MEETING

OF THE

SCIENTIFIC REVIEW PANEL ON TOXIC AIR CONTAMINANTS

CALIFORNIA AIR RESOURCES BOARD

SOUTH SAN FRANCISCO CONFERENCE CENTER

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FRIDAY, JANUARY 12, 2001

12:00 P.M.

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APPEARANCES

MEMBERS PRESENT:

Dr. John Froines, Chairman
Dr. Paul D. Blanc
Dr. Craig Byus
Dr. Gary Friedman
Dr. Anthony Fucaloro
Dr. Stanton Glantz
Dr. Hanspeter Witschi

REPRESENTING THE CALIFORNIA AIR RESOURCES BOARD:

Mr. Lyn Baker
Ms. Janette Brooks
Mr. Bill Lockett
Mr. Peter Mathews

REPRESENTING THE OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT:

Dr. Melanie Marty

REPRESENTING THE DEPARTMENT OF PESTICIDE REGULATION:

Mr. Paul Gosselin
Dr. Bruce Johnson
Dr. Tobi Jones
Dr. John Sanders

OTHERS:

Dr. Elinor Fanning

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P R O C E E D I N G S

CHAIRMAN FROINES: We are a half an hour late, but we have a quorum, so I think we should begin. So we'll officially open the meeting.

The membership who are currently here are Dr. Friedman, Dr. Witschi, Dr. Fucaloro, Dr. Byus and myself.

And so we should proceed from here.

The first item on the agenda is the Department of Pesticide Regulation, Air Resources Board response to the panel's recommendation on air monitoring of pesticides.

And so I think we should begin with that.

I think this issue actually is going to have -- it's going to come up again when we talk about prioritization. But why don't we begin at this point.

And just to catch up the panel, we sent recommendations to Paul Helliker, who is the director of the Department of Pesticide Regulation, and Mike Kenny, the executive officer of the Air Resources Board, on January 5th, 2000.

So it's been a year with our recommendations on monitoring, and that follows from the exposure workshop that we held some time earlier. So this is the first opportunity we've had to address those issues.

And does everybody have those recommendations?

Those recommendations, I think Paul and his colleagues are going to go through.

MR. GOSSELIN: Thank you. Want me to get started?

CHAIRMAN FROINES: Yeah. I'm stalling slightly, because I really would like to have Stan and Paul here, but why don't we begin.

MR. GOSSELIN: Thank you, and happy new year.

What we're presenting today is the response to the list of recommendations that came out of the workshop from November of '99.

And as Dr. Froines mentioned, it is the discussion, the first part, on the monitoring recommendations, and how we respond to that does directly relate to the second part of the discussion on our overall prioritization on monitoring and initiating risk assessments or TAC documents.

So one of the things we've been sort of kind of thinking about is how to make this presentation and keep all these things tied together.

We do have in the presentation a sort of a step-forward process based upon the letter that was sent last January, a year ago, and responding directly to that.

But we do have some supplemental presentations that do directly relate to both issues, one on a multi-screen monitoring program that we worked on with ARB,

and also an example of the modeling approaches we've used for some fumigant pesticides as an example of that approach.

So with that, I'll turn it over to John Sanders, who is the branch chief of Environmental Monitoring and Pest Management.

We also have Lyn Baker here closely who worked very closely with us on this whole set of recommendations and our monitoring approach.

DR. SANDERS: Thank you.

We're covering four topics briefly today.

We realize that as kind of a starting point that we've been in a move situation over the last month and the holiday, and we also have phone problems, so we haven't necessarily touched base with the panel members as much as we'd like to on some of these topics, but at least we have a starting point here.

I'm going to make the presentation on our response to the recommendation on air monitoring.

Tobi Jones will do the update on prioritization.

Bruce Johnson will do an example of the computer modeling.

And then I'll come back and do a brief little bit on Lompoc as an example of multiple pesticide monitoring.

CHAIRMAN FROINES: John, question. Does that mean that you're -- that the presentation that we're about to

begin is we're combining agenda items 1 and 2?

MR. GOSSELIN: Somewhat. But we're making a natural break when we go into the prioritization, agenda item number 2. Dr. Tobi Jones will come up and go through that agenda item. So for the record there will be a break in the presentation.

CHAIRMAN FROINES: Okay. Let's just make sure that we make it clear so that we are following the agenda as it's been defined.

DR. SANDERS: Next overhead, please.

Next one, please. That's just the title.

Okay. As a little bit of background, already mentioned that the workshop was in September of '99 and that the panel did produce findings and recommendations in which these recommendation are responding to those findings and recommendations.

Question came up, I think one of the previous meetings, about what the law says about monitoring.

It's pretty brief. It says, "at the request of the director, the State Air Resources Board shall document the level of airborne emissions."

So basically we have a lot of freedom to do different things, but that's kind of the extent of what the law talks about in terms of monitoring.

Next overhead, please.

One of the recommendations of the panel was that DPR should consider basing exposure assessments for TAC listing documents on application site monitoring results only.

And our response to that is that first of all the recommendation requires reliable computer modeling. We do have extensive application site experience air modeling, particularly with for mitigation measures for some of the fumigants. We have more confidence in that type of modeling and we have a little less confidence in the ambient situation, although we have worked with registrants who have done some of that.

DPR plans to use application site data and computer modeling to estimate air concentrations.

We also plan to compare ambient monitoring to data to computer modeling estimates. So we continue, we plan to continue doing the ambient monitoring as well as the application site monitoring.

However, based on the computer models and the actual ambient data, we may supplement the monitoring data with computer modeling.

Next overhead, please.

CHAIRMAN FROINES: Can we stay with that, because I think that represents a fundamental issue of our -- in terms of our recommendation.

And the reason why it's so important is that in your -- and this takes us right into the prioritization -- it seems to me that the first question that one can ask is why.

The second question, of course, is how.

And the third is how much.

And fourth is what are the time table.

But the first question, it seems to me, is why do we do monitoring. In other words, what purpose does it serve.

Now, I'd be interested in learning in terms of the ambient monitoring what the answer to the why question is. What does it -- how does one -- one does ambient monitoring and then one has to decide what use is that data that you collect, what is its value for what purpose. Is it not something we just need to store in some computer database, it's something that presumably one would want to use in some capacity.

Now, the second, the application site monitoring, I think the why question is extremely clear, to me anyway, to me, and that is that in terms of your prioritization process you prioritize pesticides for purposes of risk assessment for subsequent designation as TACs.

So within your own document on prioritization, you define one goal is for the purpose -- one goal in dealing in

prioritization is to address the subsequent -- the risk assessment and subsequent designation of toxic air contaminant.

Okay. If one then says we are going to do a risk assessment, then the question is -- and if the designation of a toxic air contaminant is based upon a comparison between the risk and the exposure, which you've -- which is the way you approach it through the MOE, then the question comes is that exposure number becomes one of the fundamental issues in defining that risk assessment and the subsequent designation.

So that the exposure monitoring, the answer to the exposure monitoring question for the risk assessment is precisely to determine whether or not a substance should be declared a toxic air contaminant.

So that exposure number is central to the entire process, and that's where the recommendation for application site monitoring arose from, that conceptual framework. In other words, this panel thinks that we should see the worst case situation, and that should be the basis we use for designation of a compound as a toxic air contaminant.

In other words, to simply take some average ambient value is not -- doesn't fit into the use of the data in the context of risk assessment and designation as a TAC, and therefore the role of application site monitoring

presumably is to define a worst case scenario, and to then proceed on the risk assessment on that basis.

So that's really where I think we're coming from.

And I'm looking at Stan and Craig and others to see if they want to comment on this.

And so this recommendation has a deep foundation underlying it.

DR. FUCALORO: This is different, DPR works differently than ARB in the fact that it does use exposure data as part of the risk assessment. And I think that's your point in a nutshell.

But the computer modeling that you discuss here, is that a ab initio modeling, is it a semi-empirical modeling, what data goes into the modeling? Maybe I need to see what the modeling formula is.

Do you use empirical wind velocities, do you use standardization by measuring it against things you actually observed in order to fix parameters, for example?

I don't know the answer to that question, those questions.

MR. GOSSELIN: Actually we're going to have a somewhat a little bit more detailed discussion on the types of computer modeling that's done and it does utilize some default, some real weather data, some empirical data from the field.

But back to Dr. Froines' comment on this point, I tend to agree with the fact about the role of monitoring in our assessments.

I think one of the things that when we get into the prioritization scheme that is somewhat of a shift in emphasis on prioritization and getting into defining what criteria we use to initiate documents, that although monitoring data is going to be very important in our assessment, in the past I think we've all had discussions here that it seemed to overshadow or become sort of the predominant factor on whether we should move forward with either going forward with the document or once we go forward with the document whether we should list or not.

And I think we've had somewhat of a change in philosophy and emphasis of the empirical data that comes in, because I think we've seen through example that some of the documents that came forward, that empirical data that we used that became very old at the time was based upon the worst case, but as we sat here ten or more years later, did not represent the worst case.

So it really made us all struggle about here's material that has a certain tox profile and trying to factor in the exposures with the big question mark, because use practices have changed and uses have changed and there isn't data to match that.

And so that's where the application site monitoring and computer modeling is going to help establish some of that worst case scenario and allow us that if use practices do change by the time the document gets done to be able to maybe model up and project what's actually occurring now.

CHAIRMAN FROINES: I think that the issue I'm trying to raise is that one needs to establish a framework where one has some sense of the distribution of airborne concentrations, and then one seeks to use, for example, the 90th percentile within that distribution as the basis for the risk assessment and subsequent designation.

So it's really trying to answer the question how best can you do monitoring to determine a reasonable distribution of air concentrations, and then what is the policy decision that you would then make in terms of which of the percentiles. I mean you could choose the lower ten percent or the 90th percentile or the 50th percentile, and we probably would have opinions about that selection, your worst case probably would be a 90th percentile, 95th percentile value.

And so it's an issue in terms of looking at the questions scientifically in terms of variability, the distributional issues become very important, so we need to be able to develop protocols that enable us to develop those

distributional frameworks so that we can then make decisions associated with that.

Stan.

DR. GLANTZ: I missed the beginning of the discussion, and so I apologize, but when we talked about computer modeling at the meeting a few months ago, I had assumed that these models are very well developed and well validated, based on the experience that we had when we were working with ARB and the distribution of the kind of things they were regulating. I mean, I just wanted to make sure that there's nothing about pesticides or pesticidal applications that would be any different than what we dealt with before. Is there?

Let me ask it as a question, is there anything about pesticides or pesticidal applications that would be any different than the kind of models we've been used to seeing for some years that ARB has been using?

DR. SANDERS: We use similar models or the same models that they do.

DR. GLANTZ: So those are pretty well validated models too, aren't they?

MR. BAKER: Dr. Glantz, Lyn Baker, from the ARB. I'd like to respond to that also.

The models are certainly well validated from other uses, but in this type of a situation where we would be

using application site data to back-calculate an emission rate to put into that dispersion model, if we're only using one or two application site studies as the basis for that emission rate, there's tremendous uncertainty and variability in that emission rate term, which is crucial to what the model predicts.

CHAIRMAN FROINES: That's precisely my point. My point is precisely that we need to define protocols that enable us to capture the data so we can do what Stan is talking about.

DR. GLANTZ: So what you're saying, just so I can understand this, is that if you take the models we looked at before in the context of, say, a point source or something like a smokestack, you knew pretty much what the emission rate was because you could just put a sensor on the smokestack or something, whereas when you're talking about pesticides, what you know is that they put a certain number of pounds per acre on the ground or in the ground or above the ground, but you don't know how that translates into an emission rate as if that pesticide was coming out of a smokestack, which is the variable you need to stick into the model to do the calculations.

MR. GOSSELIN: Right.

DR. GLANTZ: Is that an accurate statement?

MR. GOSSELIN: That's exactly it.

The modeling we have done, we've employed the same model that the Air Board and US EPA uses, but then needed to use data to establish an emission factor, how much is the off-gassing rate, and then also factor in the size of the field.

And we'll have more detailed technical discussions on it, but I'll tinker with the model to establish that field size almost as a stack, as a point source which does take some manipulation of the model, which we have done for some fumigants.

So it can be done, but there are some nuances on changing the model to make it fit, but essentially looking at a field application as a point source and trying to determine the emission rate off of that field and factoring back the size.

DR. FUCALORO: Maybe I have it wrong, but wouldn't it be useful to have some data points, monitoring data points to calibrate the model in these particular cases?

And I think that goes somewhat to what John was saying.

MR. BAKER: In terms of extrapolating this application site data to model a wider area, like what we are proposing to do, you're certainly right, that's why you need the ambient monitoring to compare with the model predictions to know if you're in the right ballpark.

CHAIRMAN FROINES: You know, we spend a lot of time down where I am looking at issues of traffic density and what happens on freeways from diesel --

DR. FUCALORO: Are you in LA?

CHAIRMAN FROINES: And so, you know, we use a Cal-line model when we're dealing with line sources. And so I think that to squash everything into a point source dispersion model may not be the most appropriate approach, and one has to look at that issue, I think, in a more expanded way.

Gary.

DR. FRIEDMAN: John, I'd just like to clarify something.

When you talk about the worst case scenario in these applications, are you talking about workers actually in the fields where they're applied or you talking about people who are nearby in towns, or both?

CHAIRMAN FROINES: I think that our jurisdiction, and DPR has jurisdiction for workers, but I don't think that's within the context of this panel, so I think it's really the public exposure as opposed to the occupational exposure.

I think that's fair.

DR. FRIEDMAN: Who is responsible for the occupational exposure?

CHAIRMAN FROINES: DPR.

DR. FRIEDMAN: Why is that not within our purview then?

CHAIRMAN FROINES: Because we're operating under AB 1807, which deals with public health associated with public exposure to toxic air contaminants. I don't know if we're excluded from dealing with occupational situations. I'm not a lawyer.

Bill, are you coming here to -- I thought you were coming here to help.

DR. BLANC: Although, just to clarify, or to murky it up, in agriculture specifically, of course, there are situations where the employer-employee relationship is not straightforward and where there are people who in another context we might think of as being employees, but are not covered by the standard Occupational Safety and Health restrictions.

One example being migrant workers and their families who live at the edge of a field, so even though we're not directly dealing with exposure scenarios that some of the exposure scenarios on face value would seem to be more relevant to the occupational arena, but in fact would be relevant to public exposure, for example exposure at the edge of a field.

Is that a safe thing to say?

CHAIRMAN FROINES: I would argue that, Paul, if we had a family living near a field that's being sprayed, that that fits within the jurisdiction of the things --

DR. BLANC: That's what I'm trying to say.

So that even though one would normally say that's really an occupational issue, what are the exposures very close to the site of application as opposed to drift that's three miles away, and then we in fact we have the example of a school that was on the edge, virtually on the edge, of a field, so that we're not limited in on a worst case scenario by saying the worst case scenario is X meters away.

CHAIRMAN FROINES: My aunt in Sonoma lived next door to a field, and they sprayed it very frequently, and they had quite significant exposures, because they were literally absolutely contingent.

DR. BYUS: I have a question about the ambient modeling. You're using application data and then you're going to model ambient levels using the computer models?

MR. GOSSELIN: Right.

DR. BYUS: You're not going to take the ambient levels and go backwards and assume that without application data?

MR. GOSSELIN: No.

DR. BYUS: We're not going to do that?

MR. GOSSELIN: No.

DR. BYUS: See, what I'm saying? Which would be worse than what it is you're planning on doing.

But I still -- I guess I've said this before, but even the application site data has significant limitations, which you pointed out to us. I mean, it's very limited, maybe because of the way you have to do it and the way you have to obtain the data, it's very much less than the ideal.

MR. GOSSELIN: Right.

DR. BYUS: That's what I'm saying.

But to finish my statement, that's okay, in order to really validate that computer modeling, I'm not sure the application site data as you gather it is going to be sufficient to validate those computer models.

I've said this before, the only way I think you're going to validate that computer modeling is to actually do a controlled application site where you generate the -- you set up a field and spray it yourself and collect enough data to validate the computer model.

Or you can correct me if I'm wrong.

MR. GOSSELIN: Actually the application site monitoring is it's a real world, but it's controlled, because we have people there and the protocols set out and we know what -- it's a real-world situation with either some grower or pest control operator actually doing it, but, you

know, there's control set on exactly what the rate was, the acreage and the monitoring. So all things being equal, all that sort of control data is collected and I think --

DR. BLANC: Paul, that's actually not precise. That may be true related to the field site application data, but it's not been true for any of the environmental data that you've presented, and your representatives have made clear in the past that in fact you couldn't actually say whether something was being applied at the time that they were monitoring a mile away or two miles away --

MR. GOSSELIN: That was for the ambient.

DR. BLANC: That's what I'm saying, yeah.

And you're -- to validate the models, which would be really used to predict ambient and not the field level, you need to do what Craig is saying.

DR. BYUS: What do you think about it? I would ask you that, if it is sufficient, the application site data that's collected now, is it sufficient to validate the computer model?

MR. BAKER: I believe that it is. Because they are applications that are conducted with the knowledge of the grower applicator and they know that we're there monitoring around the perimeter of the field.

If they don't use the maximum allowed application rate, we can bump up the monitored concentrations by the

difference in the ratio and in the monitoring comparison with the model validation where we would compare the ambient measurements with the ambient modeled concentrations.

We can put into the model the actual fields that were applied during the monitoring period after -- because after the fact DPR can get that pesticide use information, so we can put in the model the different 10- or 20-acre area sources that are all off-gassing with the worst case emission rate and then predict at the actual points of the monitoring locations of what are the model concentrations and then compare the model predictions with the measurements.

DR. GLANTZ: Have you -- I presume you've actually done this at least some number of times. How many times have you -- I have to admit that when we were discussing this before, I actually thought this had already been done. I didn't realize -- I just assumed these were well established, well-validated models.

So I have two sort of related questions.

One is how many times have you done just that to validate the model in real-world situations?

And then the second related question is how much more do you think you'll have to do it, so that you can just say, okay, we believe that this is a well-validated general model that we can just go out and use now and be pretty

confident about the results?

MR. BAKER: The industrial source complex model, which has been the EPA-approved model for this application, and has now been superseded by a new model called Air Mod, both models have been validated for multiple sources and then compared with concentration measurements downwind.

Almost all of those model validation studies have been done with point sources rather than area sources, such as agricultural fields.

So very little has been published, and we have done very little actual model validation work with multiple area sources. That's why we don't have that much experience doing this yet.

DR. GLANTZ: Have you done any -- because it sounded from what you were saying before like you've at least done this a little bit, talking about area applications of pesticides. I, mean how many experiments have you gone out and done basically what Craig said, where you looked at actual applications to a field, done predictions, looked at what the measurements are and seen how well they agreed?

MR. GOSSELIN: With the only real example we have is what we did with methyl bromide where we had, was it 32 or 34 controlled application site monitoring studies where we had weather data and all the other data points to fit

into the model, and then also coupled with some ambient, historic ambient data that ARB did.

Over the last couple years a lot -- and then we did do some follow-up validation on that, and staff are making some adjustments on that approach and kind of a couple of things that did come out.

One is the critical nature about making some very explicit decisions about, you know, are you looking at the 90 or 95th percentile on the weather factors on the worst case and then trying to factor in some estimate on the number of fields being used in a given area and some of those modeling exercises.

We found over the last two years that we're at a point now where this sort of approach is going to be enormously useful as a tool to provide good assessment information, and we're looking to try to take what we learn from this approach and standardize it as a standard type approach where we are going to need some specific data sets on emission factors from the different pesticides and a number of the other factors.

But the one thing we did learn is that there is going to be a huge huge limitation and uncertainty if we're only dealing with one or two even under the strictest controlled application site monitoring data sets on the variability as to what may be occurring from plugging in the

emission factor.

So to kind of sum up is that -- go on, Tony.

DR. FUCALORO: I'm just confused. I'm still not -- maybe it's just I haven't followed because I haven't thought about it, frankly, these computer modeling, until what John kind of got me thinking about it. I'm not exactly sure what's the input to the model and what's the output to the model.

You say emission factor. I don't know what that means. Do you mean grams per unit time dispersed? I mean, what is the input, what is the output? And I think that's pretty much what I kind of really need to know.

MR. BAKER: Just in general, the inputs are emission rates in grams per second per square meters as in this case, since it's not a point square.

DR. FUCALORO: Per square meter of application?

MR. BAKER: Right. And metrological data.

DR. FUCALORO: Which is wind speed?

MR. BAKER: Wind speed and atmospheric stability.

DR. FUCALORO: And there are no parameters which are indicative of the substance itself?

MR. BAKER: No.

DR. FUCALORO: In terms of the density or any -- not that I don't think that would matter much, but just out of curiosity.

MR. BAKER: The output is the concentration at different distances downwind of the source in micrograms per cubic meters.

DR. FUCALORO: That doesn't matter. That's true. It's just simply -- there are no factors to calibrate based upon empirical data?

MR. BAKER: No.

DR. FUCALORO: I just want to --

DR. GLANTZ: I just want to go back to the question I had before. I mean, I don't mean to beat a dead horse, but I just want to make sure I understand.

I mean, would it be a fair statement, is the following a fair statement, that you have models which you are quite confident in that you would use to estimate off-site exposures if you had accurate metrological data and knew what the emission factor associated with the application of a certain amount of pesticide per acre was?

DR. SANDERS: Yes. But the confidence in those predicted concentrations go down as you get farther and farther away from the application site.

DR. GLANTZ: Well, sure. That's true, that's implicit in any model.

But basically, so the basic model is something that people are satisfied with, and that the problem that you have is just knowing what these emissions factors are,

which would allow you to convert putting a pound of pesticide per acre into how much stuff actually is in the air as if that field was a big smokestack?

DR. SANDERS: That's correct.

CHAIRMAN FROINES: Can I ask a question?

DR. GLANTZ: Let me ask one other question.

So how hard -- so that's good, because that's closer to what I thought was the case.

Now, how hard is it to get that number? I mean, the meteorological data is out there, that's not a problem.

How hard is it to get that emission factor for a given pesticide?

DR. SANDERS: It's based on back-calculation that we use when we used -- we measure air concentrations -- there's two ways of getting it.

One, you can measure -- try to estimate it directly from an actual application, which is pretty costly and has been done in a limited sense for some pesticides.

But generally what we try to do is we capture air concentrations out from the field and then use the model to back-calculate to an emission factor.

DR. GLANTZ: Then, what, so what you're saying -- what you're saying --

DR. FUCALORO: That's how you calibrate the estimate. That's a calibration. And I mean to say that

that's an accurate emission factor is a leap of faith.

DR. GLANTZ: In other words, what you would do if we're talking about pesticide A, and you want to use your -- the model to, you know, to estimate exposures, off-site exposures, what you would then do is you would go out and apply pesticide A somewhere, where you could measure -- where you knew what the meteorology was, and you had a monitoring network, and then you would get the data and then figure out what is the emission factor that gets you the things that you measure.

DR. SANDERS: That's correct.

DR. GLANTZ: That isn't something that you can measure in a laboratory or the manufacturer tells you?

DR. SANDERS: We don't believe so.

DR. FUCALORO: No, but there is a plausibility argument one could make. I mean, one knows the vapor pressure of the material, presumably, and also a Henry's law constant if in fact it's dissolved in a liquid; right?

MR. BAKER: Yes and no. For methyl bromide what DPR has done a great deal of modeling and monitoring with, it's applied pretty -- with some minor modification -- or minor variability, it's basically injected into the soil.

Many of these other pesticides may be applied as an emulsifiable concentrate or by a ground rig or a aircraft. So there's so many differences in application

rate and application method that that leads to different emission rates, and that definitely complicates trying to estimate an emission rate.

CHAIRMAN FROINES: I just want to make one comment about meteorology, and it stems from our experience in Los Angeles in looking at traffic density issues.

We spend a lot of time looking at the meteorology around roadways over a year period, and we've developed distributional graphs to demonstrate that. And so we know how often the wind is coming from this direction versus the off-shore flow in the evening, for example. And we know how much is coming from what varying directions, so we have a fairly comprehensive picture of what happens both in a diurnal fashion, but also over a year of measurement.

So we have some confidence in how bad the wind can be on relative to most days that people are measuring it.

And so that the meteorology turns out not to be a trivial issue, because the fact if you do some application site monitoring, you happen to measure wind direction and wind speed on that particular day, that doesn't necessarily tell you what you really need to know.

If you really do believe that for the calculation of an MOE you want some measure of a worst case scenario that says this is what it could possibly be in order to maximize public protection, we need to look at it from that

standpoint.

So there are clear policy decisions about how to approach it, but the scientific issues really require a fair amount of information to be able to accurately define those distributional issues around which you -- and then end up doing your modeling --

DR. GLANTZ: No, no, that's not quite right, John, because there's really two different -- it may come down to what you mean by modeling.

CHAIRMAN FROINES: Right.

DR. GLANTZ: But what I talk about modeling, what I talk about is a set of equations or computer code or something where if you put the right inputs in it will give you a good prediction of what it is you're trying to measure.

And I was trying to ascertain how close are we to having that for pesticides.

And it sounds to me like we've got good models.

The hard part is getting the emission rate to put into the model.

So that seems reasonably under control.

What you're raising is a different issue, which is sort of how do you use the model in order to do this estimate of what is the worst case by putting in a distribution of weather conditions and distribution of other

input variables and then you got a distribution out of concentrations or exposures, and to do that you need to know what a reasonable distribution on the metrological conditions is.

But I take it from what Lyn said, that that isn't the problem. They have that information.

CHAIRMAN FROINES: I'd be highly skeptical of that.

MR. BAKER: For doing the longer term modeling there's usually metrological data available.

But Dr. Froines is making a very valid point that the application site data or the application site monitoring is done for three days during and following an application. If that metrological -- if the metrological conditions during which that monitoring was conducted are not typical, maybe they're -- it's windier, there's more dispersion than usual, then the concentrations are going to be lower, the back-calculated concentration that we would use as an emission rate will not represent worst case.

DR. GLANTZ: That should be --

DR. BLANC: But you're applying the actual meteorological conditions at that time, which you take into account if the model has already been validated --

DR. GLANTZ: That's right. If the model -- if the model's an accurate model, as long as you've got a

reasonable measure of the meteorological conditions at the time of the application, it shouldn't matter what the weather is, as long as you know what the weather is and that the model is capable of describing that.

So if you have unusual -- I mean, that to me was one of the whole reasons that we were suggesting a more modeling approach is because as long as you validated the model, your decision making isn't so tied to what happened to happen the day or two you actually went out and took the measurements.

DR. BLANC: Is the --

DR. GLANTZ: So I mean is that all correct? I mean, as long as you go out and measure what the weather is --

MR. BAKER: Which we do.

DR. GLANTZ: Then it doesn't really matter what it is in terms of the ability of the model to be used more generally.

MR. BAKER: We might have to make some additional conservative assumptions.

DR. SANDERS: It depends on how you want to use that data.

For example, when we have put mitigations measures together for Telone because there's different weather conditions or meteorological conditions in the winter versus

the summer, we have different restrictions. For example, we restrict the use or the application of it in December or January in certain areas of the state because we know it's over very stable conditions and those concentrations build up.

DR. GLANTZ: But you're not saying that you need a different model in the winter or summer?

DR. SANDERS: No.

DR. GLANTZ: Okay. That's the important point is if you have a validated model, then I mean -- and that again gets back to why it seemed to me that using computer modeling was a good idea, because then rather having to say, well, we can't do anything in the winter or the summer until we have gone out and measured in the winter and the summer, if you have a good model you know what emission rate you should be using and you know what the weather is, then you can figure out, without having to go out and do additional measurements, what the conditions would be, and then develop our regulations accordingly.

DR. BLANC: Isn't the issue here in part that the worst case scenario, that term that we keep using, would be if all of the pounds per acre of the pesticide applied were to go up a smokestack as a fairly rapid emission?

MR. GOSSELIN: Yeah. The factor would be of a default of a 100 -- the factor usually would be one,

essentially.

DR. BLANC: Right.

MR. GOSSELIN: 100 percent.

DR. BLANC: Wouldn't it make sense for this committee, when you bring forward documents, to have as one piece of the document the worst case scenario, which is the smokestack calculation?

DR. SANDERS: An artificial, automatically each one --

DR. BLANC: It can't be any worse than that, can it?

DR. SANDERS: Right.

DR. BLANC: If we really want to see -- because I would say that as a panel member, if you want to bring forward a pesticide and convince me that it's not a TAC because the exposure levels are too low to trigger a reasonable exposure level in terms of adverse health effects, then you should show me what the default smokestack exposure level would be, given what a heavy use would be, and given the assumption that there would be people living in close proximity to the edge of the fields. That's --

DR. FRIEDMAN: Isn't the smokestack too extreme, because when you are putting something on the field it's never quite that concentrated.

DR. BLANC: If you want to prove to me the

negative, I want to see the worst -- it is extreme, but I want to see the most conservative from a public health point of view --

DR. GLANTZ: Would that really --

DR. FRIEDMAN: I'm not sure that's reasonable to make it that extreme.

MR. GOSSELIN: We have in the past used, you know, other empirical defaults using the highest value of other compounds we may have and a lot of them are gases, that would be based upon some other established values that could be used as defaults.

So using surrogate data as defaults that are at least as long as they're reasonable, but overly probably on the conservative side isn't a bad idea. And we do have --

DR. GLANTZ: Is the smokestack the most conservative thing, because it seems to me let's say you've got a big field, a ten-acre field, and you put the smokestack in the middle of the field, you're out of the -- you're getting probably lower concentrations.

MR. BAKER: I don't think that -- I don't think Dr. Blanc meant it would all go up a little point source.

I think you meant it would all go --

MR. GOSSELIN: Hundred percent on --

DR. BLANC: From what you said in your models there isn't a piece of those models which is the size of the

smokestack, or is there?

MR. BAKER: This modeling will be modeled --

DR. BLANC: Not this model. In standard modeling. Standard point source modeling, does it include, you know, diameter of the smokestack?

MR. BAKER: It does.

DR. BLANC: So you could put the diameter of the smokestack to be the diameter of the field; couldn't you?

MR. BAKER: Yeah. But we will be using this model as an area source model rather than as a point source model.

DR. BLANC: But I'm asking a sort of mind experiment question. What's the worst -- what would give you the highest value?

MR. GOSSELIN: Hundred percent emission factor.

DR. BLANC: Hundred percent emission factor using -- a very big --

MR. GOSSELIN: Whatever the --

DR. BLANC: A very small smokestack, but --

DR. FUCALORO: Again, explain to me what a hundred percent emission factor is? You told me an emission factor was a rate per unit, time per unit area. So what now -- why are we talking about percent? I don't understand.

DR. SANDERS: Hundred percent just means that the total amount applied to the field, hundred percent emission would be that all of those pounds or all of those grams

would get into the air.

DR. FUCALORO: But isn't the important thing is in what period of time?

DR. SANDERS: We have to make some assumptions about how long it takes to do that.

DR. FUCALORO: Doesn't the -- well, I don't know the model, and there's some things that confuse me quite a bit about it, in the description. It's the amount of evolution from the ground per unit time per square meter.

MR. BAKER: Right.

DR. FUCALORO: Isn't that right?

I don't understand the term a hundred percent. I don't know what that means in that context.

DR. SANDERS: This all comes out over a period of time and some pesticides come out -- go into the air more quickly than others, as a function of physical chemical properties.

DR. FUCALORO: Yeah.

MR. BAKER: Some you would not -- you would not assume that hundred percent of it ever was emitted, so to make the hundred percent assumption would be a health protective assumption.

DR. FUCALORO: Hundred percent, but in a given time.

CHAIRMAN FROINES: I think that Paul's point is

well taken and it fits into the context of what we use these risk assessments and monitoring data for.

The only cautionary note I think we would want to apply is we don't want you to do on a emission factor that is ludicrous, to follow Gary's point of view, so that one could argue it had no meaning whatsoever, and everybody looked like idiots by pursuing it.

So there has to be some sense of realism, as well as -- so that it doesn't appear to be something that you would ridicule, so but it has to have enough merit therefore that when you go out and actually make measurements that you're going to be within some reasonable order of magnitude within the process.

I think -- Gary, does that capture what you're --

DR. FRIEDMAN: Yeah. Thank you.

DR. BLANC: I mean, it's analogous, let's say, to you coming forward with a chemical and saying this is not a laboratory carcinogen because we gave it to five test animals and none of them developed cancer.

And then Stan says, well, based on sampling error, the rate, you know, of cancer could be as high as 20 percent, or whatever number he would tell you based on that.

And this is sort of the same issue. I'm just saying when you come to us and try to convince us that a pesticide X is not -- does not meet the threshold for being

a toxic air contaminant, my wish is going to be to see conservatively estimated exposure levels, conservative from a public health protection point of view, which makes certain assumptions about worst case scenarios, and that's been one of the problems, quite frankly, with the data that's come forward to us up to date. The presumption is that these are hazardous materials, given what their use is in first place, until proven otherwise.

DR. GLANTZ: Not to beat a dead horse, and we're kind of stuck on number one, hopefully we'll get on to number two.

CHAIRMAN FROINES: Number one is actually the fundamental one.

DR. GLANTZ: The question I then have is how many of -- we have this huge book with all these pesticides in it that have been prioritized. I mean, if you take the top 30 things, however we end up with the list, which will also be discussed, I mean how many of those could you just go out right now today and take your model and go get the Farmer's Almanac and get the weather conditions and do, or whatever you get at this time, the farmer's computer tape or CD ROM, but get the known meteorology, then go out and do the calculations and come up with credible estimates of what exposure. You know how much of the stuff is used, at least you know how much was used last year.

So if you take those 30 or 50 top ones and say, okay, we know these are the chemicals, we know this is where it's used, we know the physical chemical properties, because Tony made you get the vapor pressure right, and you know what the meteorology is, and you're going to run off and do calculations about spraying my backyard, say.

How many of those calculations that you came out with would you be able -- would you say I believe this, this is credible within, you know, reasonable errors and how many of those are you lacking of these factors in the exposure factors that you have?

DR. BLANC: Emission factors.

DR. GLANTZ: Emission factors, I mean.

MR. BAKER: It would depend on the list. Whichever ones we've done application site monitoring for, we could probably certainly make a calculation based on. If we hadn't, then there would be a lot more uncertainty.

DR. GLANTZ: So basically what you're saying is that in order to do the calculations, you need to go out and have application site monitoring for each of these compounds?

DR. FUCALORO: In order to get the emission factor.

DR. GLANTZ: To get the emission factor.

How many of those do you have? How many of the

many many pesticides that were thrown around, how many do you have?

MR. BAKER: Most of the 40-plus pesticides that we have done monitoring for we have also done application site monitoring.

DR. FUCALORO: May I ask you something, and I know we're really belaboring this, but and I'm kind of interested in this model and getting the emission factor by empirically the way you do it, did you notice any effect of temperature? Not temperature in the air, downstream, but temperature at the field.

DR. BLANC: They don't have that.

DR. SANDERS: We don't have that data.

MR. BAKER: We have temperature collected at a nearby airport. We don't have temperature at the actual field.

DR. FUCALORO: Just a guess, emission factor will change by a factor of two every ten degrees Centigrade.

MR. GOSSELIN: There were issues that came up --

DR. FUCALORO: Very educated guess.

MR. GOSSELIN: When we were going through some of the variability of the some of the different data points to try to take a look at what the factors were with methyl bromide and some of the other materials, things such as material being injected into the soil, what was the effect

of soil moisture --

DR. FUCALORO: Absolutely.

MR. GOSSELIN: What was the soil temperature and soil type, and all of those things started to get us down to a very complicated path.

And so one of the things that we did was almost somewhat back away from that and look at in -- we had some statisticians look at it. At least for methyl bromide we did have a much greater data set than we have for some of the other pesticides, about the grouping and different method types which seems to be more prominent.

DR. FUCALORO: All I'm suggesting, before I call in the statisticians like this, you call in physical chemists first and see if they can't make things easier for the statisticians, and I suggest maybe you do some of that.

I don't know. People may have done all this. I just don't know the modeling.

But I think there are some times that people -- there are some rules of thumb that you can actually measure and know.

MR. BAKER: You certainly see higher concentrations when it's warmer than when it's not, but at the same time the metrological conditions are also critical. I know some of the monitoring we have done, some of the application site monitoring we have done, we've taken

daytime samples and nighttime samples.

You would think -- this is after the application -- you would think, well, it's warmer during the day, you're going to see more off-gassing, but there's almost much more atmospheric turbulence and wind so we end up usually seeing higher concentrations at night.

DR. FUCALORO: So you're telling me you ought to bring in the statisticians first?

DR. GLANTZ: Well, go ahead.

MR. BAKER: I was just going to make one other quick point to answer Dr. Glantz's question of how much of this actually has been done.

One of your former panel members, Dr. Seiber, had a graduate student a couple of years ago that actually used some methyl bromide emission data that was back-calculated from all the different field studies, used the range in the emissions rates of whatever has been observed, and then used the Salinas Valley, used for a week all the different applications that had occurred, knew the size or the emission or the amount of methyl bromide that had been applied to each of those fields, and put all that information into the model, and then they also did actual monitoring during that period and did exactly what we're talking about doing, a model comparison with the downwind measurements versus the model predictions, and the some of

the scenarios underestimated measured concentrations, some of them overestimated, but all within about a factor of two, either under or overprediction.

DR. GLANTZ: That's very helpful, actually. If let's say we picked some chemical today that you didn't -- you hadn't done any monitoring on yet and to make it easy let's say that it's something it's applied in January.

How long would it take you to come up with your emission factor for that chemical, assuming it's out there being used right now?

MR. BAKER: In terms of just making some estimate of what the emission would be?

DR. GLANTZ: In order to come up with something that you think would be good enough that you could get it past us in a report that -- I don't mean that -- I don't mean that flippantly. But the whole idea of this exercise is to produce a document that this committee would approve, and so how long is it -- would it take you to go out and do something that you'd come back here confident enough in that you could present it and if we said are you confident in this and you'd say yes and we'd believe you.

MR. BAKER: Are you saying without field measurements?

DR. GLANTZ: No. If I said to you -- yeah, if I said you don't have a clue what the emission factor is so

you're going to have to get out and get it, by going out and measuring an application, and it happens that they're applying it right now. So it's not like something they're not going to apply until October. It's being used right today, you can go out and they're applying it over here by the bay or something and you can go over there and measure it, how long would it take you to go from that, from needing the number to having the number?

MR. GOSSELIN: Would one -- I mean, at a minimum one -- I'm asking, one data set would provide, you can do the back-calculation, but you're also dealing with a high level of uncertainty.

DR. GLANTZ: But to get a level of uncertainty --

MR. GOSSELIN: If you --

MR. BAKER: If you ask today, if it was something that we readily had a method available and could reprioritize and go out and do monitoring, it could be fast.

If it was a compound that we didn't have a analytical method readily available, and it was only being applied, say, in January, we'd probably have to wait until next January, and then get results and then do the modeling, if necessary. It would be a year and a half.

CHAIRMAN FROINES: We need to go back to Paul's point, which I think is central, because Stan's individual chemical, you know, there may be hundreds of farms that are

using the chemical, they may have completely different topography, different metrology, you have enormous variability, you have different sites on any one farm that you can monitor.

So, as you know, the variability, the numbers of variables are enormous, and so the question is how do we get to some estimate of potential exposure that meets our concern about the worst case scenario?

And I, unlike Stan, Stan is a statistician who likes modeling, and I'm a chemist and so is Tony and so is Craig, and so we are the people who actually like to see data as well.

DR. GLANTZ: I like data too.

CHAIRMAN FROINES: I'm not suggesting that you don't.

DR. GLANTZ: I don't just make it all up.

CHAIRMAN FROINES: I'm suggesting --

DR. FUCALORO: He's suggesting that's exactly what you're doing.

CHAIRMAN FROINES: All I'm suggesting is --

DR. GLANTZ: That would be like a film maker.

CHAIRMAN FROINES: Chemists versus statisticians bring a slightly different perspective perhaps, and so that the point is how do we get to where we need to go, and that seems to me to be really, I think that the terms, what we

need, I think has been well defined. I think the actual process --

DR. BLANC: Let me ask a different question.

Suppose you were trying to calculate, you kind of come to us with a recommendation for whether or not hydrogen cyanide gas as a fumigant should be listed as a toxic air contaminant, theoretically. Do you feel that you would actually need to go and do field data and get an emission measured or back extrapolated emission value in order to have the sufficient data to -- from other sources to say that this was something which was an agricultural chemical which should be labeled as a toxic air contaminant?

MR. GOSSELIN: Something that -- I mean with something that --

DR. BLANC: Something which is completely volatile and highly toxic and efficiently distributed to the atmosphere, let's say, would you really need to go and measure levels at the edge of a field where people were fumigating for rats with hydrogen cyanide, if that's what they were doing?

MR. GOSSELIN: I think with that, probably not.

DR. BLANC: Aren't there other things on your list which are of the organophosphate or carbamate or herbicide equivalent from a toxicologic point of view where the rest of this is just sort of an exercise in -- that's being

driven more by the perceived need to do these -- to do the risk calculations in a specific manner that requires a specific number that then must be come up with by some other ways so that you can --

MR. GOSSELIN: Actually what I started to say at the beginning of this is that previously we have front loaded and sort of highlighted what the snapshot in time that the monitoring has shown to predetermine whether something should be listed or not.

One of the things that I think we've come to understand actually by finally getting some documents through and how that fits with the law is the threshold for a listing a TAC is whether it has the potential to get into the air to cause public health harm and harm.

So the need for us to do sort of the work we're doing is still important, but whether that outcome from an MOE standpoint is critical for us to determine whether to list is much lower than I think what it had been a few years ago.

I think the threshold is that we need to determine, based upon the monitoring, does the material have the potential, even beyond what currently we monitor and what the uses are, because uses -- after the document comes before this panel, uses may change, uses may increase and we have to be cognizant of that.

And so the level of hurdle, based upon the monitoring, is a lot lower and almost equal and somewhat secondary to what the tox profile is.

What we are bringing things here, I think what we've started to value is the peer review of the documents we have for particularly on the hazard ID part for the main goal.

One is the listing part is critical, but also for our program, and I think coming here with what OEHHA has been bringing before ARB is the establishment of RELs, because in time the exposures that we're going to be working with from pesticides as toxic air contaminants are going to change, but the main thing we're going to get from our documents is certain pesticides listed that we're prioritizing and also the establishment of a reference exposure level or a value to benchmark, and then use that hopefully in time to then build in an ongoing surveillance program for these TACs that are going to be a priority for air exposures.

So I think even with all this monitoring, the ambient data that comes here, at least for my mind is going to have a certain level of caveat associated, because it is going to be a snapshot in time for hopefully something that what we are going to bring is going to have a pretty important and serious health implication. That is really

what we're focused in on to determine, what is the benchmark we're concerned with for exposures and then keeping a track on that.

DR. BLANC: I'd appreciate hearing the chair comment on that, since I think that's a very pivotal statement.

John, is that consistent with your view of the situation?

CHAIRMAN FROINES: It's certainly pivotal.

It represents a quite significant rethinking of the approach to pesticides.

What's not clear, and this is not meant as a criticism at all, it's meant as the need for clarification, and that is, you know, when does something come forward based on what you've just said, and when do we rely on the old kind of MOE and how one differentiates that is not so clear at this point.

I don't think I added clarity.

But, Gary, you were going to say something.

DR. FRIEDMAN: I had another question.

Lyn, I didn't quite understand something you said before when you were talking about if there was no way to monitor something in this January, we'd have to wait until next January. And then I thought you say that it would take then a year and a half or 18 months. I was surprised that

it would take an additional six months to do the calculations once you got those measurements.

MR. BAKER: I meant if we didn't have an analytical method currently available, we would take a few months to develop it, so we would be beyond January. So we'd have to wait until next January to do the monitoring. Then we'd collect the samples, give them to a laboratory. They would analyze them. That would take a few weeks. A report would be developed. And then we would make the calculations. So that would take a few months as well. So that's where that extra six months --

DR. FRIEDMAN: Don't the calculations take a day? I mean, you have the model already, why does it take so long to do the calculations once you have the data?

MR. BAKER: With all the internal reviews built in, I guess I was thinking about all of that.

DR. SANDERS: That is typically what it's taking now for us to process one of these sorts of chemicals.

DR. FRIEDMAN: Even though you have a formula, you have a model formula that all you need to do is feed in these, I forget --

DR. SANDERS: I'm talking about the whole process it's taking 18 months just to get the data collected and that sort of thing. It doesn't take that long to put it in the model, but if it was made real higher priority, I guess

we could turn it around very quickly. I'm just saying historically how long it's taken ARB to collect the data and us to process it and all that takes quite a while.

CHAIRMAN FROINES: Can I go back to Paul's question again, because I answered it as though I was you. And that's -- I didn't give a very good answer to your answer.

The point I think Paul's asking is if this does represent a change in policy, which seems that it does, then is it true that the basic decision around listing a compound as a TAC will be determined primarily on its toxicologic and epidemiologic evidence, and that the MOE and the monitoring exposure will be information that would be contained within a document to meet the requirements of 1807, but wouldn't necessarily be the defining feature for the designation.

MR. GOSSELIN: Largely, yes. I think there is a threshold in the law that has to be met, that there is the likelihood that the material could get into the air at levels that could pose a health risk.

DR. BLANC: That need not be based on exposure data. Let's come back to the example of cyanide.

Based on what you just said to me, I would feel comfortable seeing a document that came from you that said this is used in X number of pounds, the physical chemical properties of the substance are such that it's entirely

volatilized, that if one makes a simple calculation based on X milligrams and X meters of air, one would under worst case scenarios easily exceed value Y, which would then cause illness in one out of a thousand people, which would therefore be high enough threshold to trigger, and it wouldn't require sampling data from actual use at all.

MR. GOSSELIN: The only caution I have is if there is some data collected on it, let's say a pesticide that shows beyond what chemical physical characteristics we may have thought they would have resulted in air concentrations, that the fact of the matter is that it just dropped like a stone and there's no off-site movement, I think we would have a tough time making any case.

DR. BLANC: But you wouldn't have to delay bringing a document to us waiting for field data which had not been done.

MR. GOSSELIN: Right.

CHAIRMAN FROINES: But I think that Paul's raising a good point and it's unfortunately a point that is based on history rather than -- based on history rather than assumptions and that is Telone was a compound that was predicted early on to not disperse and not be a problem, and those -- and in fact then we found it in Bakersfield and a whole set of things was -- I think Bakersfield or Fresno.

MR. BAKER: Merced.

CHAIRMAN FROINES: Merced.

So that, one, there has been some experience with predictions that didn't turn out to be quite correct and we want to obviously avoid those kinds of problems.

MR. GOSSELIN: If it would be helpful, I could put pen to paper and kind of explain this.

DR. BLANC: I would welcome that.

CHAIRMAN FROINES: I think everybody would. Well, I won't speak for everybody.

MR. GOSSELIN: I mean various stakeholders we have too have been asking questions too about us bringing documents forward and what it means, and verbally this has been done over the last two years, but it would probably be helpful to bring this forward to the panel and put it down.

CHAIRMAN FROINES: I think there's value in application site monitoring and modeling as Stan says, but it's with what context does it fit within the decision-making process and I think that's what you're talking about.

Shall we continue?

Sorry, John, but I think this was an extremely important discussion.

DR. SANDERS: Show the next overhead, please.

Another recommendation of the panel for the air monitoring was that DPR and ARB staff could consider

enlisting assistance from the University of California in developing a new monitoring strategy. Staff from DPR and ARB have discussed strategy with Professor Spear, and nothing concrete has come out of that at this point.

However, I want to point out that prior to the workshop that the panel had, ARB had already revised its application site monitoring strategy to optimize for computer modeling. So they added additional air samplers around the field, they added collection of on-site weather data, and then they separated the monitoring periods into application period, day periods, night periods in order for us to use the models to do that. So we're moving in that direction before the panel made its recommendation.

The next slide, please, overhead.

The panel has also in the past asked us for a rationale for monitoring, so I was just going to mention for the last -- the 2000, the year 2000 monitoring request that went to ARB, we asked them to monitor for methyl bromide and 1,3-D or Telone, which are two of the fumigants. These are already toxic air contaminants. They were selected because they are high priority for control measures, because of identified health concerns.

There is a lack of data testing on longer term exposures for these compounds.

Also it's possible to monitor simultaneously, the

methods are there for us to monitor simultaneously for these compounds, and we had already put into effect regulatory changes and so we wanted to see if the air data reflected those changes.

And that ARB has conducted that monitoring in, I believe, Kern County and Monterey County, and those final reports are either -- one for Monterey is completed --

MR. BAKER: The one for Kern is completed.

DR. SANDERS: The one from Monterey is in the process.

MR. BAKER: It will be completed by the end of the month.

DR. BLANC: Appropre of the previous line of questions about time frame, and how long was the period, the one for Kern is done you said?

MR. BAKER: Yes, that was done.

DR. BLANC: And how --

MR. BAKER: That monitoring was conducted in July and August of 2000.

DR. BLANC: And the plan was initiated to do the monitoring --

MR. BAKER: Early -- late '99, early 2000.

DR. BLANC: So basically it's consistent with the time frame that you said, that it's taking approximately 12 to 18 months.

MR. BAKER: 12 to 18, right.

DR. BLANC: With methods that were already developed actually. That didn't require developing sample methods?

MR. BAKER: That's correct.

DR. BLANC: So even with the sampling methods in hand it was about a year?

DR. SANDERS: Of course part of that -- there were methods, so minimal method development or validation was needed, but a high use period occurred in the summertime and so we had to wait that amount of time for it to happen.

DR. BLANC: Right.

DR. SANDERS: The third recommendation from the panel was the computer modeling may be an important tool for developing exposure assessments and we agree with that. In fact, DPR staff and ARB are developing protocol to incorporate computer modeling into the exposures assessments.

My staff is working on a draft of that right now.

DPR is currently using computer modeling for developing --

MR. BAKER: John, I'm sorry to interrupt. I was just going mention to Dr. Froines, because you were out for just a minute, that we had met with Dr. Spear and this protocol that John just mentioned is going to be run by

Dr. Spear for his input.

CHAIRMAN FROINES: Congratulations. That's a real coup. He's hard to get to commit time and that's very valuable.

MR. BAKER: We had a very productive conference call with him in late last year, and he said he would be interested in working us and reviewing the protocol.

CHAIRMAN FROINES: Great. Thank you.

DR. SANDERS: We currently use computer modeling for developing mitigation measures, for example buffer zones for several of the fumigants. So that's where most of our experience comes from.

The next recommendation from the panel is DPR should consider using control application for some application site monitoring.

We agree that it -- those are useful for some situations, particularly situations, for example, we thought if you're trying to compare, directly compare two application methods.

However, DPR and ARB are satisfied with grower cooperation for conducting application site monitoring and believes that brings in an element of real-world application that are happening out there.

DR. BYUS: I'm sorry. What do you mean by real world? I mean, as opposed to controlled application? I

mean, it seems to me you're trying to validate these models and you don't want -- at this point you don't want any, quote, real-world variables. You want to have as minimal variables as you can. I mean point one. You know, I mean --

DR. SANDERS: For example, if DPR is going to do an application of a pesticide, we would still have to hire somebody to do that who does that for a living. We don't have equipment to do that. We don't have the expertise to do that.

It's controlled, I guess as we can get it, because there's certain guidelines and regulations and laws that the applicators have to follow in terms of application and that sort of thing and application rate and the how they do the application, the way they use the equipment. So we monitor that when these are measured, the air concentrations are measured, and so I guess from our standpoint it's fairly well controlled or as much controlled as we can do it, even if we tried to do it ourselves.

MR. GOSSELIN: Usually what happens, and some of this is a -- this all gets into good and bad, but a lot of times when they know that, you know, Cal EPA is going to be there, they'll have some of their top more experienced people do the application, so it's done, you know, without any sort of mistakes and anything else.

That that's like you're saying is very valuable and we need to know that there aren't any compliance issues or anything else, but like any of these monitoring programs that are industrial settings, you have that human factor, how people conduct their business day to day that, you know, does get picked up as we start getting into more and more replicates of monitoring. You get into the human factor on just how people conduct their business.

CHAIRMAN FROINES: In my experience in the occupational health world, one of the things that when we were doing inspections of work places what you find is that the first day you go into a plant you find that everybody is doing everything perfect. Every respirator is being worn, every ear plug is being worn.

People take tests. When they take tests they do their best.

What you want them to do is what they normally do.

And how one achieves that is not so easy, but it's certainly something to try and shoot for because obviously on the day that they're all primed for it it may not be exactly what you want.

MR. GOSSELIN: Right.

DR. SANDERS: Next.

Another recommendation from the panel was DPR should supplement all monitoring data with follow-up

characterization of actual application data from pesticide use reports.

We agree with this recommendation.

And the only caveat there is that full agricultural use reporting didn't come in until 1990. We do have a certain number of data sets that were conducted by ARB prior to 1990, and therefore it might not be possible to go back and see where their actual use for that particular -- those particular data sets.

And because of that, DPR may need to request that ARB do more monitoring for those particular pesticides, because we don't have either. Maybe that monitoring data was collected with old analytical methods or maybe we don't have the use report to check after the fact.

Next one.

Next recommendation is ARB should consider expanding the use of multiple pesticide sampling in the future. And DPR will request that ARB to monitor where this is possible when multiple pesticides are used in the same locations and the periods of high use coincide. We certainly think that that's a doable thing.

Naturally, the strategy is most efficient whenever the number of sampling, slash, analytical methods are minimized. In other words, it doesn't make a lot of sense or it's not very efficient if for the five pesticides we're

monitoring for have to have five separate sampling apparatus and five different analytical methods. That's not very efficient.

We do have some recent examples where we have requested multiple pesticide monitoring or we've done it ourselves.

In '99 there was amitraz, bifenthrin, and propargite.

In 2000 there was 1,3-D and the methyl bromide.

And we conducted Lompoc monitoring, which we're going to mention in another presentation. We did sampling for 28 pesticides at the same time.

CHAIRMAN FROINES: Was the Telone and methyl bromide an application site or ambient?

MR. BAKER: It was ambient.

CHAIRMAN FROINES: It was ambient.

MR. BAKER: Eight weeks of ambient monitoring in both Kern and Monterey counties.

DR. SANDERS: The last one here is for this portion of the presentation is a clear rationale for selection of pesticides for monitoring should be included in the new process for prioritization.

We agree with that. And we're revising that prioritization document and we'll address the selection of pesticides for monitoring.

We also want to -- this prioritization will coordinate the monitoring with the preparation of assessments, and DPR can provide the panel with updates on the status of the monitoring and the risk assessments.

MR. GOSSELIN: We were going to move to agenda item number 2, at the close of this, and at the end have a presentation on some of the modeling examples.

And would it be worth having that now before we get into the prioritization, or timing wise --

CHAIRMAN FROINES: What is your pleasure?

MR. GOSSELIN: It's a 15-minute or so presentation on the agenda item, item 1, that we talked about.

DR. SANDERS: It explains the modeling.

CHAIRMAN FROINES: The first question, Paul, before we answer that question, is does anybody else have any other comments to make at this point about what's been presented so far?

DR. GLANTZ: I just have a question.

So is there any sort of endpoint or decision point you want out of us in terms of this issue of the modeling and the long discussion or were you just coming back to us and saying here's what you're doing to implement the recommendations we made?

CHAIRMAN FROINES: I think Paul agreed to do some writing and come back, and they'll be coming back with other

protocols in the future. So I think it's now in their court.

DR. GLANTZ: But you're not asking us -- there's no action for us to take based on this discussion today; right?

CHAIRMAN FROINES: I don't think so.

DR. GLANTZ: I want to make sure I didn't miss anything here.

I think I'm pleased to see things moving ahead on this. I think you're going to end up with reports and with analysis that are going to be a lot stronger, both scientifically, and I think also probably a lot more useful in terms of providing a scientific basis for policy making compared to the old way you were doing it, if it was a hot day and it was a hot day, if it was a cold day it was a cold day.

So I'm very pleased about this, even if it is modeling, it's statistics, and not chemistry. You can model chemistry. And there are statistical chemists.

DR. FUCALORO: Absolutely.

DR. FRIEDMAN: But there are no chemical statisticians.

DR. FUCALORO: Modeling five mice as compared to modeling ten to the 23rd molecules, you get better statistics with the latter.

CHAIRMAN FROINES: Why don't we go ahead and do the 15-minute presentation. Then we'll take a break and then we'll have prioritization.

And I agree with Stan. I think this last hour or so has been a really excellent discussion, and so I really appreciate DPR's contribution.

DR. JOHNSON: My name is Bruce Johnson. I'm a senior environmental research scientist with the Department of Pesticide Regulation, and I'm going to run through an example of the computer modeling. Of course be happy to answer any questions as we go along.

Next slide.

The computer modeling that we've done at DPR has been almost exclusively with the Industrial Source Complex Short Term Model, ISCST. This is a Gaussian plume model, and it predicts downwind air concentrations based on the emissions, the meteorology and the terrain.

Now, the emissions, as you've kind of discussed already, also called flux, is a mass per area per time.

Typically we use micrograms per meter squared per second, but in some of our permit conditions we have a table of pounds per acre per day. But it's the same idea.

Meteorology requires the wind speed, the wind direction and the stability, which you have probably encountered numerous time before. Has to do with vertical

motion of the air.

During the afternoon in a warm summer day, you tend to get lower air concentrations. If the flux is constant, you get lower air concentrations because the stability, it's an unstable situation. Downwind concentrations get diluted.

Whereas in the middle of the night, say at 3:00 or 4:00 in the morning on a clear night you have a condition of great stability where the ground by re-radiation gets cold, it cools the air, it stratifies the air, and for the given, same given flux you will get much higher air concentrations.

And then terrain, rural versus urban type terrain, the model has factors for those situations. We normally use rural factors and then elevation.

Next slide.

We've kind of established a procedure for analyzing an application, and that procedure we published a comparison between the back-calculated flux and the measured flux in a paper in 1996 in the Journal of Environmental Quality, and that procedure consists of encoding the field and receptor geometry into the model. So you need to know where the field is located, how big it is and where the receptors and monitors are located in relation to the field.

Then you have to process the meteorologic data, so we will have a Campbell 21 X or something out there

collecting, logging the wind speed and the temperature and so on.

That data comes back into the office and it's in a big file and has to be processed in a way to make it usable to the ISCST model. It doesn't just automatically somehow go in. You've got to process it and put it in the right format and summarize it the way the model needs it.

DR. FUCALORO: For example?

DR. JOHNSON: For example, you may be taking measurements every minute for, you know, during the whole time, so each hour you have 60 measurements. Those 60 measurements have to be collapsed into a single hour measurement, so you have to somehow take an average of those measurements.

Now, for variables like temperature, that's pretty straightforward.

DR. FUCALORO: I understand.

DR. JOHNSON: Okay. After you get those two things ready to go, then you run the model.

So the third element that's required for the model is some estimate of the flux.

As we start the exercise, we may have some guesstimate, or we may not, on what the flux is. Generally we use an arbitrary value in like hundred micrograms per meter squared per second, put that into the model, run the

model and then we compare the estimated concentrations at our monitoring locations to the measured concentrations.

Then we regress the measured concentrations on the model concentrations. We determine the slope and the R squared and we use the regression coefficient from that statistical analysis to adjust our assumed flux rate.

The reason that this works is because the fundamental equation that the Gaussian plume model uses, if you can imagine for a second on the left-hand side is a concentration and on the ride-hand side you have two terms, you have the flux times a constant, and that constant is a number that derives from the meteorology and the distance and the elevation and all that stuff, so once you've got the geometry of the situation and the metrology of the situation fixed, that constant K is also fixed, so the only thing that determines the concentration is the flux. If the flux doubles, the concentration doubles and that's why the regression works.

DR. GLANTZ: Now, this gets back to the discussion we were having earlier. So that's for that site that you use to validate it. What if you got to another site that has different geography or different weather, does that constant still stay the same?

DR. JOHNSON: Right. What struck me when I first started working on some of this was the approach, which you

several have alluded to, where you would have a site which was monitored and then you would attempt to construct buffer zones or make some inference about exposure based on one particular site that happened to be monitored with all of its peculiarities.

And I felt that we needed to look for something that was a little more generalizable from a study like that, and that generalizable thing that's more generalizable anyway is the flux the issue. So the issue that you're asking really is what happens to the flux rate, what happens to the flux in different applications.

So maybe a question thought experiment would be if you applied the same material the same way a hundred different times, how much would the flux change, what would the variability of that flux be and that's a good question.

I don't have a ready answer to that question, because the thought experiment is lot less expensive than the actual conduct.

DR. GLANTZ: The question is if you've got this model, you validated it, you validated it in one place, physical place.

DR. JOHNSON: I wouldn't call it validation. I could call it calibration.

DR. GLANTZ: You've calibrated it in one place.

DR. JOHNSON: Right.

DR. GLANTZ: How confident are you that you can take that model and put it somewhere else and adjust the geographic variables of the model, which are easy to measure, and the meteorological variables, which we'll assume that you've got, and say I'm going to put the same number of pounds per acre of this stuff on, how confident are you going to be that the calibration you did before will be valid calibration for a different situation somewhere else?

DR. JOHNSON: I'm pretty confident that it works.

DR. GLANTZ: What's the evidence for that? I'm not being hostile, I'm just trying to understand.

DR. JOHNSON: The evidence for that, one bit of evidence for that is this paper that was published in 1996 where the comparison was within a factor of two.

The other evidence is some work that hasn't been published, which one of the registrants has conducted, and they have compared their measured flux rates with their back-calculated flux rates and come up with pretty good comparisons.

So I'm confident in the estimation procedure.

I'm less confident when you start asking me about we're going to change the soil moisture, we're going to apply it in July when the soil is hot versus December when the soil is cool.

We don't have as good a handle on that introducing those kinds of variabilities into it.

DR. SANDERS: Or application types.

DR. JOHNSON: Or application types. We know for example with methyl bromide that application type does make a difference. It matters whether you apply it under a tarp or don't apply it under a tarp, that kind of thing.

DR. GLANTZ: Okay.

DR. BLANC: I think that's partly the nature of your question. And what Tony had said earlier was that temperature by a factor of ten degrees would change --

DR. FUCALORO: Vapor pressure --

DR. BLANC: By doubling.

DR. FUCALORO: By a factor of two.

DR. BLANC: So it seems that even if you had accurate flux estimates or calibrated flux estimates based on normal operating situations, that one safety factor or uncertainty factor that might be applied in these calculations, would be a factor of two or three, let's say, so that even if you assumed in your 95 percent confidence intervals a scenario of external situations like terrain and the external weather conditions, wind factors, let's say, that even on top of that you might want to add some safety factor based on the issues that could have impacted your flux, your fundamental flux value, even if all the other

values were at the extreme.

Let's say, for example, the ambient air temperature was at the extreme of what you would think would be, it's a hundred degrees, and you make the wind very low and there's an inversion and it's a farm on a top of the hill and everybody else lives below it and you do all that, as the 95 percent worst scenario, it sounds like there needs to be some kind of safety factor on top of that that might be these things that you're -- you aren't going to have enough differing conditions or extreme conditions to sample.

DR. JOHNSON: In my capacity as for what I do, I agree that there's uncertainty in the flux.

As far as whether there should be a safety factor or how much that safety factor would be, I can't say.

I think that probably methyl bromide is the chemical that we have the most application site studies on and we're unable, when we do the statistical analysis on the results of that, there are things that don't show up very well like depth of application, for example. You logically think that depth of application the deeper you apply material the less that comes out, that's a fairly reasonable statement to make.

But when you try to look at the studies that we have, and you statistically try to show that, yes, all the deeper studies had less come out, it doesn't work out that

way because there's more variability in those numbers and it's too fuzzy, you can't tell.

DR. BLANC: What's the distribution pattern like in the flux values as calibrated that over what range for this one chemical in the various sites?

DR. JOHNSON: For methyl bromide?

DR. BLANC: Yes. What's the range?

DR. JOHNSON: It goes from, I'm just off the top of my head, it goes from five to hundred percent.

DR. BLANC: Well, here we come back to the percent. It goes --

DR. JOHNSON: Sorry. I'm thinking in terms of the emission factor.

In the case of methyl bromide we have used this thing we called emission factor, and it's related to the amount that comes out in 24 hours, and we've used that to characterize the different application methodologies. We have broken them down into three groups. And I can't remember the exact numbers off the top of my head, but it's something like 30, 45 and 80 percent, if I remember correctly.

DR. BLANC: You're saying there's a factor of 20 between the highest and the lowest flux value if it goes from five percent to 100 percent?

DR. JOHNSON: In terms of individual studies,

right, that have gone into those. Yeah.

DR. BLANC: That's not very reassuring.

DR. JOHNSON: That's for 24 hours of emission.

DR. FUCALORO: You're basically a chemist.

MR. BAKER: Bruce, aren't you saying, though, that that's five to a hundred percent emitted in the first 24 hours, but in the low cases, the five to ten or whatever percent, then don't you find more emissions the second or the third day? So if you look at it not just for one day, but for a three- or four-day period following the application.

DR. JOHNSON: More comes out later on.

MR. BAKER: Right.

CHAIRMAN FROINES: That's not clear what you just said.

DR. BLANC: It doesn't come out the first day, it comes out later on.

DR. JOHNSON: For methyl bromide, yes.

DR. BLANC: All I'm saying is the whole purpose of this thing about calibrating the model was to say if I have come up with an estimate of how much will off-gas per pound applied per acre, and I've done that by calibrating on some actual applications where I've measured at the edge of the field and I've come and back-calculated what the emission rate should have been, right, and granted that there are

various meteorologic conditions, but you plug them into the model.

DR. JOHNSON: You're trying to adjust for that.

DR. BLANC: You come back and you come up with an emission rate.

DR. JOHNSON: Right.

DR. BLANC: Then what we're going to be faced with is saying that given that assumption about an emission rate, given that you took three samples, there were three times you sampled in order to come up with emission rates, how close are those emission rates on each time or --

DR. JOHNSON: You mean how close are they to the measured values?

DR. BLANC: No. How close are they to each other. See, it doesn't really matter to me how close they are to the measured values. What matters to me more is how much variability is there likely to be in an emission rate, because then if you're asking me from a health protection point of view to say we want to apply a hundred pounds of Telone to a field or methyl bromide or whatever substance it is, what is my worst case scenario. My worst says scenario has to assume what is the possible highest emission rate to achieve.

CHAIRMAN FROINES: If you say that your emission rate varies from five to hundred percent then we have no --

DR. JOHNSON: The emission factor varies from five to 100 percent.

DR. FUCALORO: Emission factor being five percent in a 24-hour period --

DR. JOHNSON: Yes, and that's over all kinds of studies with all different kinds of applications.

CHAIRMAN FROINES: If it's also true that if you also find a hundred percent, then it's from a policy standpoint for risk assessment, you can only choose 100 percent. There's no other decision.

DR. JOHNSON: Unless the 100 percent is a particular type of application.

DR. GLANTZ: I think there's a miscommunication here.

I think, let me try to rephrase Paul's question. And that is for a given chemical, okay, what's the range of uncertainty in the emission factor? I think you're answering the question about what's the range of possible emission factors for all possible chemicals, so if you took a given chemical -- well, I think that's what he answered. If you have --

DR. BLANC: No. He said for methyl bromide when they sampled it under different conditions --

DR. GLANTZ: Okay. Then I misunderstood.

CHAIRMAN FROINES: He's saying --

DR. FUCALORO: You're saying uncertainty and variability. I mean there's -- and I think you're talking about variability.

DR. BLANC: Variability.

DR. GLANTZ: Okay. But, well, if you're talking -- I guess I'm using uncertainty to talk about a specific observation, which could be either uncertainty or variable.

CHAIRMAN FROINES: No. We haven't gotten actually to uncertainty. We really are talking about variability.

DR. GLANTZ: Okay. Well, no. I'll talk about variability.

DR. FUCALORO: We are all very uncertain.

DR. GLANTZ: That's okay. We both mean the same thing.

So are you really saying that if you're talking about methyl bromide, say, that the factor could be anywhere from five percent to hundred percent. If you're talking about a fixed amount of time too, because obviously --

DR. JOHNSON: Yes.

DR. GLANTZ: Okay.

DR. JOHNSON: Overall application methods and all soil types and all the range of things that can happen.

DR. GLANTZ: Per day. Then I misunderstood.

DR. BYUS: Actually the more --

DR. GLANTZ: Then I think what Paul says is right, if that's the case then you really do need to assume 100 percent for purposes of policy.

DR. BYUS: My analogy, I do pharmacology, and we have something called fractional drug absorbents, it's the fraction of the drug that's actually absorbed, and if you're going to calculate peak drug values, you have to factor that in, the more the drug that is absorbed, the higher the peak value, under any given time, and then that varies depending on how you get the drugs.

DR. JOHNSON: Yes. It varies depending on how you give the drug and it depends on the class of drugs --

DR. BYUS: Exactly.

DR. JOHNSON: So on and so forth.

DR. BYUS: So it's sort of a fractional absorbent is the way I would -- in pharmacokinetic --

DR. JOHNSON: It depends. In the case of methyl bromide, there are some application patterns that we can grab a hold of and say statistically that we do see a trend, here some are higher, some are lower.

DR. BYUS: Sure. That's very scientifically sound and it makes a lot of sense, but if we're not aware of that, when we're looking at these documents of this potential variability, you follow me, it isn't always --

DR. JOHNSON: I want to say --

DR. BYUS: We are with drugs or with other chemicals it's clear --

DR. JOHNSON: Methyl bromide is a pretty special chemical. It's a special chemical, because it has such a high volatility. It stands way above most of the other chemicals in terms of its volatility.

And I fall into this trap myself sometimes because I've been dealing with methyl bromide and 1,3-D, and most agricultural chemicals don't have -- don't come even close and the percentages of off-gassing are going to be much lower.

DR. BLANC: You've chosen this as your poster child for this methodology. I mean, you guys can't have your cake and eat it too. If you want to say, hey, we do have one good example where we've really shown how you do this, here it is, it's methyl bromide, we've got all this great sampling data, then you said, but, you know, don't really pay attention to this because methyl bromide is really volatile and it's all over the map and it goes from five to hundred percent.

What am I supposed to think of the next chemical you bring?

DR. JOHNSON: I don't think we brought methyl bromide to you as a poster child to estimate concentrations between all the other chemicals.

CHAIRMAN FROINES: Let me follow up and say it more nicely than Paul just did.

DR. BLANC: We trade off.

CHAIRMAN FROINES: I think the problem that Paul is raising, and I think it's entirely valid, is that methyl bromide turns out to be the case example where you have the most data, and when your case example shows you the widest variability, then it raises real confidence questions in a whole series of other compounds for which you don't have that level of data.

So we end up by saying if your best data shows you that degree of variability, then we have to assume that other data would follow a similar pattern, and that's a problem.

DR. JOHNSON: Well, the variability that you speak of when you say five to a hundred percent, which is what I said before, refers to the emission factor for methyl bromide, which is a 24-hour period which we have grouped into three different application types so that the variability within each of the application types is certainly lower than five to 100 percent.

DR. GLANTZ: What is it?

DR. FRIEDMAN: What is it?

DR. JOHNSON: What is it? I don't remember off the top of my head. What you're asking for is the

coefficient of variation. I can get you that information after I go back to the office.

DR. FRIEDMAN: Roughly, Stan said the same thing, within each type would it be like the lowest type be 5 to 15 or 5 to --

DR. JOHNSON: For coefficient of variation?

DR. FRIEDMAN: The percentage of --

DR. FUCALORO: The range.

DR. JOHNSON: The range of --

DR. GLANTZ: Of the absolute emission factor.

DR. FUCALORO: Of the emission factor, the range.

DR. GLANTZ: Roughly. We're not holding you to it.

DR. JOHNSON: I'm not going to even hazard a guess, because I can get you that information and get it to you precisely if I go back to the office.

DR. FRIEDMAN: You're saying that if we know the application, the type of application, you can narrow it down quite a bit from the five to a hundred?

DR. JOHNSON: Yes.

DR. FRIEDMAN: Can you just give us a feel for --

DR. JOHNSON: I'm going to go back to the office and I'll get you the numbers if you want.

DR. GLANTZ: Okay. You wouldn't guess and then send us the number to see if you were right.

DR. JOHNSON: That's a good game.

DR. GLANTZ: Blanc can give you a hard time.

CHAIRMAN FROINES: Let's move ahead, because we're asking a series of policy related and scientific questions. We're not picking on the presenter.

DR. JOHNSON: It's kind of fun, though; isn't it?

CHAIRMAN FROINES: No.

I think that -- but I think, remember, that all of this is within the context of how we do our job with respect to the risk assessment and designation of the TAC. That's the foundation.

And so that question is how do we have confidence in the information that comes before us in terms of those decisions.

And Paul is going to deal with that in a different context, but I think so that's the context in which this discussion is occurring.

So why don't you go ahead.

DR. JOHNSON: So here we have a graph showing measured air concentrations versus the model air concentrations. We do the regression, multiply the assumed flux of hundred by the slope, which was .7, and estimate the flux at 70 micrograms per meter squared per second.

Next slide.

Once we've estimated the flux, then we can go back

to the model and we can ask questions about what is the air concentration pattern for different metrological conditions or for different field sizes or for different application rates.

And this is just an isoplot showing a realized air concentration distribution, the 815 is the -- on the left-hand side of the field there is the reference level. We can, for example, look at where it's farthest away from the field and make an assessment of our buffer zones, is our buffer zone, table buffer zone large enough, is it not large enough, et cetera, et cetera.

DR. FUCALORO: Let me guess that the wind is blowing this way.

DR. JOHNSON: Right. The wind blew that way most of the time, but it also blew in the other direction part of the time.

DR. FUCALORO: Obviously.

DR. FRIEDMAN: There's nothing that goes sideways?

DR. JOHNSON: No. This is probably for a 24-hour period.

Actually you see patterns like this typically in the Salinas Valley where you have a diurnal shift. You have wind coming in off the ocean during the day and then it blows back out at night.

The buffer zones for the case of methyl bromide

were established with regard to the reference level of 815.

The buffer zone distances were based on monitoring data and computer modeling of 34 fumigations.

The buffer zones are set up to vary with regard to application rate, acres and the fumigation method.

And we did simulate in each case what the sort of, quote, unquote, required buffer zone should have been, and in 95 percent of the time, I think it is 33 out of 34, is the case, the tabled buffer zone was adequate for the farthest distance away where 815 occurred.

Computer modeling is currently in progress to provide a second estimate of how protective the buffer zones are.

Next slide.

This actually is currently being reviewed by our colleagues at ARB.

And just a quick outline of the protocol to determine the highest use counties, this is for methyl bromide, saying multiple years of metrological data from high-use counties, and then to simulate various combinations of flux and acreage and then to obtain the frequency distributions where we look at the distance to 815, and the maximum direction from the field. Like on that figure that I showed you before, that would have been off to the west.

And also to look at the frequency distribution of

concentrations at the buffer zone distance in all directions.

And that latter statement there kind of comes from some input we received from the National Academy of Sciences. They seemed to be very interested in knowing what the frequency distribution was in all directions away from the field.

And that concludes my part of the talk.

CHAIRMAN FROINES: Thank you very much. That was quite useful.

MR. GOSSELIN: If I could add one thing, one of the tools that we see using this methodology, and we haven't used it for anything other than gaseous fumigants, and how that will work for other pesticides is going to be something we're going to have to explore, but the utility of it to be able to point out in TAC context would be once we get the reference exposure limit proposed, to be able to say at what distance would you start to hit those exposures, and then you get into your assessment of demographics and potential exposures in different areas.

So that sort of exposure assessment methodology is going to take some time for us to evolve into.

CHAIRMAN FROINES: I think that's so much better approach than the kind of MOE, and we're talking about apples and oranges a little bit here. I mean the notion of

having your RfC and then looking at your exposures within that context is very useful.

Let's take a ten-minute break.

I think we'll go with the prioritization discussion next.

(Thereupon a short recess was taken.)

CHAIRMAN FROINES: Tobi, you want to introduce yourself and we'll proceed.

DR. JONES: I'll introduce myself and let Paul make some opening comments.

I'm Tobi Jones, with the Division of Registration and Health Evaluation.

And I'll preface this by saying I'm relatively new to this process, not to the department, so bear with me as I discuss what Randy, Scott and I have been working on with the four members of the committee.

CHAIRMAN FROINES: Thanks.

MR. GOSSELIN: Tobi is the new assistant director of that division, the position that I previously held.

Thanks.

One of the things I wanted to give an introduction on, update on prioritization. We started to get into some dialogue with some of the leads on the panel on this, and the presentation, as we go through here today, are going to outline some of the issues that we had during those

discussions.

But one thing as we get into it, as late as yesterday we had somewhat of a re-thinking based upon some of the comments we heard about the prioritization document that are fairly significant. Well, I think not significant in what's in the the documents and the issues, but how it's formatted.

And essentially starting back to the original, and we'll get into this in a bit, but the original document from '96 was a prioritization for monitoring only and now that we started to get into a prioritization scheme for initiating risk assessments, we were looking at having a parallel duplicate track, and we've kind of come to the conclusion that we probably only need one prioritization scheme, and use the one that's in there with a lot of the issues and have that come forward to initiate what we're going to be bringing forward for TACs coupled with a monitoring request.

But we'll get into that in a moment and I'll turn it over for Tobi to go through the changes and updates to the document and some of the issues that we've raised.

DR. JONES: We've provided -- Dr. Froines identified himself and three of the members of the committee for us to work with on redrafting the '96 report, and so based on the recommendations from the committee we have begun to do that. We've had the opportunity to confer with

Dr. Atkinson, I believe. We haven't had a chance to talk with Dr. Blanc or Dr. Froines -- well, I'll say Dr. Froines provided us comments indirectly through Elinor Fanning, and I believe Randy Segawa has gotten some feedback from Dr. Glantz.

But the committee recommended that we update the prioritization report itself on an annual basis, and so we will be updating the pesticide use data on an annual basis, as a basis for looking at the joint prioritization of monitoring and risk assessment.

The updated report will include a prioritization for risk evaluation and control measures, as well as for monitoring. I think as Paul indicated, we'll be looking at how we have presented merging the prioritization for risk evaluation and monitoring itself for the risk evaluation.

There is a need to discuss possible changes in the prioritization scheme and what I'd like to go through are just few of those suggestions that we have thrown out and we're looking for input.

And, Jim, if I could have the next overhead, please.

CHAIRMAN FROINES: Can I ask you just one quick question, Paul or Tobi.

Given what the two of you have just said, that you're going to bring together the prioritization document

for monitoring and for risk assessment, does that mean that you'll be preparing a subsequent document that will link everything together?

DR. JONES: I think given the input we have received we need to go back, and this document tries to look at what I would say Paul described as currently the two tracks. We need to go back and look at the document and I think better describe how we will merge those two. Okay.

From the standpoint of changes to the prioritization candidate list, here some of the considerations we're looking at is whether or not we've used the complete list of pesticides prioritized for SB 915, this is the high priority, the 200 that we initially called in data for, or whether or not we look at those listed as high priority for risk assessment.

Next overhead, please.

We're looking at possible changes in the prioritization criteria themselves, and I think one of the areas of input we had got from Dr. Atkinson was by using both Henry's law constant and vapor pressure we're sort of double dipping, so whether or not we should select one or the other for that criterion is one of the considerations.

Including pesticide use trends as a criterion becomes increasingly important as we look at the consequences of the federal Food Quality Protection Act and

how that has and will continue to influence how pesticides are used.

Whether or not to include pesticide illnesses as a criterion, because we have our illness database. And while most of those data aren't based on exposure to ambient air concentrations of pesticides, it still is another measurement we have.

DR. FUCALORO: Just a question of clarification. When you say include pesticide use trends as a criterion, as opposed to or in addition to actual usage, are you looking at rates of changes when you say trends or rates of change --

DR. JONES: I'm sorry, use trends. So it would be overall use patterns. I think at this point we haven't tried to go into the detail about changing use rates, per se.

DR. FUCALORO: Okay. I'm not suggesting that. I just --

DR. BYUS: I'm still confused. Do you mean trends of pesticides use in the future or do you mean --

DR. JONES: As a year-to-year basis.

DR. BYUS: Like you think maybe some pesticide is going to be used a lot more in the future?

DR. JOHNSON: No. More specifically, the consequences of FQPA are that the older, more highly toxic

pesticide uses will decline.

DR. BYUS: All right.

DR. JONES: Based on both decisions by US EPA and decisions by manufacturers, and so I think trying to account for that in our selection of candidates becomes important.

DR. BYUS: Okay.

DR. JONES: And last but not least, method of application as a criterion. I think the discussion from the last item illustrates some of the issues about how material is applied and how that might affect its becoming ambient air concentration.

CHAIRMAN FROINES: Before you run ahead, I just want to make sure, does anybody have comments on those questions that they're raising?

DR. FUCALORO: Well, you know, I was looking through this. The one that's -- what's really going to be helpful to us is to see how it's actually done, an example.

And, for example, you say account for multiple -- I'm sorry. Include method of application as a criterion. What does it mean? How is that used? Do you end up with a number ultimately at the end which places it in some priority list, things like a method of application, has to to be an ordinal number, it can't be -- it's got to be something that orders things rather than gives real value to the number in having real value?

I'd like to really see how such a prioritization list actually works, methodology works.

ARB has presented actually how it works, and we got a sense of the numbers when they showed it to us.

MR. GOSSELIN: One of the other things we've been looking also to consider with some of these factors that might get -- might not be very straightforward in putting a number factor to them, but almost have it, you know, beyond the numeric factors that are in there now, use them almost as a narrative weighting factor when we come forward with a, you know, the decisions to initiate a document and monitoring that, a description or some sort of justification how these other things may have weighed into those decisions.

DR. FUCALORO: So you're suggesting --

MR. GOSSELIN: I'm saying that's another option.

DR. FUCALORO: That's another possibility. In other words, be probably verbal in your approach as opposed to being quantitative --

MR. GOSSELIN: It would be qualitative more than quantitative, as part of a weighting factor. Or it could be a numeric factor weighted to it.

DR. FUCALORO: In other words --

DR. GLANTZ: I suppose what you would do -- I think that's not a bad idea, because, you know, there's some

things that are a little bit hard to put numbers to. I think probably the way you would operationalize this is you would continue with more or less the approach you've used and then when you come to us with the list, some things would be out of numerical order, and then you could have a column over there that says comments that explains why you promoted or demoted something beyond where it came if you just did a numerical sort.

So I think that's actually a good idea. I think it would bring some judgment to the process rather than just raw arithmetic.

CHAIRMAN FROINES: Peter, were you going to say something?

DR. WITSCHI: No.

CHAIRMAN FROINES: Okay. I think that I'm not sure I agree or disagree with Stan. It depends.

I think one of the weaknesses of the current document in the risk prioritization section is that when you read it, it's almost impossible to determine how a decision would actually be made. The document is extremely opaque in that respect.

And I think that the -- I'm really following up on what Tony was saying, I think that when we get into the process of risk assessment, everybody feels better the more transparent the process.

And so as much as one, as you hate to rigidify things down to numerical values so that you can't get away from them and they end up being frustrating, on the same -- at the same time having too much subjective qualitative judgment makes the process appear unclear as to how decisions were made.

So I think that we should avoid that level of subjectivity, so that anybody who reads a risk assessment can understand what decisions you made, how you made, and why you made them.

DR. GLANTZ: I agree with that too.

And I wouldn't think that this qualitative thing would lead to wholesale shuffling of the list.

But I also -- and as you recall, I'm the one who came up with the score thing in the first place, and I think that should be the basic guide, but I think -- I also agree it should be transparent, but I think after you've gone through the exercise of doing the scoring and coming up with a prioritization, that it would be totally reasonable for DPR to come back to us and say, well, here's how things scored out on a strict numerical basis, but we're going to make some, not wholesale, but some adjustments to this list because of these things that the numbers just didn't capture.

If you had something, for example, that based on

the scoring was rated very very high, but you knew that the manufacturer had agreed to withdraw the chemical at the end of the year, then even if it was number one on the list you don't want to do it.

I think that rather than trying to build some sort of numerical score that takes every one of these kind of possible situations into account, we should say you can move -- once you've come up with a numerical ranking, if you've got a good qualitative reason for moving something up or down the list, you can do it, but you need to state precisely why, which I think meets your transparency requirement.

CHAIRMAN FROINES: So that's the guidelines from the panel would be don't over-rigidify it on the one hand, but make it so everybody understands why it was done.

DR. FUCALORO: But with a clear understanding, of course, that if the quantitative result does not seem reasonable to people who know about these things, then the quantitative method is wrong, is bad.

DR. GLANTZ: Right.

DR. FUCALORO: So presumably you're going to get something which on its face is going to make sense to people who know --

DR. GLANTZ: Right. If you look how we did that with the ARB some time ago, that worked out pretty well

fine.

But I think this just adds a little bit of flexibility, and I think makes a lot of sense.

But I think doing it in a more quantitative way as the basic method is the way we ought to do it. But I also think some of these other things should be allowed into the decision making.

CHAIRMAN FROINES: I just had one question for Paul Blanc.

And that is if to get his opinion on the idea of having -- this is a question for a physician, and that is that you're considering including pesticide illnesses as a criterion, and so I wondered what Paul thought about that kind of surveillance information as a criteria for prioritization.

DR. BLANC: I think what you want to do is have, if yes, it raises, you know, raises the profile, and if absent doesn't mean that it's not a problem, most of these surveillance systems are -- have a tendency to vastly underreport, and overreporting of illness is not particularly the problem.

So the number of illness reports through the pesticide illness reporting scheme, for example, is not going to make you identify something that you shouldn't identify. If it's not there, it doesn't mean that it's not

a problem.

So as long as your weighting, your relative weighting system or your qualitative or semiquantitative scoring system takes that into account.

You wouldn't want to weight pesticide illnesses by saying that, you know, it's -- if there are 50 cases then you get 50 points. You wouldn't want it to overwhelm the system, but it's a reasonable thing and it doesn't have to be just illnesses through the pesticide illness reporting system. For example it could be pesticide illnesses could include both illnesses reported through our system and case reports of serious illness.

For example, I mean on the next slide you talk about the toxicity data, which may include it in a different way, but I can imagine for maneb, for example, since there are case reports that suggest Parkinsonism in human case reports that would be something that you would take into account in a weighting scheme, even though there's never been a case report in the pesticide illness reporting system in California of that, as far as I know.

Nor would it be likely, because the pesticide illness report is only good for acute illness, it's not good for chronic illness, by and large.

CHAIRMAN FROINES: Tobi.

DR. JONES: I think the next overhead bears

directly on the issue of how the scoring criteria are used.

And I think, Dr. Glantz, we would appreciate further your further consideration of this. Others of you also.

Because I think what we're suggesting, are there better ways or different ways to use the scoring, decreasing the range of individual criteria, decreasing the range of an overall score. I think currently the way the scoring system is set up, there can be a total of something like 25 points.

Whether we -- whether or not we use a single toxicity score, and I think currently, I'm not going to drag out the report, but we've got a couple of different approaches there.

Whether or not we should weight certain of these criteria in different ways, give more weighting to certain aspects, I'll say the physical chemical characteristic of the compound as opposed to the toxicity.

Also accounting for outliers in the scoring.

And one thing I can quite honestly say, I'm not sure quite what Randy -- Randy prepared these things, accounting for multiple pesticide monitoring, I can't honestly tell you, I'm not quite sure what he exactly meant to include in that, per se.

DR. FUCALORO: I might suggest it may mean classes of compounds that have the same toxicological effect.

MR. GOSSELIN: If there's a method for multiple residue monitoring, it might give it a plus.

DR. FUCALORO: Just guessing. I don't know.

DR. JONES: Now, one of the things, based on the recommendations of the committee, and I'm not going to dwell on this point, is the committee recommended a batched approach to organophosphates.

Let me just say at this point, based on discussion at the OP workshop that you had back in October, we and OEHHA are currently working on organophosphate policy. I think the overall issue of whether or not a batched approach to organophosphates would work at all needs further discussion with the panel itself.

I think this probably kind of wraps up what Paul and I have mentioned, and that is the committee's recommended we need a clear policy in ranking process to coordinate the priority of all the programs, and that is 1807 and SB 950. And we agree with that.

We currently use a number of factors in prioritizing initiation of risk assessment, ranging from toxicity in air concentrations to amount of use, the manner of use, the illnesses in the populations exposed.

And what we are proposing in this instance, hand in hand with providing an annual update on this report, is providing to the committee an annual plan that will describe

which risk assessments are initiated, the rationale for those risk assessments and coordinating the prioritization of risk assessments with the prioritization for air monitoring.

I think this probably best captures that in that the improved coordination needs to update a prioritization, expand to include both the risk assessments and the control measures.

The prioritization should include -- improve the coordination of the monitoring and risk assessment.

Paul and I have been discussing how to use the backlog of existing monitoring. I think looking at the history of the 1807 process relative to the history of the department being involved in developing risk characterization documents, we're sort of out of sync and we're kind of gradually catching up to that.

I think we need to determine how best to use the past monitoring data that we have collected and whether or not in the context of the initiating our risk assessments whether or not we need to go back and ask ARB to update that monitoring data and particularly in light of the discussion you just had about application site monitoring and modeling itself, how we need to better explain how we're going to plan to do that.

So that's where we are.

I would, I'd like to for Drs. Froines, Blanc, Glantz and Atkinson to receive any further comments. I don't believe Dr. Atkinson is here today to hear further discussion. We had quite a good discussion with him. But any further comments you have for us on the document, particularly in light of the discussion today, would be most helpful.

MR. GOSSELIN: Kind of the what you all kind of see after we get through with this is the same sort of numeric ranking with some of those adjustments going through, and essentially some of the other, you know, very narrow list of some of the qualitative issues, and then us coming back annually starting from the top saying here's what we're going to plan, whatever we can manage staffing wise to initiate TAC documents, and couple that with a request to ARB for monitoring at the same time, and they go in parallel tracks.

And then if we go down the list because of whatever reasons that that is laid out in writing and it's sort of very transparent as to sort of the plan we have.

And then I think it kind of gets away from, I think we're all struggling with is two different separate tracks and trying to have the roads meet.

DR. FUCALORO: Let's assume you do a quantitative approach, and you have end categories in which you rank them

and you add up those numbers, and you come up with the number and it comes up with the priority number, then you order them in that fashion.

And let's assume for the moment that a good number of these end categories are not one, two, three, but really have some gradation in them, for example usage. You would have all sorts of gradation.

It might be a good idea to have a column, N plus 1 column. N plus 1 column would be, of course, the prioritization list in its ranking in order and the ordering of the other categories, to see if there's any one particular one that really you should be able to see which one really affects the overall outcome, because in a discussion on the plane with Craig, who said it might be a good idea just to look at the usage, the usage might in fact be an overwhelming, I mean at least in common sense, if you look at usage, it might be an overwhelming factor of what determines what we should be looking at it.

MR. GOSSELIN: That was one of the issues on the I think on the outlier factors where, you know, I think you're limited to, what, a factor of four as the max and then --

DR. BYUS: Out of how many, 24?

MR. GOSSELIN: Yeah.

But to get the four, you have to achieve a certain poundage, but then there are some poundages that are orders

of magnitude far beyond what you would need to get a four, and that somehow that needs to be taken, if you look at the list of usage by pounds, some really stand out as major uses around the state that you'd probably lead to more widespread potential exposure.

DR. BYUS: When I read the document I thought it was pretty good attempt to do this, but that was my only -- my feeling was that usage was underrepresented in the sense that if it was -- you could only get a possible four out of the total of 24 for using -- because there's a considerable variation in the usage among all of this.

I would in general, many of these, most of these things are reasonably toxic, and at first blush it seems almost that usage should receive more points than that. You follow me? How do you decide it gets 4 out of 24? That's kind of the -- all these factors are great, I mean I think they're all very important, but I think the key then is each category how many points it actually gets is something that needs to be discussed, not so much the relative within each category, which I think you've done -- it seems that you have a relatively very nice job on, but it's sort of the overall weighting of these categories and how many points they should really get.

DR. JONES: Let me ask you just for example, because as I go back and look at how we've described it in

this instance, there's equal weighting to whether or not something is identified as a B carcinogen by US EPA.

DR. FUCALORO: I can't hear what you're saying.

DR. JONES: There's equal weighting numerically to whether or not something is identified as a class B carcinogen by EPA or the National Toxicology Program, compared to the usage.

So you may have something that has relatively low use, but it may receive a score of four, based on its carcinogenicity.

So I guess what I'm interested in is would you say change that relative ranking of the usage versus that particular toxicity characteristic.

DR. BLANC: Do you have an overhead of the point system?

DR. FUCALORO: That's what we need.

DR. JOHNSON: I'm sorry, I don't.

CHAIRMAN FROINES: I can read it to you. Can I just use the '96 document?

DR. FUCALORO: Just read that whole thing to us.

CHAIRMAN FROINES: I'll read you the whole thing.

Vapor pressure is, you know, sales use data, Henry's constant, acute toxicity, oncogenicity, and NOEL.

So there are three toxicity measures, one vapor -- two vapor pressure measurements and one use measures.

DR. GLANTZ: I mean, we'd had some e-mail go back and forth and I talked to, I forget the fellow's name.

DR. JONES: Randy.

DR. GLANTZ: Yeah, Randy. About this issue of use and I think it makes sense to give the use more weight, or actually not more weight, but to extend the scale because what's -- because I don't remember what got you a four, but there were other -- there were things that got way more usage than a four.

DR. JONES: Well, currently it's anything greater than 500,000 pounds on an annual basis, but yet have categories that were way up in the multimillion pounds.

DR. GLANTZ: So I think that that -- that we ought to let -- what I think you ought to do is expand the scale for the usage, which would mean -- what that would mean is you could potentially get -- if it's very heavily used it will probably also -- the usage would sort of implicitly weight more heavily in the prioritization and then if you end up with, you know, something where you're using a huge amount of water to drown ants or something, you can use your judgment thing to say, well, there's a drought, it's good that we're using all this water.

CHAIRMAN FROINES: You could also, you could consider some a little bit of a tiered system where, say, you took everything over, what, five million pounds and

said, boom, let's look at this, because there's so much of it or a million pounds and say above a million pounds it gets starred, and we look at it and then we rank things within that context for toxicity.

The question is does that mean that something around 600,000 pounds gets left out that should be in, and I don't know, but that's something to think about anyway.

DR. GLANTZ: I think, though, I think, John, if they expanded the range of weights that you could give based on usage, that would happen sort of naturally, and then especially if we add in this, let's look at the -- apply a little judgment here.

I think that's a more straightforward way to do it.

Because I'm afraid if you start doing things by tiers, what if you have some huge amount of something that's really very benign versus some small amount of something that's hideously toxic and, you know.

Just add a couple more.

CHAIRMAN FROINES: It means that when you have things with huge amounts of use, they should, by definition, be a first priority for evaluation of toxicity.

DR. GLANTZ: Right.

CHAIRMAN FROINES: And then you may discard them.

DR. GLANTZ: Right.

CHAIRMAN FROINES: It's something that you've got 15 million pounds being used in the state you better say we better figure out whether this is important or not.

DR. BYUS: If you look at the usage table, which is very informative, if I might add, quite fascinating to me to read it, it is quite amazing how much of these chemicals are put into the environment. Some of these chemicals, huge amounts of pounds, nearly inconceivable. If you looked at the overall priority score where the most it could get is four, out of a total of 24 points in prioritizing it, it just seemed to be --

DR. GLANTZ: Well, that's what we're saying.

DR. BYUS: I know that you can have all the caveats of using a little bit of a highly toxic material, but I'm just saying as you -- if look at it, that is what I was struck with.

DR. GLANTZ: That's why I'm suggesting that instead of zero through four for the usage it should go maybe zero through eight.

DR. BYUS: Okay.

DR. GLANTZ: So that weight it more heavily.

I think if you did that, then I think the natural result of that process is that what you guys are talking about would just happen.

DR. FUCALORO: You know, this is a difficult

problem, because at the end of the day after you get some sort of prioritization list, really we're lacking something here, and that is the expertise for someone to say, someone who has judgment of the toxicity, has knowledge of the toxicity, knowledge of usage and probably exposure, some -- all these things, and then in good judgment to say this makes sense or it doesn't make sense.

DR. GLANTZ: That's what we're here for.

DR. FUCALORO: I understand that.

DR. GLANTZ: We have our chair. Our chair is.

DR. FUCALORO: Let me finish this. If someone is able to do -- if one can do that, look at the current list today and come up with something like that, then you would go back and look at all the determinants and you do some sort of pattern recognition mathematics to come up with how you should weight. In other words, you're comparing that usage accounts for only 16 percent of the total score. Maybe it should count for 30 percent, I don't know. But that would be some way to do that.

DR. GLANTZ: Well, yeah, I can tell you, they come up with their new weighting, we can discuss it, move things around arbitrarily, and then I'll go run it through the computer and give you the scoring for that function. I mean, that's something that that's ten minutes.

DR. FUCALORO: You see what I'm saying, we're

doing it in some ways backwards. If you knew what the results should be, if you knew what the results should be in terms of at least ordering, then you can see what the important determinants of that --

DR. GLANTZ: But that's what we're doing by setting these weights. I mean, that's what we're doing actually. I'm sorry.

CHAIRMAN FROINES: Paul.

DR. BLANC: I just want to clarify by rather than what would actually be used to calculate the score and what that actual score would be, but let me see if I understand.

MR. GOSSELIN: No, we're going to keep the score.

DR. BLANC: I understand. Let me see if I understand.

The four generic categories of contribution, would it be safe to categorize them as use, volatility, chronic toxicity and acute toxicity? Is that really basically what we're coming down to?

MR. GOSSELIN: For what would be the score?

DR. BLANC: The use we just talked about.

The volatility is this issue of not using both Henry's constant and the vapor.

Chronic toxicity is really oncogenicity plus other issues.

The acute toxicity is what you raised about the

pesticide illness reporting, but also the NOEL. Is that an acute NOEL?

CHAIRMAN FROINES: No. I think it would be a NOEL, because they have an acute toxicity.

DR. JONES: We have identified both.

CHAIRMAN FROINES: Chronic NOEL.

DR. JONES: Acute toxicity as a category and the NOEL, and I think that could probably run the range of relatively acute like teratogenic effect to chronic NOEL, and I don't think we've tried to prejudge that in the document itself, probably be more based on the NOEL from which we would determine our regulatory endpoint.

DR. BLANC: What I was getting at, if one could more or less categorize each thing into one of those things, if you conceptualize it that way, then you could decide if you thought that -- if you thought that those were the four components and then you could decide what the relative weighting would be conceptually, and then you can come up with a scoring system which incorporates it.

For example, let's say roughly there are 32 or 64 pesticides. Let's say there are 64 pesticides. I don't know how many there are on your list all together. Let's say you were roughly dealing with that number.

Then you could in terms of use, you could actually rank order them in use and then divide by eight or dividing

by 16 and you, if divide by 16 and there were 64 of them, then the one who was the highest could come out at four, or if you wanted it to come out at eight you divide by a different number. I mean, the arithmetic would be simple, but I think what would -- and I think you should keep a scoring system, because that will allow you to be the most transparent, which is something that John was urging.

And in terms of the nuance of it, I think you do need to think through the relative weighting of chronic toxicity, and I would put oncogenicity within that, but I wouldn't have it, you know, run the show.

And similarly with acute toxicity, I would think about the acute, you know, LD 50 and animal data, but if you had lot of reports of human illness, then acute human illness, then I would, you know, bump it up and as long as we can see when it comes to us, you know, little notes that explain how something got to scoring it did more or less and things aren't widely out of shape, then that makes sense, because I don't think there's another, beyond those four broad categories, those seem to me to be the things that matter.

DR. BYUS: Very nicely stated, Paul.

DR. FUCALORO: I think it is.

DR. BYUS: The document is, I mean, again --

DR. GLANTZ: You've become our poster child.

DR. BLANC: Not to misuse a term.

DR. GLANTZ: Not to misuse a term.

CHAIRMAN FROINES: If I can change the subject a little bit. Because I think that there's one thing that Tobi said that I wanted to emphasize, and that is that this document in 1996 was good. I mean, it laid everything out the way we're talking about, and there may be differences in the approach based on what you, Paul, said and what Stan said and what Craig said and so on and so forth, but this did -- this was an acceptable ranking system.

Where the questions arose was then there seemed to be a disconnect between what was in the document and then what got done or was planned to have been done.

So the other piece that's important is to have the ranking, yes, but also to have the program plan that says this is what we're going to do and here's why we're going to do it.

So I don't think those things are separable.

We can debate these little categories and how to do the rankings for a hundred years and we wouldn't necessarily improve upon them dramatically, but if there's a disconnect between priority setting and program, then that is a problem.

And so that's one thing I think we need to be careful to avoid, because I think that's what gets us into

the kinds of confusion that led to these kinds of discussion.

DR. BLANC: Which I think will be largely solved by what you said earlier today, which is that the sine qua non of bringing the document to us will not be having air sampling data, although if you have air sampling data that will be included.

MR. GOSSELIN: There will still be an exposure section to the document.

DR. BLANC: But it may not be driven by field data necessarily.

CHAIRMAN FROINES: And that's required under the law, so that absolutely needs to be there.

Does that seem sufficient for you folks to go back to your drawing board?

DR. JONES: Certainly a good start.

CHAIRMAN FROINES: Great.

DR. JONES: If you have -- if the four selected members have any additional comments for us, we would most appreciate it.

CHAIRMAN FROINES: I have one I'll say right now and let it go.

It seems to me you use, and Paul may disagree on this, because he doesn't like carcinogens and I do, you use EPA and NTP, and but you use Prop 65 lists on reproductive

toxins.

And it would seem to me that you should consider authoritative bodies for carcinogens as well as authoritative bodies for reproductive toxins, to have an internal consistency, or in the alternative certainly the use of IARC documents would be an acceptable approach in terms of identifying oncogenicity.

I think the trouble with picking regulatory agencies approach like EPA is regulating carcinogens is a very different tact than identifying them sometimes and IARC probably does a better job of identifying than EPA does and so considering the use of -- consistent use of authoritative bodies or IARC would be, I think, useful addition.

Thank you very much. It's very nice to have Tobi here.

DR. JONES: Thank you.

CHAIRMAN FROINES: Look forward to working with you again.

MR. GOSSELIN: Actually we had one small presentation and we don't need to give it. It was a description of the multi-residue monitoring we had in Lompoc. We could, if we have them, just hand out the overheads and forego the discussion.

CHAIRMAN FROINES: Okay.

DR. BLANC: Good idea.

CHAIRMAN FROINES: So we're going to talk now about -- this is basically the panel talking with itself, but, Melanie, can you join us.

Just for the record, there will be no closed session on litigation. And I'm required to say that for the record so that everybody is aware that we are not going to hold a closed session.

DR. BLANC: How about a session with clothes?

CHAIRMAN FROINES: What?

DR. BLANC: A session with clothes.

DR. BYUS: Closing a session.

CHAIRMAN FROINES: We're getting there. We'll be there shortly.

DR. GLANTZ: I going to get us some new clothes after this meeting.

CHAIRMAN FROINES: The first thing to raise is, Jim, do you want to have a seat next to Melanie for a second.

Everybody knows Jim Behrmann, on the panel.

DR. FUCALORO: And admires him.

CHAIRMAN FROINES: And admires him.

MR. BEHRMANN: Thank you, Tony.

CHAIRMAN FROINES: We want that in the record.

I just want to make it an official statement that Jim Behrmann is the new SRP liaison. He is replacing Bill

Lockett, who appears to have left the meeting.

DR. BLANC: No, he follows Bill Lockett, who is irreplaceable.

MR. BEHRMANN: I was going to comment on that.

CHAIRMAN FROINES: That's better said.

But we want to, the next time we have a meeting, we want to officially thank Bill.

So this is --

DR. FUCALORO: This is the last?

CHAIRMAN FROINES: No, he's going to continue part time on special projects for a period of time. Bill is retired from ARB.

So Jim will be will serving as SRP liaison from now on.

DR. FUCALORO: Keeping you awake?

CHAIRMAN FROINES: Sorry, we're keeping you from your appointed sleep in the afternoon.

DR. BLANC: I wish.

CHAIRMAN FROINES: Jim, the other thing is that the upcoming meeting dates that are tentative meeting dates are Monday, March 5th, at Riverside, and Monday, April 30th, at UCLA.

Can I take --

DR. FUCALORO: Just one second, please. Give it to me again.

CHAIRMAN FROINES: March 5th, Monday, UC Riverside.

And Monday, April 30th, at UCLA.

We have had a number of meetings in San Francisco Bay Area, so we're going to try to spread it around.

DR. FUCALORO: In fact, I'd like to read Fucaloro-Byus' priority list where we should be meeting. UC Riverside, number one. Ontario Airport, number two. San Francisco Airport, number three. UCLA, number four. And UC San Francisco, number five.

DR. BLANC: What about Claremont? You did that nice dinner.

DR. FUCALORO: I did that as --

CHAIRMAN FROINES: Do you want to read it again?

DR. FUCALORO: I'm no longer dean. I don't carry any swat any longer.

CHAIRMAN FROINES: Well, the point being --

DR. FUCALORO: UC Riverside and Ontario Airport, in some ways is I think certainly easy for Roger, for me, for Craig. And that's three of us.

And I don't think --

DR. WITSCHI: UCSF is very convenient for four, for Gary, Stan, Paul and me.

DR. FUCALORO: That's why this priority list has to be thrown away.

DR. BLANC: I want to apologize, because it's partly been because of my -- certainly because of my scheduling in December that the meeting was where it was, and there was at least one previous one where that was --

DR. GLANTZ: It was my -- I couldn't --

DR. BLANC: And I fundamentally agree that it's really not been fair, the amount of San Francisco meetings.

DR. BYUS: The only problem is the taxi, is taking the long taxicab --

DR. FUCALORO: It takes --

DR. BYUS: Getting in there and out of there from the airport. At least if it's here, it's a lot more convenient. Not that -- you know, it's just getting a taxicab out is difficult to catch an airplane. We've just barely made it.

DR. FUCALORO: Sometimes we have just made it.

CHAIRMAN FROINES: You guys should have --

DR. FUCALORO: I was going to show up at your doorstep --

DR. FRIEDMAN: Can you rent a car?

DR. BLANC: That takes an hour to return in this airport, unfortunately, with the new system.

DR. FUCALORO: I was going --

DR. BYUS: The airport here is much better.

CHAIRMAN FROINES: Can I move this along?

We're going to try and balance the meetings between these areas and Claremont, Riverside and San Francisco, and once in a while have a meeting at UCLA. But Kennedy and I are two, we aren't three and we aren't four, so we understand that our general position is weak on this, but once in a while a meeting around at UCLA or at the Los Angeles Airport.

So we'll, Jim and I, will work that out.

DR. GLANTZ: I think the general rule of trying to keep it near the airport, so we don't have to pile the cab ride on.

DR. FUCALORO: From Ontario we can fly to LAX.

CHAIRMAN FROINES: And the question I wanted to raise is I want to go back --

DR. BLANC: What about your helicopter?

CHAIRMAN FROINES: Remind you that until we had the workshop in '98 on diesel, we had never had anything but reviewing specific documents that came to us from the ARB or from -- well, from the ARB basically.

And since that time we've had the diesel workshop, two pesticide workshops, the acute RELs, the chronic RELs, the stochastic modeling document. Now we're going to be getting SB 25.

So that we've actually talked about having other workshops on pesticides at some point, depending upon areas

of interest, so that we not only take up documents -- although it would be interesting if Melanie or Janette could tell us when an actual real-live document about a chemical would come forward -- but the fact of the matter is we have a fairly diverse portfolio at this point, and that I think everybody is working very hard because of it.

And so my question would be is what do you think is a reasonable period of time for meeting? Would you say every month, every other month, every three months? And so we need to in a sense define our workload so that we're in some measure of control of it, because there's enough work where we can meet every month, clearly.

DR. GLANTZ: I think we should schedule monthly meetings.

DR. BLANC: No.

DR. GLANTZ: You can always cancel.

DR. BLANC: No. Absolutely not. That would be an odious burden. I'm sorry. I cannot.

DR. GLANTZ: We've been more or less meeting monthly.

DR. BLANC: No, we haven't.

DR. GLANTZ: Yeah, we have.

CHAIRMAN FROINES: But there's another issue here that Jim and I would like to raise with you, is we would like to schedule on whatever frequency we come up, we would

like to schedule those meetings at a specific day and time every month so everybody can plan their calendars on a consistent basis, rather than every month trying to figure out who's available.

DR. BLANC: Well, there's something in between, which is doing what you're doing now, which is at a given meeting -- and it's not something that we've actually done consistently -- is at a meeting everybody gets out their calendars and commits at that meeting to the next two meetings and or whatever it is.

I mean, I tell you the truth, the way my schedule works it would be we could say we're going to meet every other month on the first Tuesday of the month, but I can tell you that based on my schedule I would miss a lot of meetings, because it's hard for me to predict, even though I know that there are certain days of the week where I could never commit because of some fixed thing, but just the nature of my schedule is not very predictable in that way, because how do I know when the American Thoracic Society meeting is going to be, which week of the month it's going to be in a given month, and that kind of thing.

But if we -- it seems to me we can take a middle ground where we sat down at these meetings and just like you just said, okay, these are the two dates, do those work for everybody. Everybody get them on their calendar. It saves

Peter a lot of headache.

CHAIRMAN FROINES: He's already gone through the headache. You haven't saved anything. That's the headache he's gone through to get to these days. I'm trying to help it out further.

DR. GLANTZ: But the problem is like if you look at my situation, in the fall I have a big teaching commitment that clobbers Tuesdays and Thursdays, so I couldn't go to meetings on Tuesdays and Thursdays and that was actually why we had a couple of them at UCSF, so I could make it.

But the the rest of the year, I don't have Tuesdays and Thursdays, you know. And I just don't think we're going to be able to have just a fixed --

DR. FUCALORO: I'm going to tell you, if we're all giving our own individual situations, and unless you hit the spring break, I'm not going to be able to make it in the morning to any meeting on a weekday for this spring semester.

After the middle of May, I will be relatively free. I have a year sabbatical and I'll be mostly on JPL, but just in town, so to speak.

But these two dates that you gave me on Monday, the Riverside one is a possibility if it's scheduled at noon or thereabouts.

DR. BLANC: Or you can miss the morning part.

DR. FUCALORO: Or I can miss the morning.

CHAIRMAN FROINES: Let's move ahead, because it's clear -- I'm sorry, that one is not going to fly.

DR. FUCALORO: In some ways that's supporting what Paul is saying.

CHAIRMAN FROINES: That one is -- I'm pushing the rock of Sisyphus up the hill on this one, I think.

Let's switch --

DR. FUCALORO: What happened to Sisyphus?

CHAIRMAN FROINES: What?

Let's make a decision about frequency, because that we can decide.

DR. GLANTZ: How many meetings did we have last year?

DR. FRIEDMAN: How about every two months, six a year.

DR. FUCALORO: I think that's probably good.

DR. FRIEDMAN: That feels good to me.

MR. BEHRMANN: That has been your approximate meeting frequency.

DR. GLANTZ: That's fine. It seems like it was more frequent than that.

MR. BEHRMANN: I think one year there were seven meetings, and so you've been ranging between six and seven

meetings a year.

DR. GLANTZ: Okay. Every two months, except you've got March and April here, but that's okay.

DR. BYUS: Well, I think unless the workload, unless you have to have us -- we would not --

DR. GLANTZ: Then you can have every two months, and then you could have an additional meeting if we needed it.

CHAIRMAN FROINES: If the workload --

DR. BYUS: If the workload warrants it.

DR. BLANC: So consistent with that idea, wouldn't, John, it make sense for us to choose or to discuss now a date in the last two weeks in June, for example, and people would be ready, so rather than tomorrow have Peter start sending out faxes for us to mark out the dates we're not available in June.

CHAIRMAN FROINES: Okay.

DR. FUCALORO: I think that's good.

DR. BLANC: And say that it should be in Claremont in June.

DR. FRIEDMAN: I can already tell you, I will not be here in the last two weeks of June.

CHAIRMAN FROINES: Okay.

DR. FUCALORO: Me either. Vacation.

DR. GLANTZ: I don't have problems. That's pretty

clear for me. Tuesday isn't a great day for me.

DR. BLANC: When in the second week of June do you guys leave?

DR. FRIEDMAN: I'm going to leave either on the --

DR. GLANTZ: I think we should have Peter do the fax.

DR. BLANC: Wait a second. Let's just see how long this takes. This is an experiment.

When do you leave?

DR. BYUS: My problem is it's my 30th wedding anniversary and planning --

DR. BLANC: No, no, the problem is you're married 30 years.

CHAIRMAN FROINES: Just tell us the facts, don't tell us the story.

DR. BYUS: The earlier in June, the better for me. First week is the best.

DR. BLANC: The first week is not possible for me, but the second week is possible for me.

CHAIRMAN FROINES: First week?

DR. FANNING: Not the 7th and 8th.

DR. GLANTZ: I think we should have Peter send us faxes.

CHAIRMAN FROINES: If I can tell you one thing that you may be interested in, that is the Southern

California Particle Center and Supersite is organizing, under contract with OEHHA, a two-day meeting on gasoline and health effects, gasoline-associated health effects and risk assessment, and so the first week in June there will be a very interesting two-day meeting.

And it's the first time that -- no, it's the second time that in California there's been a meeting on gasoline-related issues in contrast to diesel, which there's been obviously a lot.

So one may want to keep that mind. We could conceivably try and schedule the meeting about the same time as that meeting in case anybody wanted to stay over for it.

DR. BLANC: We just said it's going to be the second week of June that we're going to meet, not first week.

CHAIRMAN FROINES: Okay.

DR. BLANC: So what day of the week is bad for people?

CHAIRMAN FROINES: What day of the week is good for people?

DR. FUCALORO: That's a positive way to put it.

DR. BYUS: Any day is fine.

DR. FUCALORO: Again, if we're going around the table, any day is fine with me.

CHAIRMAN FROINES: Peter.

DR. FRIEDMAN: Is the second week the one beginning the 4th?

DR. BLANC: Beginning the 11th. The week that begins the 11th.

CHAIRMAN FROINES: Peter, the 11th to the 15th.

DR. BLANC: You said it had to be earlier in that week, right?

CHAIRMAN FROINES: Peter doesn't know.

He says okay.

He says okay.

DR. FRIEDMAN: I can only do the 11th or 12th.

CHAIRMAN FROINES: Stan.

DR. GLANTZ: The 12th isn't so hot for me.

DR. BLANC: So, Peter, try the 11th, poll everybody for the 11th of June, but then if it's 11th of June, I would say since the two preceding are in Southern California, it actually be in San Francisco that one, because I will have just gotten back to town on Sunday from two weeks out of town, I won't be able to travel very easily.

DR. GLANTZ: We're saying the 11th of June tentatively?

DR. BLANC: In San Francisco.

DR. FUCALORO: Your contrition is embarrassing me so.

CHAIRMAN FROINES: We need some lead persons for the methodologic issues associated with SB 25, for the children's health issues. That's correct?

DR. MARTY: Correct. We need some lead people on the document that we're producing that describes the prioritization of the toxic air contaminants to place on the list of TACs that potentially differentially impact children.

CHAIRMAN FROINES: At the last meeting, Gary, Stan and Paul expressed some interest.

DR. BLANC: Not I, said the king.

DR. MARTY: Peter, I thought it was Dr. Witschi.

DR. WITSCHI: I did not express anything.

DR. FRIEDMAN: I just raised the question, you're talking about the health effects of kids or whether you're talking --

DR. FUCALORO: It's not me.

DR. MARTY: This is when we were describing our approach to looking at the TACs and there's 200 of them and what we have to do is come up with a list of five, up to five, we started to describe what we had done to date and Drs. Witschi, Glantz and Friedman, in my memory, commented that they would be very interested in looking at --

CHAIRMAN FROINES: Dr. Witschi has agreed and Stan --

DR. GLANTZ: I'll agree.

DR. FUCALORO: Stan never says no.

DR. GLANTZ: No, That's not true. I say no sometimes.

DR. BLANC: He says no all the time.

DR. GLANTZ: I like this sort of manipulating lists.

CHAIRMAN FROINES: Moving on. Moving on. I also have down here an ARB list update.

Do we need a lead on that, Janette?

MS. BROOKS: In the past, the way it was done, usually there was an exposure atmospheric scientist side and then someone else, and Stan and Dr. Seiber did it the last time.

CHAIRMAN FROINES: So the logical person would be Tony Fucaloro and a health person.

DR. BYUS: What's the chemical?

CHAIRMAN FROINES: It's up the date --

DR. BLANC: Someone in a background in organic chemistry and particles and industrial hygiene would be important, really, on this kind of thing.

DR. GLANTZ: No, I don't think that's fair.

DR. WITSCHI: What are the compounds or the list?

CHAIRMAN FROINES: Craig is not currently a lead person.

DR. GLANTZ: I think Craig would be really good at that.

DR. BYUS: It's just the priorities? All right.

DR. FUCALORO: Who is on this list?

CHAIRMAN FROINES: You and Craig.

And the chronic RELs, Melanie, why don't you go ahead and tell us about that.

DR. MARTY: I actually have a few overheads on this.

DR. FUCALORO: It wouldn't be Melanie without overheads.

DR. MARTY: I just wanted to update the status of the chronic reference exposure levels.

Andy, you want to go ahead and put up the prior actions.

Let's skip the batch 2B and put up the prior actions first.

As you'll recall, initially we had a draft technical support document for the determination of noncancer chronic reference exposure levels.

This was available in '97 for public comment.

We revised the draft, and the panel reviewed it and finally approved the methodology for the chronic RELs as well as a list of an initial 30 or so chronic RELs on February 23rd, 2000.

Since then, the panel has reviewed and approved two more batches, which we have labeled 1B and 2A. And they are adopted now for use in the air toxic hot spots program.

The next batch that we want to give you is batch 2B. We have incorporated public comments on this batch and updated the methodology where panel commenters had indicated needed updating.

And we also added in some new data.

Next slide.

So we're looking at sending batch 2B to the panel for review, perhaps starting in -- the review starting in at the March meeting.

I guess the concern that I have is that we also need time for the panel to look at what we're doing under SB 25, so I'm a little concerned about the overload issue.

And finally I just wanted to remind you that we actually have about 60 more chemicals that we were developing chronic RELs for, so we're going to be putting those into batch 3, and those are going to go out for public comment shortly.

DR. GLANTZ: How many batches are there all together?

DR. MARTY: There's actually three -- the history is we started out giving 120 chemicals. And that just didn't work in the scheme of things. It was overload. So

we've broken it into three batches.

DR. GLANTZ: So batch 3 is the last batch?

DR. MARTY: Batch 3 should be the last batch. Should be the last batch for now.

DR. GLANTZ: For now. Okay.

DR. MARTY: But again my major concern is overloading the panel with batch 2B while they're also having to deal with the information we need to bring forth under SB 25 in terms of prioritizing the TACs to develop the list.

The batch 2B chemicals we actually have them, I don't know if you want to put the slides up, but Dr. Froines has already assigned leads on those. We did that about a year ago.

CHAIRMAN FROINES: They have undoubtedly forgotten.

DR. BLANC: He may need to update that.

DR. GLANTZ: You may need to remind us.

CHAIRMAN FROINES: I have it here. This is like, you know, McCarthy. I have the list.

DR. BLANC: Did we already discuss these?

DR. GLANTZ: No.

CHAIRMAN FROINES: No.

DR. BLANC: These are things we're supposed to discuss?

DR. MARTY: These are things that you have not gotten yet.

CHAIRMAN FROINES: We're going --

DR. BLANC: Have we gotten the document? No, we haven't. It's not like I forgot there was something I --

CHAIRMAN FROINES: We're going to have to mix it up a little bit more, because Dr. Kennedy is out ill, and so his compounds will have to be rescheduled.

DR. WITSCHI: Can you read the list, the assignments?

CHAIRMAN FROINES: Oh, you want me to go through all of them right now?

DR. GLANTZ: No. You can get a copy.

CHAIRMAN FROINES: I'll get you a copy.

DR. BLANC: Any more bad news? Melanie, what else do you want to hit us?

DR. MARTY: No bad news, really.

The March 5th meeting I would like to go over a little more what we've done on SB 25, so that I would like to provide the leads what we've got to date and then present that to the panel.

And also I'm -- I haven't talked to Dr. Froines about this, but we do have a presentation we've given in a couple places now on why children might be more sensitive to chemicals in an environmental context than adults, and we'd

be happy to bring that presentation to the panel.

DR. BLANC: In March?

DR. MARTY: In March.

DR. BLANC: Does it have audiovisual?

DR. MARTY: It's got --

DR. BLANC: It's high-tech.

DR. MARTY: It's high-tech.

DR. GLANTZ: That means they have color transparencies.

DR. BLANC: Is there background music?

DR. FUCALORO: What audience is this intended for, this particular presentation, where is it pitched?

DR. MARTY: This presentation has been presented at the American College of Toxicology meetings and --

DR. FUCALORO: It's a high level?

DR. MARTY: Correct.

DR. BLANC: Yes. Fine. Do that. I would be in favor of that.

CHAIRMAN FROINES: We have two more items, quick, brief items.

One item that may -- hopefully is brief, is at the last meeting there was a seemed to be a general consensus that we should take up the issue of environmental tobacco smoke.

And so what we'd like to do is decide if the panel

wants to set it up as an action item for a future meeting.

In the meantime I'd like to ask Melanie to go back and look at the document and see if to what degree it needs to be updated for a meeting that we would schedule in the future.

And so the question before the panel would be do you want to proceed with it, and do you want us to schedule at a future meeting?

DR. FRIEDMAN: What is the reason for taking this up again? I mean, it's already been labeled as a toxic air contaminant.

CHAIRMAN FROINES: No, it hasn't been labeled.

DR. FRIEDMAN: That's right. What good will it do for us to reassert that we think it is?

DR. WITSCHI: I think the issue came up because we couldn't deal with the toxic air contaminants for children without having to deal with environmental tobacco smoke, which is probably the most important one.

DR. FRIEDMAN: Is that the context that we would be hearing about it in relation to children?

CHAIRMAN FROINES: Yes.

DR. WITSCHI: Yes.

CHAIRMAN FROINES: In other words, take it up as an SB 25 compound that would have to be listed as a toxic air contaminant.

DR. MARTY: The way the statute is worded is requested us to look at existing TACs and prioritize those, and since ETS isn't on the list, it's not on our list.

DR. FUCALORO: Then it's worth doing.

DR. GLANTZ: Yeah, I think if that's the case, and as Peter said, I think we should bring it up at the next meeting and do whatever we have to do to bring that fact to the ARB's attention.

Because to do a report, an SB 25 report on toxic air contaminants that affect children now, and leave out the most important one is just, I mean, it's just ridiculous.

DR. BLANC: Is the precise wording of the legislation -- what is the precise wording of the legislation in terms of when they say something is a toxic air contaminant?

DR. MARTY: What the legislation did was it updated the Health and Safety Code sections that deal with the TAC program, and so it didn't change the language that defines what a TAC is. What it did was ask us to look at existing TACs and prioritize them as to those which might impact children more.

DR. BLANC: What I'm asking is the precise language where they say that.

DR. FUCALORO: You'll slip it in without doing it.

CHAIRMAN FROINES: Well, if I can make a comment

on that while she's looking.

Right now we are under two suits, as everybody knows.

And the potential problem with environment tobacco smoke is the entire tobacco industry comes in and we would have to have a public input process if we were going to take it up as a TAC. So we have a potentially very contentious document that we would be taking up.

I'm worried that if this panel starts getting viewed as a controversial panel, that we begin to lose our credibility in terms of scientific integrity.

And I think that it's important to do everything we think we should, but we also need to be sensitive to our view.

DR. GLANTZ: Well, I understand that.

But, you know, I think that this panel's responsibility is to see the good science that's done. And there are times that certain interests don't like that.

And, I mean, the whole way this process was set up, and you and I as the longest continuously serving members, was to separate the regulatory aspects of these issues from the scientific aspects.

And I think if the panel starts to allow lawsuits, you know, people bringing lawsuits or calling us dirty names to interfere with intelligent scientific judgments, then

you've defeated the purpose of having the panel.

And I think we should proceed based on the science, and if someone doesn't like it, then everybody in America has the right to bring a lawsuit.

I mean, we've discussed these actions which are pending. I'm frankly surprised, having been on here for a long time, it took someone that long to get around to bringing a lawsuit, you know.

But I don't think -- I mean just from my experience in other areas.

But, you know, the fact is that I think we need to proceed using our best scientific judgment, independent of these other issues.

And, you know, during the debate, the discussions over diesel, I remember going to one of the many many workshops we had and listening, and one there was lawyer there who threatened to sue if we didn't do something or another, and my reaction to that, I had sat quietly through most of this just listening, and my reaction is if want to sue the Air Resources Board or us, it's a free country, but our job is to give you the best science.

And, you know, and I think we just need to proceed on those, that course.

I can tell you that one of the reasons that we get more and more work given to us by the Legislature is because

they have a great deal of respect for this panel, and they think that this panel does very good work and it's a very high-class scientific operation.

And I think that's why SB 25 was passed the way it was.

And I just think we should just proceed, and I think that the -- with the issue of second -- I think you're proposing a good thing. I think that Melanie should go back and look at the report that existed and see if anything else needs to be done.

And I think that before we -- the next meeting is almost two months away, and I think in the meantime you should look at that and consult with Melanie, talk to the people at the Air Resources Board, and if an action item on this is appropriate, then it should be, you know, as the chair as you ought to move it.

And I don't think -- I think the minute we start having to worry about whether somebody is going to sue somebody or how some public relations firm is going to portray the activities of this panel, we've lost our credibility and we've completely given up on the purpose that we exist.

DR. BLANC: Stan, I think you've -- okay. Can I just get an answer to my question?

DR. FUCALORO: Can we sneak it in.

DR. MARTY: Sure. The office, that's us --

DR. GLANTZ: I wouldn't sneak anything anywhere.

DR. MARTY: In consultation with the state board shall establish a list of up to five toxic air contaminants identified or designated by the state board pursuant to section 39657 that may cause infants and children to be especially susceptible to illness.

So section 39657 --

DR. BLANC: What I would ask, and consistent with what Stan suggested and John suggested, is that you and John be in consultation, and at the discretion of the chair, if there's an action item that should be constituted in whatever form makes sense for the next meeting, that part of that data gathering should be your consultation with the Air Resources Board and the counsel of the Air Resources Board as to whether or not your office is precluded or not precluded from considering the approved report that is already existing in your review of substances for which you should list five, or whether or not it would need to come back again.

Because it seems to me that there's enough vagueness in the statute as written that you may -- because the only reason you brought this up in the first place is you felt precluded from addressing that substance because ultimately the recommendation of the panel had not been

implemented by the state Air Resources Board.

DR. GLANTZ: I think there's another possible option there, and that is that the Air Resources Board, in light of the discussions at the last two panel meetings, could simply decide to take the report up and act on it on their own, without us having to do anything.

DR. BLANC: To revisit again.

DR. GLANTZ: Without us having to revisit it. They can do that too if they wanted to.

DR. FUCALORO: In fact that would be ideal.

DR. GLANTZ: In fact, I have to say I'm a little bit disappointed, because it was my impression after the last meeting that we would have some indication at this meeting as to what the board wanted to do, the Air Resources Board wanted to do. And I was sort of surprised that we didn't have some, I mean some indication of how they viewed this whole issue.

DR. BYUS: Again, it was my understanding the original report was put together on ETS with their approval.

DR. GLANTZ: Yes.

DR. BYUS: Under certain guidelines, and we are susceptible to process, due process. We have to follow the accepted process. We just can't do whatever we want, even if we think it's scientifically valid.

DR. GLANTZ: The report, the original ETS report,

was assembled under the 1807 guidelines. And it happened that it was not -- it went to the Air Board up to, but then they chose not to act on anything with the report.

So it's still sort of -- the one thing that they did say, actually, and it is on the record, I think it was Dr. Friedman, I think was his name, who is -- is that his name, who is one of the members of the board. Not this Dr. Friedman.

DR. MARTY: Bill Friedman.

DR. GLANTZ: Who said we should revisit this in a year, which they didn't do.

But I think this really does need to be clarified as to -- because I think one thing which is sort of a clear informal consensus that you've heard from the panel, if you look at the intent of SB 25, to not include ETS in consideration would be really really bizarre in terms of what the scientific evidence says.

And how we get from here to there is a different question.

DR. WITSCHI: There is just of course a way around this, and this is taking after identifying five compounds and they're plenty of them in ETS, we could --

DR. GLANTZ: I don't think we should play games with this. I don't think slipping things in, if we have learned one thing --

DR. BLANC: No, but my suggestion is not playing games. My suggestion is, you know, putting us in a better position to be responsive rather than initiating a process which would be backwards.

DR. FUCALORO: If ETS is clearly the worst environmental contaminant for children, ARB has to know that and say our hands might be tied by this because we can't designate it as such because --

DR. GLANTZ: There's nothing can't. They decided not to take action.

CHAIRMAN FROINES: We are, in all due respect, everything is getting quite repetitive at this point. Everything has been said at least two or three times.

DR. GLANTZ: Okay.

CHAIRMAN FROINES: And we should move on.

I just want to say one thing.

I agree with Stan a hundred percent in terms of his view of the process with respect to the SRP, and I think we always have to do everything within our power to maintain the scientific integrity of this panel and I think that has to be our watchword as we move forward.

So that I think is a central consideration for us to always keep in mind.

DR. MARTY: Can I make one quick comment?

I just want people to be aware, panel members, to

be aware that we are sponsoring another children's environmental health symposium April 23rd and 24th in Monterey, California.

It's the first day is pharmacokinetics and modeling the differences between kids and adults.

And the second day is neurotoxicology and using in particular neurobehavioral studies in animals and in humans and how you can use those in risk assessments, also involving differentiating between kids and adults.

So that the panel members, if interested, should attend. We have a great speaker lineup.

CHAIRMAN FROINES: Finally, the last thing on the agenda, last item, and then we'll be finished, is I want to say that, first, I want to thank Elinor Fanning for everything she's done for the panel. She has been absolutely outstanding in every sense. She's been central to working out with DPR and with OEHHA and ARB on a number of these issues, and so we appreciate her work with the panel.

She has now moved to the State of Washington. She lives currently around Seattle, Washington, but she's going to be continuing as special consultant to the panel. So we're going to keep her busy as long as we possibly can. So she's still with us, even though she's moved to Washington.

And but one thing I want to raise for you to consider at future meetings is we need to consider, given the workload that we have, whether we want to identify potential consultants who would be paid for consulting for the panel on technical issues or on specific chemicals, because it's written into the law that the panel can use consultants to facilitate its work.

And we should discuss that in terms of do people have ideas about people who we could hire in some capacity or other to help lighten the workload of the panel.

DR. FUCALORO: What's the budget?

CHAIRMAN FROINES: I don't think there is a budget. The budget would have to be created.

DR. FUCALORO: It seems to be --

DR. GLANTZ: You can't hire your wife.

CHAIRMAN FROINES: But it's an option to help us out and so it's something -- please give it some thought and we can talk about it at a future date.

And I believe that's the last --

DR. GLANTZ: I move we adjourn.

CHAIRMAN FROINES: Good. Thank you.

DR. WITSCHI: Second.

CHAIRMAN FROINES: All in favor of adjourning say aye.

(Ayes.)

CHAIRMAN FROINES: It's unanimous. Thank you very much.

(Thereupon the meeting was adjourned at 3:58 p.m.)

CERTIFICATE OF SHORTHAND REPORTER

I, JANET H. NICOL, a Certified Shorthand Reporter of the State of California, do hereby certify that I am a disinterested person herein; that I reported the foregoing meeting in shorthand writing; that I thereafter caused my shorthand writing to be transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said meeting, or in any way interested in the outcome of said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand this 17th day of January 2001.

Janet H. Nicol
Certified Shorthand Reporter
License Number 9764