."

2 OEHHA SUPERVISING TOXICOLOGIST MARTY: I'm glad  
3 you asked that, Dr. Froines.

4 (Laughter.)

5 CHAIRPERSON FROINES: Something I just missed.

6 (Laughter.)

7 OEHHA SUPERVISING TOXICOLOGIST MARTY: As you're  
8 I'm sure fully aware, ARB's roles are as the risk  
9 managers. And they've focused a lot on looking at the  
10 control measures.

11 For OEHHA, we've -- both groups have duties under  
12 Senate Bill 25, which was the Children's Environmental  
13 Health Protection Act. OEHHA's major roles have involved  
14 looking at the epidemiologic and clinical studies of --  
15 clinical chamber studies of the ambient air pollutants and  
16 recommending health-based ambient air quality standards to  
17 the Board. And Bob just went through measures that the  
18 Board has taken on the ambient air quality standards.

19 We're also involved in the identification of  
20 toxic air pollutants which may disproportionately impact  
21 kids. And this is the question that Dr. Froines was  
22 bringing up. And ARB is involved in the control piece of  
23 that.

24 And then the third big thing is to look at our  
25 quantitative risk assessment methods that are used in the

1 Toxic Air Contaminant Program and in the Hot Spots Program  
2 and see whether they're adequate for really considering  
3 infants and children as much as data would allow.

4 Next slide.

5 --o0o--

6 OEHHA SUPERVISING TOXICOLOGIST MARTY: So in both  
7 recommending health-based ambient air quality standards  
8 and in evaluating the health effects of TACs, the statute  
9 actually says OEHHA shall assess exposure patterns of  
10 infants and children and whether they're different than  
11 adults, special susceptibilities of infants and children  
12 to toxic effects of chemicals, effects of co-exposures to  
13 other substances with common mechanisms of toxicity, and  
14 interaction of multiple air pollutants including criteria  
15 air pollutants and toxic air contaminants.

16 CHAIRPERSON FROINES: Melanie, I have a question  
17 about your last one, interaction. You know, there is this  
18 absolutely beautiful work by Cory Slechta in New Jersey on  
19 interactions, especially in postnatal animals showing  
20 Parkinson's development. And it's a long discussion. But  
21 can -- that data is so really interesting. But my  
22 recollection is that you can't do -- within SB 25 you  
23 can't do pesticides?

24 OEHHA SUPERVISING TOXICOLOGIST MARTY: That's  
25 correct.

1           CHAIRPERSON FROINES: Because the data that she  
2 shows would make you leap to include them.

3           OEHHA SUPERVISING TOXICOLOGIST MARTY: Yes,  
4 unfortunately it was restricted to everything but  
5 pesticides in their pesticidal use.

6           CHAIRPERSON FROINES: It's really too bad,  
7 because it's -- have you seen her work on Parkinson's  
8 Disease?

9           OEHHA SUPERVISING TOXICOLOGIST MARTY: Yes.

10          CHAIRPERSON FROINES: Yeah, it's really quite  
11 striking. I think it's -- I've heard her speak a couple  
12 times, and it's really interesting science.

13          OEHHA SUPERVISING TOXICOLOGIST MARTY: I can say  
14 that we have relatively little data on those last two  
15 bullets.

16                               --o0o--

17          OEHHA SUPERVISING TOXICOLOGIST MARTY: So Bob  
18 just mentioned that there were five TACs identified. And  
19 this Panel was the review panel for the process.

20          Next slide.

21                               --o0o--

22          OEHHA SUPERVISING TOXICOLOGIST MARTY: The  
23 requirements of SB 25 pertaining to us are to actually  
24 evaluate 15 TACs per year -- these are already identified  
25 TACs -- and provide health values protective of infants

1 and children.

2 We don't have the funding level that we need to  
3 do that. But we are proceeding on. So we are behind  
4 actually by about a year and a half in this process.

5 But this requirement triggered us to look at our  
6 risk assessment methodologies and say: Are we really  
7 doing what we can do? Are we really considering all of  
8 the differences in exposure and susceptibility to  
9 toxicants?

10 Then based on the evaluations of these TACs and  
11 after review by this Panel, we will update the list of  
12 TACs that disproportionately impact kids. So that is  
13 something that's coming down the line.

14 --o0o--

15 OEHHA SUPERVISING TOXICOLOGIST MARTY: In --

16 CHAIRPERSON FROINES: I don't understand. You  
17 said you don't have the funds to do it, but they are  
18 coming down the line?

19 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yeah.

20 CHAIRPERSON FROINES: Well, how -- can you  
21 resolve that apparent contradiction?

22 OEHHA SUPERVISING TOXICOLOGIST MARTY: Well,  
23 we -- in the budget cuts of --

24 PANEL MEMBER GLANTZ: The check is in the mail.

25 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yeah, the

1 check's in the mail.

2 No, we lost most of the funding related to  
3 children's health in -- what budget year that was? --  
4 '02-'03, I think it was. But we're continuing to do the  
5 work with the staff that we have. It's just going a lot  
6 more slowly than we would like. That is one of the  
7 reasons.

8 CHAIRPERSON FROINES: Well, strategically in some  
9 ways to keep doing the work without the money means that  
10 somebody is going to say that you can do the work without  
11 the money. And so that you -- that may be something you  
12 need to think about, how to -- so you don't end up  
13 getting -- losing as a result of working beyond, you know,  
14 your means.

15 Do You know what I'm saying?

16 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yes, I  
17 know exactly what you're saying.

18 CHAIRPERSON FROINES: It would be better almost  
19 to not do it and have somebody in the Legislature say you  
20 have to do it.

21 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yeah,  
22 we -- our management briefs the Legislature on where we  
23 are on things. And one of the questions that has come up  
24 is: "How come you haven't done these 15 TACs per year?  
25 Why are you guys so behind?" So --

1 CHAIRPERSON FROINES: Well, this is so -- it's so  
2 important, that it's just really tragic that somebody in  
3 the Legislature hasn't seen fit to --

4 OEHHA SUPERVISING TOXICOLOGIST MARTY: -- give us  
5 more money.

6 PANEL MEMBER LANDOLPH: It's the same as running  
7 a lab. I mean they say, "Can you do this?" And we say,  
8 "Give us more dollars. Otherwise go away."

9 CHAIRPERSON FROINES: Anyway, go ahead. I'm  
10 Sorry.

11 OEHHA SUPERVISING TOXICOLOGIST MARTY: So because  
12 we're trying to reevaluate these TACs, we wanted to make  
13 sure that our risk assessments under all the air programs  
14 are child protective. So we are reevaluating our methods  
15 used to derive reference exposure levels for the noncancer  
16 endpoints. In particular, we're looking at that  
17 inter-individual variability or intra-species uncertainty  
18 factor of 10, which is commonly applied. And given  
19 information that we're developing through PBBK modeling  
20 and looking in general at a broad spectrum of literature,  
21 we're trying to figure out whether that is actually  
22 adequate for chemicals when you're looking at infants and  
23 children as well and the metabolic, the kinetic  
24 differences, the dynamic differences.

25 CHAIRPERSON FROINES: I spent all day Saturday

1 with Dale Hattis. And he's working for EPA on the same --  
2 some of the same issues. So you might want to stay in  
3 contact.

4 OEHHHA SUPERVISING TOXICOLOGIST MARTY: Yeah.  
5 We're using Dale's papers.

6 PANEL MEMBER GLANTZ: I'm sure you remember the  
7 stochastic modeling exercise that this Panel reviewed,  
8 which I think I was the lead on.

9 OEHHHA SUPERVISING TOXICOLOGIST MARTY: Yes.

10 PANEL MEMBER GLANTZ: And that has a lot of  
11 information, and they're related to these issues.

12 OEHHHA SUPERVISING TOXICOLOGIST MARTY: Yes, it  
13 does. We're expanding that exposure piece as well to look  
14 more at infants. At the time we didn't -- you know, we  
15 assumed infants and three-year-olds were essentially the  
16 same, knowing that that's not true. So we're looking more  
17 carefully at water intake, inhalation rates and so on for  
18 smaller subgroups.

19 --o0o--

20 OEHHHA SUPERVISING TOXICOLOGIST MARTY: We're also  
21 looking at evaluating methods to consider age at exposure  
22 for carcinogens. There are a significant number of  
23 studies for many carcinogens showing that early life  
24 exposure is actually more important than later life  
25 exposure, and that you can get the same tumor yield for

1 short-term exposure of an infant that you can get for  
2 chronic exposure of essentially adult animals. So we're  
3 looking at that.

4 And we're also, as I mentioned, evaluating  
5 exposures assessment parameters for infants and children.

6 Next slide.

7 --o0o--

8 OEHHA SUPERVISING TOXICOLOGIST MARTY: So as far  
9 as SB 25 and this Panel, this Panel reviews the updates to  
10 the list I TACs that disproportionately impact children.  
11 This Panel reviews all new and revised reference exposure  
12 levels and unit risk factors and the risk assessment  
13 methodologies used for these quantitative risk  
14 assessments. So you will see our proposed methods for new  
15 reference exposure levels, our proposed exposure parameter  
16 changes and our proposed methods for cancer risk  
17 assessment using weighting factors for age at exposure.

18 --o0o--

19 OEHHA SUPERVISING TOXICOLOGIST MARTY: So these  
20 are the things that are just coming down the pike.

21 And next slide.

22 --o0o--

23 OEHHA SUPERVISING TOXICOLOGIST MARTY: You'll see  
24 the update of the list of TACs the disproportionately  
25 impact infants and children. And I wanted to mention

1 that, if you'll recall, there was a Tier 1, and that's the  
2 top five that made the list; and there was a Tier 2.  
3 We're starting -- the Tier 2 is the starting point for the  
4 next update.

5 PANEL MEMBER GLANTZ: What's the ETS that's  
6 finished? It should be on that list too.

7 OEHHA SUPERVISING TOXICOLOGIST MARTY: Actually  
8 I'm glad you brought that up, Stan, because in the  
9 document we describe it as a TAC that disproportionately  
10 impacts kids and --

11 PANEL MEMBER GLANTZ: So it's already done, I  
12 guess.

13 OEHHA SUPERVISING TOXICOLOGIST MARTY: It's  
14 almost -- all we need to do is once -- it has to get  
15 identified as a TAC first. So if the Board identifies it  
16 as a TAC in January, then OEHHA Director writes a memo  
17 adding it to the list.

18 PANEL MEMBER GLANTZ: Oh, okay.

19 OEHHA SUPERVISING TOXICOLOGIST MARTY: So that's  
20 the procedures for that.

21 So we're trying to get these documents ready for  
22 public review for this summer. And then the SR -- by the  
23 time we get comments and reply to comments, the SRP review  
24 wouldn't be until this fall. This is a somewhat  
25 optimistic schedule, but we're really going to try to meet

1 it. And that's all I wanted to say that I --

2 CHAIRPERSON FROINES: Could you go back a second.

3 So that the methodology is what we'll be

4 reviewing, and the 15 will come later?

5 OEHHA SUPERVISING TOXICOLOGIST MARTY: We're

6 going to try to --

7 CHAIRPERSON FROINES: So you not talking about

8 the -- oh, so you are thinking of updates by this fall?

9 OEHHA SUPERVISING TOXICOLOGIST MARTY: Yes. We  
10 are thinking -- we're trying to --

11 PANEL MEMBER HAMMOND: All of them.

12 When we present the methods to you we will have

13 examples of how we used the methods, which go towards that

14 15 TACs update and also the update of the list. So that's

15 the plan right now.

16 CHAIRPERSON FROINES: Do you think -- and this is

17 speculative again. Do you think that there is sufficient

18 literature at this point over what we saw a few years ago

19 to really be able to make those decisions? Because part

20 of the problem when we did it the first time was the

21 thinness of the data we had to review.

22 OEHHA SUPERVISING TOXICOLOGIST MARTY: There's --

23 yes, there is more literature now. I think part of the

24 constraint with the -- and I'm talking about the list now.

25 Are you talking about the list, the list of TACs?

1           CHAIRPERSON FROINES: Yeah.

2           OEHHA SUPERVISING TOXICOLOGIST MARTY: Part of  
3 the constraint we had is we could initially only put five  
4 chemicals on the list, which meant that there was a lot of  
5 argument over which five were the worst. We are not  
6 constrained by the number 5 now. There is no constraint.  
7 So to us that says, okay, then we can really focus on  
8 these other chemicals that we know are present in air or  
9 emitted in California. Then we have these data indicating  
10 that they are worse actors for young people. So we -- and  
11 already that Tier 2 list I think was at least 12 chemicals  
12 long, if not more. Maybe 17. Those two numbers are  
13 popping in my head. It's quite long. So we do  
14 have already sufficient data for those. And on top of  
15 that there's been even further study of those compounds  
16 that will help us generate some reference exposure levels.

17           CHAIRPERSON FROINES: So I guess what I'm saying  
18 is my view was that the data was extremely thin the first  
19 go-around. You're saying it has improved in the --

20           OEHHA SUPERVISING TOXICOLOGIST MARTY: It has  
21 improved.

22           CHAIRPERSON FROINES: I mean I --

23           OEHHA SUPERVISING TOXICOLOGIST MARTY: It has  
24 improved. And our analyses of what are the factors that  
25 make things worse off for children has also improved.

1           CHAIRPERSON FROINES: Well, that will be an  
2 extremely important document to review as a matter of  
3 science. So that will be a pretty in-depth discussion as  
4 to what criteria. Because there's a lot of almost  
5 rhetorical statements about why kids are more at risk that  
6 sometimes activist groups use. And so to tie the science  
7 down would be very useful.

8           OEHHA SUPERVISING TOXICOLOGIST MARTY: Right.

9           You know, where you actually have toxicological  
10 data showing that, that's the data you used -- you use to  
11 generate your risk estimates. But what we're looking for  
12 is not only that, but also any other overarching factors  
13 that could be considered, like PBBK modeling, for example,  
14 to look at whether there is a difference in kinetics in  
15 infants and children versus adults, and whether we can use  
16 that in risk assessment or that information to generate  
17 default values where the information doesn't exist for a  
18 specific chemical, which is most of the time.

19          CHAIRPERSON FROINES: For example, for arsenic,  
20 you know, there's this Michael Wachs work where he shows  
21 in utero exposure leads to cancer in adults.

22          So are you going to -- are you going to, for  
23 example, include in utero or postnatal exposures that lead  
24 to disease in adulthood as an example of susceptibility of  
25 children? Because that would seem logical.

1           OEHHA SUPERVISING TOXICOLOGIST MARTY: Yes, yes.  
2 And, in fact, when we talk about early life exposure  
3 resulting in the higher potency, we really aren't talking  
4 about childhood cancers. We're talking about adulthood  
5 cancers.

6           CHAIRPERSON FROINES: I think this whole notion  
7 of the in utero exposure in the long-term health effects  
8 is really so crucial; that the more we can weigh in on  
9 that with the literature, the better I think we'll be.  
10 Because it's clearly understudied.

11          OEHHA SUPERVISING TOXICOLOGIST MARTY: Yes, very  
12 understudied.

13          CHAIRPERSON FROINES: But I think it -- I think  
14 it's going to be crucial in terms of understanding why  
15 people become ill and why they're susceptible.

16          OEHHA SUPERVISING TOXICOLOGIST MARTY: So we  
17 did -- you know, the purpose of this update was to give  
18 you a heads-up that this material is coming down the pike,  
19 it's going to require your review and it's complicated.

20          CHAIRPERSON FROINES: Does this -- to the degree  
21 that new risk assessments are developed as part of this,  
22 does that automatically -- I guess this is for Janette --  
23 does that automatically -- or Bob -- does this  
24 automatically lead to a new unit risk value for a TAC if  
25 the compound's a TAC? In other words is there a foldover

1 in to the TAC program?

2 OEHHA SUPERVISING TOXICOLOGIST MARTY: The  
3 foldover is actually -- once something gets on a list --  
4 on the list of TACs that disproportionately impact  
5 children, ARB has a trigger to look at either the need for  
6 an airborne toxic control measure if one doesn't exist or  
7 reevaluating the existing airborne toxic control measure.  
8 The statute limits them to having to only look at up to  
9 five over a three-year period, I think it is. So, yes, it  
10 does. It triggers that.

11 If we --

12 CHAIRPERSON FROINES: But we don't have to  
13 take -- we have to do the risk assessment again because  
14 it's going to become a TAC risk assessment?

15 OEHHA SUPERVISING TOXICOLOGIST MARTY: Right.

16 CHAIRPERSON FROINES: It's grandfathered in?

17 OEHHA SUPERVISING TOXICOLOGIST MARTY: These are  
18 all already identified toxic air contaminants, because the  
19 SB 25 statute only applied to looking at the list of TACs.

20 CHAIRPERSON FROINES: Oh, that's right, that's  
21 right.

22 ARB AIR QUALITY MEASURES BRANCH CHIEF BROOKS:

23 The listing is -- this is Janette Brooks. The  
24 listing is actually the compound -- the chemical compound  
25 itself, not the unit risk number or the REL. And that's

1 why Melanie can update the unit risk numbers as she goes  
2 and the RELs as she goes.

3 CHAIRPERSON FROINES: That's Janette Brooks?

4 How did you know that?

5 THE REPORTER: I knew who it was already.

6 ARB AIR QUALITY MEASURES BRANCH CHIEF BROOKS: I  
7 identified myself.

8 CHAIRPERSON FROINES: No, I didn't hear you.

9 That was a pretty good trick.

10 This is really going to be important and really  
11 terrific. I'm sorry more people weren't here to hear the  
12 rest of it. But what we can do is to Xerox a transcript  
13 and send it to the people who aren't here.

14 PANEL MEMBER HAMMOND: Well, they get the  
15 transcript -- we all get the transcript anyway.

16 CHAIRPERSON FROINES: Well, but I was thinking  
17 that on this thing we might mark it or something.

18 MR. MATHEWS: We could single it out.

19 PANEL MEMBER HAMMOND: Put a note on it.

20 CHAIRPERSON FROINES: Yeah.

21 PANEL MEMBER GLANTZ: I think rather than doing  
22 that, if you want, I think a memo, because I think the  
23 salient points could be put on a couple of pages, whereas  
24 a transcript will go on and on.

25 OEHHA SUPERVISING TOXICOLOGIST MARTY: Well, I

1 can --

2 CHAIRPERSON FROINES: Well, Peter, you should  
3 send the slides to the people who didn't --

4 PANEL MEMBER GLANTZ: Yeah, the slides pretty  
5 much do it.

6 MR. MATHEWS: We'll incorporate all that.

7 CHAIRPERSON FROINES: Well, it's dark and very  
8 quiet here, so why don't we -- can I have a motion to --  
9 we don't have a quorum, so I don't know if we need a  
10 motion. But let's have a motion anyway.

11 PANEL MEMBER GLANTZ: So moved.

12 CHAIRPERSON FROINES: Well, make the motion.

13 PANEL MEMBER GLANTZ: I move that we adjourn and  
14 turn the lights on.

15 CHAIRPERSON FROINES: Can we have a second?

16 PANEL MEMBER HAMMOND: Second.

17 CHAIRPERSON FROINES: All in favor?

18 (Ayes.)

19 CHAIRPERSON FROINES: Unanimous.

20 Thank you.

21 (Thereupon the California Air Resources  
22 Board, Scientific Review Panel adjourned  
23 at 2:40 p.m.)

24

25

## 1 CERTIFICATE OF REPORTER

2 I, JAMES F. PETERS, a Certified Shorthand  
3 Reporter of the State of California, and Registered  
4 Professional Reporter, do hereby certify:

5 That I am a disinterested person herein; that the  
6 foregoing California Air Resources Board, Scientific  
7 Review Panel meeting was reported in shorthand by me,  
8 James F. Peters, a Certified Shorthand Reporter of the  
9 State of California, and thereafter transcribed into  
10 typewriting.

11 I further certify that I am not of counsel or  
12 attorney for any of the parties to said meeting nor in any  
13 way interested in the outcome of said meeting.

14 IN WITNESS WHEREOF, I have hereunto set my hand  
15 this 4th day of January, 2006.

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24 Certified Shorthand Reporter  
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