

MEETING
STATE OF CALIFORNIA
AIR RESOURCES BOARD
AIR QUALITY ADVISORY COMMITTEE

SOUTH SAN FRANCISCO CONFERENCE CENTER
255 S. AIRPORT BOULEVARD
SOUTH SAN FRANCISCO, CALIFORNIA

TUESDAY, JUNE 13, 2006

9:15 A.M.

JAMES F. PETERS, CSR, RPR
CERTIFIED SHORTHAND REPORTER
LICENSE NUMBER 10063

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Dr. Bart Ostro, Supervisor, Air Toxicology and
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APPEARANCES CONTINUED

ALSO PRESENT

Francesco Forastiere, M.D., Ph.D

Patrick Temple, Ph.D

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INDEX

	PAGE
Oral Public Comments	1
Summary of Written Comments	3
Presentation of AQAC Findings on the Scientific Basis for Recommendations	20
Conclusion and Closing Statements	30
Adjournment	34
Reporter's Certificate	35

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1 PROCEEDINGS

2 CHAIRPERSON KLEINMAN: Okay. I think we're all
3 assembled. I want to call this meeting to order.

4 And I'm going to turn it over to Richard Bode who
5 discussed what's happening now.

6 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF
7 BODE: Good morning. Going to start off the second day.
8 This is our time to open the floor for oral comments. And
9 I think we've had one person who signed up. And so what
10 our plan is right now, we'll have the oral public comment.
11 And then right now we're going to break. But I think if
12 we've got one person, we might want to move right into the
13 responses to the written and oral comments after that.

14 So with that, Steve Arita from Western States
15 Petroleum Association.

16 MR. ARITA: Thank you, Richard.

17 For the record, my name is Steven Arita. I'm with the
18 Western States Petroleum Association. First of all, I'd
19 just like to start off by saying I appreciate the fact by
20 the time you started I thought I was late.

21 As Richard indicated, we have submitted written
22 comments, and I believe you all have copies of our
23 comments. And so I won't really go through any real
24 detail on them. Really what I would like to just do
25 briefly this morning is just highlight really two issues

1 that we raised in our comments that we look forward very
2 much to looking at what your responses are going to be.

3 Basically the two issues we raised really dealt
4 with how OEHHA was reviewing and looking at some of the
5 studies that they referenced into their report. One issue
6 that we had concerns about, and again we raised in our
7 comment letters, is that some of the studies that were
8 done they did find -- one example that we cited was a
9 study done by Jrres, reported an impact as a result of
10 exposure to NO2. But looking at the other studies, it
11 showed that it didn't -- the researcher wasn't able to
12 duplicate the results subsequently when they redid the
13 study a year later. So, again, we raise that in our
14 comments.

15 And, you know, our concern obviously is that when
16 you decide on making recommendations for modifying air
17 quality attainment standards, that it's based on good
18 science.

19 Secondly, based on our review, appears that OEHHA
20 relied heavily on a study done by Barck in 2005, which
21 they use as a basis for revising the 1-hour standard.
22 Based, again, on our review it appears that the study
23 showed that there were no real adverse health effects.
24 But it appeared that OEHHA looked at some of the blood
25 markers rather than really looking at health impacts or

1 adverse effects that actually occurred.

2 So it really raises the question on what basis
3 are we going to be determining, you know, revising
4 health -- air quality standards? Is it going to be really
5 based on adverse health impact or is it going to be on
6 something else like subclinical effects.

7 So, again, we highlighted those comments in our
8 comment letter. You have them before you. And we would
9 hope that you could look at them, review them carefully.
10 And we look forward to hearing what your thoughts are.

11 Thank you.

12 CHAIRPERSON KLEINMAN: Thank you.

13 If there are no other -- are there any other
14 public comments?

15 If not, then I'm going to turn over the floor to
16 Bart to reply.

17 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION

18 SUPERVISOR OSTRO: Does the AQAC members have written
19 copies -- hard copies of the comments?

20 (Thereupon an overhead presentation was
21 Presented as follows.)

22 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION

23 SUPERVISOR OSTRO: So we've responded in some detail. And
24 you can read along with me with our summary of the
25 comments that we've received and the responses.

1 studies were positive makes it extremely unlikely that
2 these findings were due to chance. And when we factor in
3 the tox studies and some of the epi studies, it also lends
4 some support to the fact that we would see this increased
5 reactivity.

6 Now, there were differences in the subjects
7 selected for the studies. And that might be a potential
8 reason for negative findings. I indicated that there's
9 different protocols, a lot of different individual
10 variability and response. And it is a very -- relatively
11 small response at the group mean level.

12 We also have information that there are a subset
13 of what we might call responders that the individual
14 studies indicated. And that finding was supported by the
15 pooled analysis by Folinsbee.

16 And taken together, we think that there is fairly
17 clear evidence that .2 to .3, and potentially lower,
18 asthmatics appear sensitive to NO2. And we remind the
19 commenter that the health standards are set to protect the
20 most vulnerable population.

21 --o0o--

22 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION
23 SUPERVISOR OSTRO: Comment 2 was at OEHHA relied heavily
24 on the Barck 2005 paper. Symptoms and pulmonary function
25 were not statistically significant or different relative

1 them forward into the staff report so it's very clear the
2 levels that we're talking about as we discuss the allergic
3 animal models in the tox section, which again we think are
4 quite supportive of the human evidence.

5 --o0o--

6 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION
7 SUPERVISOR OSTRO: On to the epi studies. There was a
8 comment that several factors limit the interpretation of
9 the epidemiologic association of NO2 and health effects.
10 And there was three issues that were indicated:
11 Publication bias, model selection, uncertainty in
12 biological impossibility.

13 So first the publication bias. That would come
14 up if only people finding positive NO2 results in, say,
15 these time series studies. Since there's so many of them,
16 we could focus on those or on the asthma emergency room
17 visits and hospital studies. If only those people who
18 found positive effects publish them, and then people who
19 didn't would not publish them.

20 And we just remind the commenters that in fact
21 most of the studies, as I mentioned yesterday, the time
22 series and mortality studies and a lot of the hospital
23 admission and ER visit studies and even the arrhythmia
24 studies start out really as PM-focused studies. And
25 usually NO2 is brought in to see if the particle effects

1 are significant or maintain significance.

2 And if that's the case, these papers are
3 published really independent of the NO2 findings. They're
4 really principally particle studies. And they wouldn't be
5 biased, publishing based on the NO2 results. So the
6 argument might work a little better for the particle
7 results. But the use of a lot of multi-city studies for
8 particles and now for NO2 really reduces that claim. I've
9 indicated yesterday that there are five or six, and
10 probably more now, multi-city studies that look at the
11 effects of particles and NO2. So it would be very
12 difficult to claim publication bias in these multi-city
13 studies. We tend not to rely on single estimate, single
14 site analyses, although we don't ignore those studies.
15 But we are supported by multiple findings across many
16 cities.

17 So I think that deals with the publication bias.
18 We don't think it's really a major issue regarding NO2.

19 Regarding model selection, model selection was
20 shown in the HEI reanalysis. And specifically here we're
21 talking about smoothing techniques that are used to
22 control for time and season effects in these time series
23 studies. And in the very large reanalysis that was
24 conducted and published by HEI in 2003 where many of us
25 reanalyzed our time series studies to incorporate many

1 different alternative analyses in the specification, the
2 general findings that HEI reported was that there was very
3 little effect to the overall estimates. So it's unlikely
4 that -- even though NO2 was not as carefully examined in
5 this HEI reanalysis, it's extremely unlikely that you'd
6 find differences with NO2 relative to the results of
7 particles in ozone.

8 So we really don't think that the model selection
9 criteria in the use of alternative smoothing techniques
10 really have much of a role here.

11 They also cite a study by Koop and Tole, if I'm
12 not mistaken, two British economists, who conducted a
13 Bayesian averaging technique for one city, Toronto, where
14 they -- the models basically assume we know nothing about
15 the effects of air pollution, temperature, humidity, day
16 of week, anything on mortality. And basically everything
17 is thrown into the model, lots of different -- every
18 single possible variation, including putting barometric
19 pressure, wind and other things that actually cause
20 different air pollution concentrations, these things are
21 also put in the model even if they might be in the causal
22 pathway, which is a little bit problematic. So it's
23 assuming there's no prior information. It's a very naive
24 model. And when you do a every possible combination, of
25 course the confidence intervals become much wider. So in

1 their finding in their one study they said, well, the
2 uncertainty was larger than what was indicated.

3 There was also an inference that this was the
4 type of analysis that was recommended by HEI. And, in
5 fact, this analysis was not recommended by HEI. It wasn't
6 unrecommended or disabused, but it was not what was
7 recommended by HEI. HEI basically recommended -- actually
8 EPA recommended that different smoothing techniques using
9 penalized spline and natural spline models and different
10 degrees of freedom in the smooths, which affect the
11 tightness of the smooths in these time series models, that
12 the desensitivity analysis was conducted around the
13 different types of assumptions in the smooths. It didn't
14 explicitly say that this one technique should be used.

15 I mean some people have looked at it and found
16 different results than what Koop and Tole have shown. But
17 we think that given that there's been hundreds of studies
18 now, time series studies on mortality and morbidity, we do
19 have some prior information on what types of models make
20 sense, what types of variables should be in the model. So
21 we're not totally naive about the specification.

22 We agree that uncertainties are always going to
23 remain, not just regarding NO2 but regarding any of the
24 epidemiology that we do. And I think in the chapter I
25 think there was already comments indicating that -- by

1 AQAC members that they thought that we did discuss the
2 uncertainties in the models and issues of measurement and
3 co-variation between NO2 adequately. So I think we've
4 taken care of the issue of model selection.

5 --o0o--

6 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION
7 SUPERVISOR OSTRO: Finally there was a question of
8 biological impossibility. The suggestion was that in the
9 NMMAPS, and I think there's a bunch of figures that are
10 provided in the NMMAPS, you have some positive
11 coefficients and some negative coefficients for the
12 different cities. And that's true whether you look at
13 particle, whether you look at ozone or you look at NO2.

14 And our response to that is that I don't think
15 that means biological impossibility. It means random
16 variation in your estimates, which is what you expect in
17 this type of analysis. We are talking about relatively
18 small relative risks. Of course when you multiply these
19 relatively small relative risks by millions of people, you
20 end up getting large effects. But the risks per se are
21 small. We're talking about mortality and hospitalization,
22 so we would expect the risks to be relatively small. And
23 also that there's an acknowledgement that NMMAPS took a
24 very -- NMMAPS I should indicate is a National Mortality
25 and Morbidity Air Pollution Study conducted out of --

1 funded by HEI and conducted primarily by Johns Hopkins and
2 Harvard.

3 That NMMAPS took a relatively conservative
4 approach. Their charge was more to see if there was an
5 air pollution effect than really to get a best estimate of
6 what that effect was. So in their approach most of us in
7 the field have indicated that -- publicly that their
8 approach was a rather restrictive one. They put a lot of
9 variables in there. And they really wanted to make sure
10 that they didn't have any false positive findings. So as
11 a consequence their risk estimates tend to be lower than
12 those of other people. And as expected, they have fewer
13 statistically significant associations across the cities.

14 The reliance on a reject or accept based purely
15 on a P value of .05 or statistical significance is
16 unwarranted. In fact, in the Journal of Epidemiology
17 you're not even allowed to mention P values. So that's
18 really not an appropriate criteria for determining whether
19 you should be concerned about something or not.

20 And, finally, I would say that we would expect
21 heterogeneity in the estimates because of different
22 factors that occur in the different cities, whether it be
23 where the monitors are located or characteristics relating
24 to housing or characteristics relating to the population
25 itself. So we do expect a lot of heterogeneity or

1 relating to the -- in the case of particles, relating to
2 the species that we're talking about. So we do expect
3 heterogeneity. And most of us are not particularly
4 concerned about the fact that you see some positive and
5 some negative associations. And that's one of the reasons
6 why you do the meta analysis, to try to get the feeling
7 for what the overall results look like.

8 --o0o--

9 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION
10 SUPERVISOR OSTRO: Okay. Then there's another comment
11 that we've overstated the confidence of our associations
12 ever associations give ten many qualifications an our
13 document little confidence can be held to justify the
14 proposed standards, and that the studies are contradictory
15 and inconsistent.

16 So we have tried to indicate the full range of
17 study findings, both in the document and in my
18 presentation yesterday. I certainly indicated that --
19 regarding the clinical studies, often findings are not
20 replicated; and regarding the epi studies, there's
21 certainly a lot of negative studies. So we've tried to
22 indicate the full range of study findings, both in the
23 written and in our oral presentation, in those studies.

24 And while some factors may lead to false
25 positives; for example, if NO2 is correlated with

1 something else that may be toxic while NO2 is not toxic,
2 as an example, that could lead to a false positive result.
3 Some factors could lead to false negatives, that is, the
4 lack of finding of an NO2 result.

5 And in the epi studies it could be the
6 measurement error of NO2. We know that there's
7 significant measurement error relating to the NO2
8 monitors, that they might not be in an appropriate
9 location; that NO2 doesn't penetrate that well indoors so
10 there's going to be significant measurement error, which
11 actually would reduce the likelihood of finding an NO2
12 effect even if it existed. And we also have indicated the
13 limits of the clinical studies, that we're not looking at
14 the more adverse cases, the more severe asthmatics, for
15 example. And so it's possible that that would lead to
16 false negatives.

17 So overall we think that while the existing
18 studies are not totally consistent, our review of the
19 chamber studies, the toxicology and the epidemiology do
20 suggest support for an overall effect of NO2 on asthmatics
21 and maybe other individuals as well when the evidence is
22 taken together.

23 So we believe that overall we have enough of a
24 consistent and coherent picture to require a lowering of
25 the standard.

1 --o0o--

2 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION

3 SUPERVISOR OSTRO: I think I'm saying the same thing here.

4 We can't ignore the evidence that we have to date. I

5 don't think there's anything else. Just the final

6 conclusion is that -- the last sentence, that our

7 recommendations represent we think a reasonable and

8 responsible public health policy based on the current

9 evidence.

10 And that ends my responses to comments.

11 ADVISORY COMMITTEE MEMBER SHEPPARD: Bart, just

12 for the record, I think you were referring to Table 6-4,

13 not 6-6 for the --

14 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION

15 SUPERVISOR OSTRO: On the chamber study?

16 ADVISORY COMMITTEE MEMBER SHEPPARD: The

17 interaction between allergen and child is -- I think

18 it's --

19 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION

20 SUPERVISOR OSTRO: Oh, okay. We'll make that correction

21 for the record. Thanks.

22 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF

23 BODE: And then, Mike, let me just add. There were two

24 comments in the -- one of the comments by the Alliance of

25 Automobile Manufacturers and Engine Manufacturers

1 Association, had two comments that related to the Air
2 Resources Board that I would just kind of speak to very
3 quickly.

4 One just mentioned that in the staff report,
5 Section 9, they wanted -- that to include information that
6 would present additional information on the distribution
7 of ambient levels of NO2 from evaluating health effects.
8 And that data is in the technical support document, it's
9 just not in the staff report. So we'll make a -- we can
10 make an indication there where to find it in the technical
11 support document.

12 And then later on -- this is on actually page 13
13 of that same comment letter -- it mentioned that the staff
14 should consider a .18 ppm standard with a more robust
15 statistic such as a 95 percentile rather than the
16 not-to-exceed. And that's more of the area-designation
17 process rather than the standard-setting process. So we
18 wouldn't include that.

19 CHAIRPERSON KLEINMAN: Great.

20 In the comments from the -- I guess it's the
21 Alliance of Automobile Manufacturers, one of the comments
22 that related to the toxicology studies and suggested that
23 the sections be rewritten to include information on doses.
24 And that's actually consistent with what we spoke about
25 yesterday, that we should take into account those

1 dosimetry. And I think that, you know, doing that will
2 allow, you know, you to actually make more use of that
3 toxicologic data.

4 Does anybody else on the Committee have comments
5 about the responses to the public comments?

6 Thanks, Bart. I think you really did address the
7 points on, you know, a point-by-point basis and it's very
8 helpful.

9 One thing that might be helpful -- and I'm not
10 sure whether it's possible or not. But would it make
11 sense to highlight in the tables those studies that you
12 actually consider in formulating the recommended
13 standards? So that, you know, it -- you state which one's
14 you're using in the text. But I'm thinking at the same
15 time if you flagged them in the table, it might make it
16 easier for people to actually see how much of the
17 information is being used. And, in fact, you know, might
18 make it less likely for people to think that this is just
19 sort of, you know, overly cherry-picking.

20 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION
21 SUPERVISOR OSTRO: Well, I think -- as we indicated, we're
22 going to -- we will be rewriting the recommendations
23 chapter and probably some of the other chapters -- I mean,
24 yes, we will be rewriting some of the other chapters as
25 well to really try to put together more of a coherent

1 picture of the different types of studies and the
2 findings. So I think within that we'll certainly
3 highlight in the text the studies.

4 And regarding the table I've presented with all
5 the studies, I mean in a way we're using all of those --
6 all of that information. I don't know if there's a subset
7 within those studies that I could say we're clearly using
8 and ignoring the others. I think we're trying to look at
9 the entire weight of evidence.

10 I mean we might say that some of the studies are
11 a little bit more relevant for the U.S. or for California
12 or better conducted or something like that. I don't know.
13 I'll have to think about that. I'll take that comment
14 under advisement and see how we can -- if we can focus
15 that figure a little bit better.

16 CHAIRPERSON KLEINMAN: Great.

17 Well, since we're sort of ahead of our schedule,
18 like starting late -- Richard, did you have something you
19 wanted to remark on or --

20 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF
21 BODE: Well, I was just going to ask if you'd -- you know,
22 you're right, we're ahead of schedule now, so I think we
23 probably don't need a break so soon, which was on the
24 schedule. So I think this is time -- if you're done with
25 the discussion of comments, I guess it's the time for you

1 to go over your presentation of AQAC findings.

2 CHAIRPERSON KLEINMAN: Okay.

3 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF

4 BODE: And I guess my only introduction was is just to
5 explain kind of a charge to the Committee of -- you know,
6 we've been -- we sent a document to you. It contains
7 findings by the staff, include both ARB and OEHHA, and
8 recommendations that OEHHA's made to revise that standard.
9 And kind of your charge is to tell us whether that
10 document is fully supported, whether it's clear as to how
11 they got to that recommendation.

12 CHAIRPERSON KLEINMAN: Okay. What I think is the
13 easiest is for me to just plug my computer into the input
14 to this thing.

15 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF

16 BODE: Okay.

17 CHAIRPERSON KLEINMAN: Okay, thank you.

18 Technical marvels. If we can bring the lights down.

19 Great.

20 (Thereupon an overhead presentation was

21 Presented as follows.)

22 CHAIRPERSON KLEINMAN: The Air Quality Advisory
23 Committee is charged with providing a peer review of the
24 technical support document and the staff report.

25 --o0o--

1 CHAIRPERSON KLEINMAN: So a little bit of
2 background. The Children's Environmental Health Act had
3 required the State ARB and OEHHA to review all of the
4 health-based ambient air quality standards, and from the
5 standpoint of providing adequate protection to susceptible
6 populations, especially children and infants. The goal
7 was to make sure that the standards provided an adequate
8 margin of safety. And in the process the Committee
9 prioritized these various standards for criteria
10 pollutants that would receive a full review.

11 --o0o--

12 CHAIRPERSON KLEINMAN: In terms of health
13 protectiveness, the data were examined to determine the
14 extent to which the evidence on effects at or near the
15 existing ambient air quality standards were or were not
16 adequately protective.

17 The Committee reviewed the nature and severity of
18 effects, the magnitude of risk, and also specifically
19 looked to see if there was evidence that children were
20 more susceptible than adults.

21 --o0o--

22 CHAIRPERSON KLEINMAN: The review indicated based
23 on the clinical and epidemiological studies that effects
24 of NO2 on pulmonary function, asthma exacerbation and also
25 acute morbidity in children and adults at or below the

1 1-hour standard made it necessary to do a thorough review
2 of the effects. But it was set at a lower priority than
3 that for PM or ozone. And those reviews have now been
4 completed. And NO2 was -- you know, reached the priority
5 stage. And the issue is whether the current standard
6 provides adequate margin of safety and whether a different
7 averaging time for the standard was warranted, or both of
8 those things.

9 --o0o--

10 CHAIRPERSON KLEINMAN: The technical support
11 document that's been prepared has been, you know,
12 carefully reviewed. And the Committee feels that the
13 literature was adequately reviewed, that the information
14 was interpreted appropriately and integrated into the
15 staff report, by and large, you know, very effectively.

16 It looked at the potential for exposures, it
17 looked at the individuals at risk, and recommendations for
18 health protective standards were made.

19 --o0o--

20 CHAIRPERSON KLEINMAN: The Air Quality Advisory
21 Committee is an independent committee. It does not --
22 it's appointed by the Office of the President of the
23 University of California. It is not appointed by either
24 ARB or OEHHA. The members are selected to provide a range
25 of expertises, and each candidate went through a rather

1 exhaustive interrogation on paper about potential
2 conflicts of interest before taking part in this
3 committee.

4 --o0o--

5 CHAIRPERSON KLEINMAN: The Committee's expertise
6 includes exposure assessment and monitoring; field of
7 medicine, especially pulmonary and pediatric medicine;
8 epidemiology; health effects, toxicology, studies of
9 mechanism or individuals who study biological mechanisms;
10 and economics and health benefits analysis. So it's a
11 pretty broadly based committee and capable of really
12 reviewing the various nuances of the ambient air quality
13 standards.

14 --o0o--

15 CHAIRPERSON KLEINMAN: So were the key studies
16 evaluated? I think that the Committee's unanimous in
17 saying that the review was quite comprehensive. However,
18 it wasn't -- no review is fully inclusive, and the
19 Committee did feel that there were some additional studies
20 that could be included to improve the quality of the
21 report. And specific recommendations on that and various
22 formatting and specific issues are provided -- or will be
23 provided in writing in a -- you know, on a
24 chapter-by-chapter basis.

25 Overall though the modifications that the

1 Committee's proposing supports the general conclusions
2 reached in the staff report, but is requesting some
3 additional justification of methodology used in selecting
4 the actual level of the short-term standard.

5 --o0o--

6 CHAIRPERSON KLEINMAN: With respect to
7 susceptible populations, which is one of the important
8 charges for this Committee, we feel that the report did
9 review the relevant literature and was fairly careful in
10 defining that, you know, NO2 effects were probably not a
11 problem for healthy individuals at concentrations -- or
12 ambient concentrations that we consider potentially
13 worst-case situations.

14 Individuals with airway allergies and asthma are
15 probably among the most sensitive populations. And
16 rightfully the documents address the effects of NO2 on
17 that population.

18 Individuals with COPD and cardiovascular diseases
19 were evaluated to the extent that they could be. There
20 are suggestive data produced or presented. But
21 unfortunately there really aren't enough studies and the
22 studies that exist really have relatively small
23 populations -- small numbers of subjects. And so it's
24 difficult to use those particular data as other than
25 supporting information. And I think that's how the

1 response curve down further.

2 Also, the effects of peak exposures are really
3 not well established, and more research on that area needs
4 to be done. And as mentioned before, there are just too
5 few studies to really evaluate exposure response
6 relationships for in-utero or neonatal exposures.

7 --o0o--

8 CHAIRPERSON KLEINMAN: So certainly future
9 research should involve better understanding of personal
10 exposures and the relationship of NO2 to the other oxidant
11 gases.

12 In terms of health, the susceptible populations,
13 again the in-utero, premature newborns, infants, early
14 childhood states and adolescent states. We really do need
15 more research on those groups to determine their
16 sensitivity.

17 More research on developing new biological
18 response indicators, bio-markers, and extending studies
19 more into the cardiovascular in addition to the pulmonary
20 endpoints, especially for people who have a preexisting
21 heart disease. And I believe that there's becoming more
22 and more apparent the role of diabetes as a modifier of
23 sensitivity to various pollutants.

24 --o0o--

25 CHAIRPERSON KLEINMAN: So the big moment, the

1 actual recommendations. The Committee definitely endorses
2 the recommendations for the long-term standard. The
3 annual average NO2 concentration at 30 parts -- .030 parts
4 per million, not to be exceeded. We also endorse
5 reduction of a 1-hour standard to a level below the
6 current .25 ppm NO2.

7 The staff report recommends .18 1- hour average
8 standard, not to be exceeded. And the Committee would
9 request improved documentation within the report that
10 provides an adequate explanation or an explanation of, you
11 know, how that number provides the adequate margin of
12 safety for the sensitive populations. But the Committee
13 does also endorse the need for that 1-hour standard as
14 really appropriate to capture acute events.

15 The Committee would also feel more comfortable in
16 terms of margin of safety if the monitoring network could
17 be realigned to provide better spatial resolution and
18 include monitoring of the hot spot areas. Something like
19 what's being done for carbon monoxide, for example, would
20 be good.

21 And as an aside, the Committee suggests that it
22 would be less ambiguous to convert the standard to a part
23 per billion rather than a part per million term in terms
24 of rounding off numbers. It's just a lot easier for
25 people to take a whole number seriously rather than

1 looking at, you know, the third decimal place.

2 --o0o--

3 CHAIRPERSON KLEINMAN: And that's it.

4 So I think -- you know, overall the Committee
5 wants to thank the staff and the writers of the document.
6 It was a very good job, and we definitely appreciate the
7 effort that went into putting it together. And I think
8 with the minor modifications and additions -- we'll be
9 sending you specifics, including additional references to
10 include and things like that -- we think it will be a
11 report that will certainly stand up to scrutiny and is a
12 good basis for the establishment of the standards that are
13 going to be proposed.

14 So thank you.

15 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF

16 BODE: Thank you, Dr. Kleinman.

17 And I think what we'll do after we -- you're
18 going to actually prepare probably written comments based
19 on what just provided to us. And then we're going to take
20 some of the comments we received for modifications of that
21 document and staff report and technical support document.
22 And we sat down a little with -- between ARB and OEHHA,
23 and we'll make a modification to that document as well.
24 And then at some time probably forward that document back
25 to you again to review. Not so much as an open meeting

1 but as whether we met the comments.

2 CHAIRPERSON KLEINMAN: Great.

3 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF

4 BODE: And at that time if we've done that -- I don't
5 think we have a timeline yet -- we'll sit down amongst
6 ourselves and get that. Then after that time we'll
7 actually end up putting together a final staff report, and
8 that would go into a final staff report and technical
9 support document that will end up going out to the public,
10 and I'm assuming probably later this year, towards the end
11 of the year. And then that would go and be heard by our
12 full board.

13 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION

14 SUPERVISOR OSTRO: Can you bring your PowerPoint back up
15 there for a second?

16 CHAIRPERSON KLEINMAN: You want it back up?

17 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION

18 SUPERVISOR OSTRO: Yes.

19 While Dr. Kleinman is doing that, I wanted to
20 personally thank the AQAC members for their careful review
21 of the literature. I know it's not the most fun thing to
22 do go through these documents as opposed to doing your own
23 work. Likewise, it's not the most fun thing to write
24 these. But we really do appreciate your efforts on here.

25 I had a semi-administrative question and I guess

1 also a substantive question regarding this last slide.
2 Regarding the 1-hour standard improved documentation, to
3 support that there's an adequate margin of safety and
4 something about the monitoring network.

5 So we're going to go back and look at several
6 issues relating to the margin of safety including taking
7 into account a lot of the comments that we've heard
8 yesterday and today as well as issues relating to the
9 relationship between the different monitors and what kind
10 of information we can determine about protection.

11 So it is possible that as we go through the
12 literature and go through these exercises again that the
13 number could change. I can't rule that out. So my
14 question to AQAC as well as to Richard, ARB, is: What
15 would be the process for that? Would we then reconvene
16 the Committee a few months from now with another
17 recommendations chapter? Because I don't think the basic
18 other chapters we're going to change drastically where
19 we're going to be adding new studies and cleaning up the
20 writing and so on and so forth. But the biggest chapter
21 will be the recommendations chapter. And I think there's
22 a timeline as well in terms of the contracts for people --
23 a time limit that I'm a little worried about. So I'm
24 just wondering about the next step and how that whole
25 process would work.

1 ADVISORY COMMITTEE MEMBER ADAMS: I think it ends
2 July 1st.

3 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF
4 BODE: Oh, for the contracts do. Yeah, I wouldn't worry
5 about the contracts at all because --

6 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION
7 SUPERVISOR OSTRO: Don't worry about the contract at all.

8 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF
9 BODE: Yeah. As far as this review, if we needed -- when
10 we need to reconvene AQAC again we have to start up new
11 contracts. We'll start up new ones with them. So --

12 CHAIRPERSON KLEINMAN: You know, in terms of the
13 question raised, obviously it depends on, you know, how it
14 comes out. I think if you were to come back to us and
15 say, "After looking at the margin of safety, we want to go
16 up to .30 instead of .25," the Committee would certainly
17 want to, you know, look at your justification for that.
18 If you're going to come back with, "We think that we can
19 now justify a margin of safety" -- you know -- "on a
20 margin of safety basis that the standard has to be reduced
21 even beyond the .18," I think that the Committee would
22 like to see the justification. And I think that could be
23 done through e-mails, and then depending on the response
24 of the Committee, we could convene via a telephone
25 conference. I don't believe, you know, a public meeting

1 would be needed. But that would be up to the legal staff
2 as to what would -- you know, what sort of review that
3 would constitute.

4 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF
5 BODE: You know, I would say, Bart, why don't we -- after
6 we sit down and make our modifications and changes, why
7 don't we communicate through Dr. Kleinman, and then we'll
8 probably take our next step from there in deciding whether
9 it's a large enough change where we need to invite the
10 whole Committee in again or not. And then we can take
11 that and whether we want to have actually a whole meeting
12 again or whether we just want to have, you know, a
13 document that goes to everyone to circulate and provide
14 comments on. And those again could be provided to you to
15 send forward.

16 OEHHA AIR TOXICOLOGY AND EPIDEMIOLOGY SECTION
17 SUPERVISOR OSTRO: Okay. Between Michael and the lawyers
18 and everybody we can decide.

19 I know there's a precedent for KSAC meetings,
20 when they go through modifications they do have telephone
21 conference calls so that everyone doesn't have to come.
22 Although I'm sure a lot of you would like to come back to
23 the South San Francisco Convention Center. Maybe you will
24 be precluded from doing so, I'm not sure.

25 Okay. So we'll wait and see how it goes on that

1 then.

2 CHAIRPERSON KLEINMAN: Okay.

3 ARB HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF

4 BODE: Okay. I'd also like to thank the full Committee
5 for, one, taking two days out of your busy schedules to
6 come up here and help us out with this. And it's a -- we
7 really appreciate, one, you taking the time, but also the
8 expertise you all bring to this process.

9 And speaking for my board too, they greatly
10 appreciate the job this committee does and respects its
11 value very much. So thank you very much.

12 CHAIRPERSON KLEINMAN: You're welcome.

13 And I also want to thank everybody on the
14 Committee, because everybody's been very supportive and
15 very helpful. And it certainly makes my job as chairing
16 this thing a lot easier.

17 And you'll be getting my summary of what I've
18 written up by e-mail. And then as soon as we get
19 everybody's consensus on it, we'll forward it to ARB I
20 guess through Norman.

21 In that case, I think we can declare this meeting
22 adjourned.

23 (Thereupon the Air Resources Board, Air
24 Quality Advisory Committee meeting recessed
25 at 10:07 A.M.)

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, Air Quality
7 Advisory Committee meeting was reported in shorthand by
8 me, 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 28th day of June, 2006.

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