MEETING

OF THE

SCIENTIFIC REVIEW PANEL ON TOXIC AIR CONTAMINANTS

CALIFORNIA AIR RESOURCES BOARD

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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. Peter S. Kennedy
Dr. James N. Seiber
Dr. Hanspeter Witschi

REPRESENTING THE CALIFORNIA AIR RESOURCES BOARD:

Mr. Steven Brisby, Air Pollution Specialist
Mr. Greg Harris
Ms. Michele Houghton, Air Pollution Specialist
Ms. Jackie Johnson, Air Pollution Specialist
Mr. Bill Lockett, Deputy Ombudsman, Northern California
Mr. William Loscutoff, Chief, Monitoring and Lab. Division
Mr. Peter Mathews, Office of the Ombudsman
Mr. Michael Poore, Chief Chemist
Mr. Michael Redgrave
Ms. Genevieve Shiroma, Chief, AQMB
Mr. Peter Venturini, Chief, Stationary Source Division

REPRESENTING THE OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT:

Dr. George Alexeeff, Chief, Air Toxicology & Epidemiology
Dr. John Budroe, Staff Toxicologist
Dr. Joan Denton, Director
Dr. Melanie Marty, Senior Toxicologist
Mr. Val Siebal

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P R O C E E D I N G S

CHAIRMAN FROINES: Dr. Blanc is wearing his white coat.

DR. BLANC: That's all because of you.

CHAIRMAN FROINES: Therefore we know that he has to be back to actually seeing patients and we should start.

And I wanted to make two announcements before we get into the actual agenda.

First, Dr. Peter Fucaloro has now joined the panel. What did I say?

DR. FUCALORO: It's Tony.

CHAIRMAN FROINES: And is here for the first time, and so welcome, Tony.

DR. FUCALORO: Thank you.

CHAIRMAN FROINES: Look forward to your being on the panel.

And secondly, I wanted to introduce to the panel Joan Denton. If she could have a seat.

Joan was formerly with the Air Resources Board and is now director of OEHHA. And so we welcome her, give her our best wishes, best luck, and whatever other kinds of support we can. I don't know if you want to say anything.

DR. DENTON: I would like to say something. Can you hear me okay?

DR. SEIBER: Just barely.

DR. DENTON: I'll try and speak up here.

I did a little bit of reflection before coming today, and for the panel members that don't know me, I really have a long history with this panel. Bill Lockett and I started out together with this panel with the support to the SRP and then I moved, when I moved to Stationary Sources Division, working for Peter, I was developing the exposure documents for our TAC program.

And I can remember after many many meetings Genevieve and I would say to each other how privileged we felt to be part of this panel, and to engage in the scientific and intellectual discussions which have occurred over time.

So now I find myself in the position of being the director of OEHHA and that it's a singular privilege to be able to continue this association, which I have had for so many years. I remember so many of you starting out.

So my goal as director is to maintain the high quality of science that OEHHA is known for. We have world-respected scientists, we have such high-quality people at OEHHA, and my goal is to continue that and to simply move the process along.

So it's my pleasure to be here. It's my pleasure to continue to be part of this Scientific Review Panel.

CHAIRMAN FROINES: Thank you very much.

DR. SEIBER: John, make a quick comment.

I feel we're very fortunate to have Joan as director of OEHHA. And she's absolutely correct, her interactions with the panel go way back and they have been more than peripheral interactions. They have gone right to the substance of some of the issues we've taken up.

And Joan always comes in well prepared and knows exactly what she's talking about. So I think we're really fortunate to have her as the director of OEHHA.

And I'll just say one other point with the Risk Assessment Advisory Committee, my other hat from a year or two ago, that Joan was active in that process as well. She knows the key elements that go into all these things extremely well.

DR. DENTON: John, if I might say one more thing, I note that on the agenda today you have my new staffers at OEHHA, and then the ARB staff, these are the people that I hired, so I'll be sitting back there and I'm very proud of all of them.

CHAIRMAN FROINES: That's great.

Joan, before moving over to OEHHA, had been working pretty much consistently on MTBE and now that, as the papers say, that issue has been resolved, it's clear she had to move on to another controversy.

DR. DENTON: It was because of me. It was because

of me.

CHAIRMAN FROINES: Thank you.

By the fact that Peter -- this seems very loud to me. Is there a way --

DR. DENTON: It's kind of tinny.

DR. SEIBER: You can't ask me, I've got a head cold. I can barely hear.

CHAIRMAN FROINES: Melanie, what does it sound like back there?

FROM THE AUDIENCE: It sounds fine, actually.

CHAIRMAN FROINES: So, Peter, turn it over to you.

MR. VENTURINI: Thank you.

I can't help but saying something briefly and how pleased I am that Joan has this new position.

But something has very fast happened within the organization and many people are coming and asking me if they can come work in my division because they really like my management development program.

Anyway, we've started to work a great deal more closely with OEHHA, so we really enjoy continuing that work with Joan and the OEHHA staff.

I just wanted to briefly do a very short introduction to this first item today. This is an item that it originally was scheduled for I think it was two SRP meetings ago, and we're taking it up now. It was the

request of the panel to have a presentation and discussion of our air monitoring network for toxic air pollutants and also our efforts and our analysis of these data.

And I just wanted to indicate there will be two presentations today.

The first will be our Monitoring and Laboratory Division. And my fellow division chief, Bill Loscutoff, and one of his staff, Michael Poore, will be making that presentation.

That will be followed by representatives from our Technical Support Division. That will be Steve Brisby and Mike Redgrave.

And I just want to say from my perspective I think -- I don't think, I know we are extremely proud of our toxic air monitoring program here in California. And I think once you see the work that's being done you'll probably share that.

And I am not aware of any other programs anywhere that have anywhere near or even close to the extensiveness of data gathered on toxic air pollutants.

With that, I'll turn it over to Bill.

CHAIRMAN FROINES: One thing before you start, and I don't know whether Bill or you want to comment, I'm serving on a committee of the South Coast Air Quality Management District, because the South Coast District has

now decided to be more proactive in monitoring for toxic air contaminants in the South Coast Basin.

I don't think we need to do it today, but if you feel able to at this point, I think at some point what we would like to know is what's the relationship between what you're doing and what they are planning to do, because we need the data.

And the work that they're doing they're also involved in monitoring around hot spots as opposed to simply ambient monitoring. And we are working to try and develop the best approach to that process.

So whether you want to talk about it today or at some point in the future, I think it would be very valuable to talk about how those two programs are to be integrated, if at all.

MR. VENTURINI: Just briefly mention, we are very closely plugged into that program throughout the various aspects of the Air Resources Board, and Bill and his people have been very plugged into the air monitoring effort and coordinating with the South Coast District.

Bill.

MR. LOSCUTOFF: Good morning. My name is Bill Loscutoff. I'm chief of the Monitoring and Laboratory Division.

With me is Mike Poore, our chief chemist.

We're, as the name implies, are the Monitoring and Laboratory Division is primarily responsible for air quality surveillance and laboratory support.

In terms of air quality surveillance we have numerous networks that we are in charge of, including about 50 criteria pollutant sites, a network of about 80 PM 10 sites, about 15 acid deposition sites, and about 20 toxic sites, and that's what we're going to be talking about today.

Also mention that we're just in the process of beginning to work on the 2.5 network implementation and what all that's going to do.

In addition to the sampling part or the air quality surveillance, we have three laboratories in our division, including an ambient laboratory in Sacramento, a mobile source support lab in El Monte, and a consumer products laboratory also in Sacramento.

And if any of you are ever in Sacramento or in El Monte and you'd like to have a tour, we're quite proud of our labs and be more than happy to give you a tour.

We also have some source testing capabilities.

So that's what the division is about.

This morning what we'd like to do is give you a brief review of the toxic monitoring network. Mike will be reviewing our mandate, what we've done through the years,

our sampling analysis techniques. He'll review some of the work we've done to assure data quality, and provide you a little bit of our vision of what needs to be done in the future.

Now, John, in response to what you just said, I don't know, we can do it sometime during a break, we are heavily involved with the South Coast District in terms of their Meets 2 program. We just met with their management team last Monday, a week ago Monday, to kind of clarify what it is we're going to be doing in response to them.

In a nutshell we're committing two and a half to three PY to support their program. We're going to be integrating the five existing sites in the South Coast Air Basin with five that they're going to be operating.

In addition to that, we'll be providing them with direct support on some of the specific air contaminants that they'll be looking at.

In a nutshell it is, as Peter mentioned, very well integrated and hope to -- we're going to be setting up biweekly meetings, actually, to try and make sure that this thing works.

Okay. Now, before I turn it over to Mike, I do want to say that we want to keep this as informal as possible, so as Mike is giving the slide show if you have questions please stop, interrupt, let's respond to the

questions.

MR. POORE: Can everybody hear me?

And if you don't mind, I'm going to be operating the show from in here.

Dr. Froines, I don't know whether you're going to have to -- I do apologize for that.

As Bill said, we're going to be discussing the development, history and accomplishments of our toxic air contaminant program.

The program started with the bill that was passed in 1984, which specifically required that the ARB determine ambient concentrations and exposure of the public in California to toxic air contaminants.

We're going to take a look at, just a quick review, over a ten-year period.

We started off in '85 with only 16 compounds being tested and reported. That grew to a maximum of around 64 early in the '90s.

We then reviewed our program and dropped off several of the compounds. For example ethylene dichloride, ethylene dibromide, beryllium, which had fallen well below the one in a million risk level, as well as our detection limits.

However, even with that, we started off just simply reporting about 2,900 results in 1985, and that

increased to almost 45,000 results over the ten-year period.

You notice that even though the compounds dropped off in the '94 area, the amount of data we reported increased, and that is because we had expanded our network.

Let's take a look at our network. We have approximately 20, about 19 sites in California. They ranged from the San Diego area in the south, all the way up through Chico. They are situated to the extent possible in heavily urbanized areas.

In addition to our network, the Bay Area has an extensive network as well. The amount of data that is collected is not as extensive as ours. They are primarily concerned with the volatile organics, but they supplement our network.

DR. BLANC: Could you go back two slides?

MR. POORE: Sure.

DR. BLANC: Thanks.

MR. POORE: Okay. In cooperation with the U.S. EPA we've also established monitoring sites along the Mexican border in Tijuana and Rosarito. We have sites there. In Mexicali, which is across the border from Calexico, we established another site in Calexico.

So there's been a fair amount of monitoring on both sides of the border over the last three years.

In addition to the fixed monitoring sites, we have

two rover monitoring vehicles. We initially put these into operation with the thought that we could collect toxics air contaminant data in those areas where we did not have fixed sites. We have done monitoring, for example in Humboldt County, down along the Monterey Peninsula, places we didn't have the data.

However, these monitoring vans have become very very important in emergency response. For example, the Air Resources Board was the second organization on site at the Cantera spill in Dunsmuir several years ago. The only organization that beat us there was the ones that found the problem, and that was the CHP.

We did the monitoring for the Lake Davis fish kill just a couple of weeks ago.

So these things have been very very valuable to us.

Talk a little bit about how we do the sample collection. There's a collection system called a XonTech 910A which we designed and built the initial prototypes. We used that to collect the volatile organics into Summa polished canisters. These are special stainless steel canisters that have been treated to prevent any kind of degradation or contamination.

CHAIRMAN FROINES: Mike, is it correct that the EDC and EDB are gone from that list?

MR. POORE: We are no longer reporting them. They're still on our hit list as far as our analysis goes.

There's another compound, vinyl chloride, which we do not see in ambient air, but in fact we keep it on our analysis system just in case we ever do see it. But we are no longer reporting the EBD and EDC simply because we're reporting less substance. You will see some numbers for them.

DR. SEIBER: Mike, are you going to talk about how a compound gets on the list of things to analyze or what drives it onto that list and how that fluctuates over the year?

MR. POORE: Sure, I can do that a little bit. Joan, of course, is much much more familiar with that process. That's part of the identification process early on.

And they were primarily selected, one, if there were known emissions or probable emissions and, two, based on the health effects information that we had, basically the risk levels.

Joan, that's exactly -- would you -- do you wish to comment on that?

DR. DENTON: No, that's fine.

MR. POORE: That's kind of what drove the program. You'll see a little bit later some compounds where the risk

assessment drove in fact the method development even though at the time there was no -- the conventional wisdom that these things could not exist in the ambient air and we'll talk about that.

DR. SEIBER: In a way you anticipate what you need monitoring data for to support future actions, so in a way you're kind of guessing in a way what compounds are going to be important that you need to have analytical data for.

So I'm kind of more interested, we can talk about it later in the process, of how you decide what to add to your monitoring list, which is a little different than the prioritization that we'll be talking about.

MR. POORE: And you are absolutely right. We knew that there would be a core group of compounds that would be very important, the chlorinated and brominated organics, the aromatics. And very often what would happen is that we would piggyback other compounds that we could get very inexpensively to expand our area of knowledge. In some cases these became critical compounds. 1,3 butadiene, and we'll talk about that one, which has a major health effect in the atmosphere.

And we have to look at least two years ahead, sometimes three. You'll see a case in here where we've designed instrumentation because we knew that we would have to expand the program, so we specifically designed it for

that purpose.

CHAIRMAN FROINES: I think that this is a very important issue, and there's always the danger that this becomes a very cyclical process and new things don't get into the stream as they should. And it seems to me that one of the criteria of what do we think may cause health problems is one of the things I would like to explore as we go, because we really do need to avoid the tyranny of lists and that sometimes happens. And so how we break out of that I think is really an important issue.

MR. POORE: So basically we collect the volatile organics in the Summa polished canisters.

An example of a Summa polished canister there on our right. And that is a XonTech 910A.

Samples are collected over 24 hours into clean, evacuated canisters to a pressure of around 12 psi, and they're sent back to the laboratory for analysis.

We have a sampler called a XonTech 920, which we also designed. This is a modular sampler and allows us to collect all kinds of different kinds of chemicals. This one is for the aldehydes. We use a cartridge which is coated with a chemical that forms a derivative, but we've also used filters for example for hexavalent chromium and total metals analysis.

The XonTech 920 you see over on the left, there's

a control unit, a pump and then there's a domed structure there which is actually the sampling head.

The unique thing about this particular sampler is that we knew that we would be forced to collect different kinds of chemicals in the future. So when we designed the sampler we designed it specifically to be expandable. It was not cost effective for us to design a sampler for total metals or for hexavalent chromium. We designed an entire unit which we can then expand into the future. So there are individual modules that can be added to this very very inexpensively.

We use Hi-Vol, classic Hi-Vol glass fiber filters for arsenic, beryllium and cadmium, and the reason for that is we want to get into very very low detection limits, hundreds of nanograms per cubic meter, because those are the requirements for those kinds of compounds.

We piggyback, when we were asked to look at the specifically benzo(a)pyrene was the request, we piggybacked that back onto our existing PM 10 sampler system, which we already had in place, and then of course added the nonvolatile PAHs that we could analyze for.

Why do we do some of the chemical analyses?

CHAIRMAN FROINES: Can you go back to that again.

MR. POORE: Sure.

DR. BLANC: So the indopyrene is not a

nitropyrene?

MR. POORE: No, it is not.

DR. BLANC: Are you capable of sampling for nitropyrenes?

MR. POORE: We are capable of sampling for nitro-PAHs. That can be done.

The difficult part is the analytical portion.

The way we do the analysis for the PAHs right now is using high performance liquid chromatography and a florescence detector. It gives us very specific analyses and it gives us very very low detection analysis. Very very sensitive.

DR. BLANC: More sensitive than with combined with mass spec?

MR. POORE: Oh, yes. The florescent detector is almost a thousand times more sensitive than GCMS.

And of course you hit on the crux of this. If we are going to do the nitro-PAHs or the nitrolactones, and we are looking at this, we are going to have to use GCMS or any of the MSNS with the sample cleanup.

And this is very labor intensive. It is possible, but we're not at this point sure whether we've got the resources to be able to do it.

DR. BLANC: In terms of resources, would it be helpful to your unit if the scientific advisory committee

made formal recommendation that indeed such nitropyrenes and nitrolactones be measured? Would that be of use in terms of perhaps mobilizing the necessary resources?

MR. LOSCUTOFF: Certainly if you provide a good reason for us to do some monitoring, that's going to put more of a forcing function for us to do it.

DR. BLANC: I will suggest to Dr. Froines that he consider putting a question on our agenda at some point.

CHAIRMAN FROINES: The people who are -- the people who are in this room from ARB have heard Froines and Pitts talk about nitro-PAHs for about 15 years, so I'm really pleased that you're a new voice raising this issue.

DR. BLANC: Has there been a formal resolution from the advisory --

CHAIRMAN FROINES: No. And I think it's going to come up later this morning in the discussion about priority settings, so we may want to come back to it.

I want to make one comment, Paul.

One of the interesting things about toxicology versus exposure assessment is that when I read, for example, carcinogenesis, there are lots of papers recently about new PAHs that are high carcinogenic potency that most people haven't talked about historically.

And it seems to me that one of the things now that Joan is at OEHHA that we might want to do is to talk about,

as things emerge in the carcinogenesis toxicologic literature to link that with you folks at ARB to try to begin to look at how can we develop methods to be updated to address new PAHs or new compounds that we are finding have significant carcinogenicity or other health effects.

For example, Jim Seiber is circulating an article of a nitro-PAH that appears to be quite potent.

So I think we need to do more of this where we try and link OEHHA's knowledge with the monitoring activities of the ARB.

MR. POORE: There's another consideration as well.

Many of these very powerful mutagens require very special handling. We made a decision around ten years ago that we would not do monitoring, for example, for the chlorinated dioxins, polychlorinated dioxins.

The facilities that are required for handling these compounds are very special, the techniques are very special, and basically we decided that we would contract that work out to those organizations that had the expertise and the facilities.

Now that may well turn out, because of the powerful mutagenicity from the nitro-PAHs and from the nitrolactones that we may want to contract with -- well, for example Dr. Atkinson, to do that work. Because they are -- they have the facilities and they have the abilities to do

the work.

So it may well be something that we may prioritize rather than try to bring into our own group, because it may not be cost effective for us to do that.

Nonetheless you still get the data.

Here you see a whole list of volatile organic chemicals. The thing that you want to take a look at here is the detection limits.

In almost all cases our detection limits are in the parts per trillion range, definitely subpart of a billion. We try in all cases to strive for detection limits that are near the one in a million risk level.

Aromatics, same sort of thing.

Now, here's the obligatory laboratory photograph showing the unsung heros and their instrumentation, but this does have a purpose actually.

Over to the right you will see the canisters connected into a panel there. That's an autosampler. When we started this work, those things were not available commercially. We in fact developed them and built them.

The autosampler allows the instrument to run up to 16 samples pretty much unattended and therefore maximize our resources as far as instruments, as well as people.

You saw that we increased the data reporting for the toxics by almost a factor of 200 over ten years. And,

frankly, at this point we have less people assigned to the program than we did ten years ago, but are still reporting a great deal of data and keeping up with our commitments. That's the kind of innovation that we've used to keep up with the programs.

Again, nanogram per cubic meter of the PAHs are .05 detection limits. That's because we have chosen the PM 10 sampling system and the florescents detector. We have a fair amount of data on that.

Our inorganics down in the nanogram per cubic meter range. Hexavalent chromiums are at two-tenths of a nanogram per cubic meter.

And again very low detection limits for arsenic, beryllium and cadmium.

We have a total metals program where we do analysis of Teflon filters by x-rays florescents. This just gives a list of the metals and information that we have available in our database.

We've also got a pesticide monitoring program in this particular case, but it's done prior and during and after application of a specific monitoring of a specific pesticide.

The pesticides are chosen by the Department of Pesticide Regulation, and we're asked to do the monitoring.

We've done quite a number of them already in the

last ten years. This is just a list.

Innovative monitoring methods we mentioned a little bit about these two. Conventional wisdom during the middle '80s was that hexavalent chromium and 1,3 butadiene simply couldn't exist in the ambient atmosphere. However, they have very very high risk levels.

We developed method sampling methods and in fact found that they did exist in the ambient atmosphere and in concentrations that did cause some concern.

The ARB has the only long-term database in the world for these compounds and we developed the technique for the monitoring.

CHAIRMAN FROINES: Do you speciate the chromium VI?

MR. POORE: We do a total chromium and hexavalent chromium, same sampling period, same duration. One is done by x-ray florescents and total chromium or it's done by x-ray florescents. The hex chrome is a special analysis collection system. We look at it using ion chromatography with a post column reactor. That gives us the sensitivity we can work with.

CHAIRMAN FROINES: You have a sense, something of a sense of how much reduction is going on in the atmosphere to reduce the hexavalent to chromium III, because you have total as well?

MR. POORE: I don't know whether we would have a idea of the reduction. We have a very good idea of the ratio.

CHAIRMAN FROINES: That's what I meant.

MR. POORE: Normally it's around eight percent, the hex chrome is around eight percent of the total.

But if you take that number and go to reduction would mean that you would assume that all of the chromium in the atmosphere started off as hex chrome and that's not an assumption I think we want to make, because there's a lot of other sources.

DR. BLANC: If I add up all the chemicals that you listed, excluding the pesticides, am I wrong in assuming therefore that they should add up to 64 or is there some things --

MR. POORE: The 64 does not include any of the pesticide.

DR. BLANC: If I added up all the rest of these they should add up to 64 different things?

MR. POORE: They should.

DR. BLANC: Does that mean then that in fact over half of what you're sampling for are metals?

MR. POORE: Not quite half, but I think probably close, yeah.

DR. BLANC: Is that reasonable from a public

health point of view? I mean, is that really -- I mean, you can add, you can throw in a lot of metals into the pot because it's technologically easy with the XRT or the other analytical methods to get really sensitive measures of metals, but in fact do I really care if there's zinc in there, do I really care if --

MR. POORE: You would certainly care if there was arsenic.

DR. BLANC: I understand that. Arsenic and lead I care about. Manganese I care about.

But there's a lot of metals -- in other words, the list is somewhat inflated from a purely public health point of view in terms of putting your -- putting one's priorities -- or let me ask the question a different way.

Let's take something like carbon disulfide, which is not on the list, to me from a public health point of view I'd like to know what kind of ambient exposures to carbon disulfide there is. And it's not a carcinogen, but it has important health effects.

This comes back to what John was raising earlier, for those kind of priorities to change, does that have to be driven from a committee like this, is that another way in which we can be useful?

MR. POORE: Very much so. For example, if carbon disulfide is something that you would consider important, we

need to hear that, because that is going to be driving the method development that we're going to be doing.

Just the same as we would drop compounds off our reporting list, we want to know those that are important to add.

You're going to see some a little bit later that we've gone ahead and added because they were important from a policy standpoint or in fact important from a public health standpoint, but if these are the sorts of things that we need to know.

Now, in the past our monitoring efforts have been pretty much driven by the stationary source prioritization process, but if you know we're missing something, tell us.

Now, I can do carbon disulfide relatively easily. We've already got the sampling system set up. It could be piggybacked on there and the chromatography is well known and of course it's quite stable.

CHAIRMAN FROINES: One thing I should mention, just as a historical note, for Tony and Paul and Peter, who are new, this committee has gone around and around on to what degree should it get involved in priority setting over the years.

In the very beginning, in the early '80s the committee took the position that it more or less didn't want to get into how ARB and then Department of Health Services

selected chemicals and did what they were doing to do. We were simply to evaluate what was brought before us.

Over the years there's that issue has been a matter of some debate and my sense of the committee now is that the questions you're raising, questions that Jim Seiber and Peter Witschi have raised over the past couple years about what is that we are actually doing in terms of selecting chemicals, what criteria should be used, how do we set priorities, those kind of issues have become much more interesting to the panel.

At some level the panel has to decide how it wants to be engaged and it may -- it can choose not to be engaged in this process or it can choose to become very active.

I think in many respects the state agencies would like us to be more engaged, but again we are people who are working on a voluntary basis and so you realize it's also a Pandora's box, the degree to which you want to get involved in some of the priority setting.

I say that as a procedural matter.

It does seem to me that there is a very significant issue of how to identify what are the public health issues in terms of air toxics and how do we then identify priorities for evaluating that as we proceed.

MR. POORE: Okay. We're going to talk a little bit about quality assurance and quality control. This is

vital to any kind of monitoring program, especially long-term monitoring program.

We have in the laboratory and the sampling system set up quality control systems that look very much like the federal contract laboratory program, certainly would qualify under guide 25 and the proposed NELAP program.

Okay. How do you get -- what is quality assurance?

And what that really means is that the laboratory has to have a well-established quality control program in place and there must be a group that assesses that program on a continuous basis.

We have a quality assurance group that reports directly to the division chief and it's their goal to ensure that all three laboratories that are producing data for the ARB are producing data that meets the data quality objectives of the program.

Part of that was the fact that when we first got started there were no calibration standards, calibration is critical to measurement.

We entered into an agreement initially with Research Triangle Institute in '86 and then when NBS and what later became NIST to produce traceable authentic calibration standards.

We now have a calibration standard containing 26

compounds. These concentrations are at ambient levels, less than five parts per billion that allows us to calibrate our instrumentation. That particular -- the 26 compound is not yet commercially available. We paid NIST to produce the calibration standard.

However, the 1989 cylinder is now available from NIST. It's SRN 1804 A. And so we've provided the impetus so that other people that are going to be doing the work now have calibration standards available to them.

Okay. Quality control checks. We have both parallel sites, as well as co-located sites.

Parallel sites, we run parallel with the Fremont site with the Bay Area. That's two separate samplers, two separate laboratories and we compare the results to get an idea of both precision and accuracy.

Our co-located sites, that is two separate samplers going to our laboratory, which gives us an idea of the precision, are located at Concord, Bakersfield, and Rubidoux in the south coast.

We are audited semiannually by our quality assurance groups. These are cylinders that are brought into the laboratory and we analyze these unknown cylinders and report the data back to our quality assurance group and they report on our accuracy of our measurements.

We have an absolutely unique auditing program here

in California called through-the-probe.

Now, what that means is that our quality assurance folks go out to each one of our sites, they hook up a cylinder with known concentrations and a dilution system onto the probe of the sampler.

They then will sample that audit air over a 24-hour period.

The canister will go back to the laboratory. The laboratory is completely unaware that that canister is an audit. It is a complete blind audit of both the sampling system and the laboratory.

They try to include all of our sites every year.

The only time that we know that that's an audit is when we see the vinyl chloride in the sample, because we don't see vinyl chloride in ambient air. At that point we do know it's an audit, but otherwise it's a completely blind audit of the entire sample. That's unique to California.

DR. SEIBER: How does your audit -- maybe you just answered it. How does your quality control procedures compare with, let's say, federal EPA or some other state, Texas, or something?

MR. POORE: Basically, as I was saying, on as far as our quality control procedures, I came from the water, wastewater, hazardous waste area in California before I came to the board, and of course all of the environmental

laboratories in California are required to be certified by the Department of Health Services. And there is a procedure that you go through that is required, the documentation and all the rest of the quality control.

In addition, the last laboratory I ran was certified by American Industrial Hygiene Association and that is a tough one to get.

As well as we were doing federal work, so I was familiar with the contract laboratory program.

So when we set up the ambient air laboratory in Sacramento we purposely set it up so that it would follow the same guidelines in the other environmental fields, even though it wasn't necessary, even though there was no certification program going on.

So I can -- we know at this point that the quality control protocols and procedures that we have agreed with -- agree with ISO guide 25, which is the international guide for quality control.

DR. SEIBER: I think this is quite worthy of emphasis, the quality and the extent to which the agency has gone about assuring the quality of the data. I think it's really outstanding. And probably no other organization in the air monitoring area can compare with yours. That's my opinion.

MR. POORE: Well, we have -- we've taken as far --

we want to make sure that our clients, as well as ourselves, know exactly how good the data is, how precise it is, how accurate it is. I think we believe that that's critical. And we make that information public.

Each one of the groups within our laboratory submit a quality control report to the quality assurance group on a quarterly basis that has all of the stuff that we do in it. And it is reviewed critically.

Now, that's available to anybody. So if anybody ever questions our data we have -- we know exactly what we've done to build the quality in. And that's critical in the laboratory.

A couple of the quick slides on data analysis. You're going to see a much more sophisticated data analysis program a little bit later from the technical support division, but just a couple of points I wanted to make.

Most of you when you do risk assessments see basically the kind of an annual average number, but I wanted to make sure that you understood that in fact there are considerable seasonal variations in atmospheric pollutants.

For example, the red line there is benzene, and that is emitted pretty much at a constant rate throughout the year, but we see ground level changes in concentrations approximately five times, primarily due to the meteorology.

The yellow there is acetaldehyde. It shows a

little bit of seasonality, but in fact the summer concentrations are boosted up a little bit by the fact that part of it is borne by photooxidation.

Then the green is benzo(a)pyrene and that is a compound that is primarily emitted in California in wintertime. It's primarily wood smoke.

To give you an idea of what I'm talking about, this is benzo(a)pyrene over a period of time at Fresno, Los Angeles and San Francisco. You'll notice that Los Angeles and San Francisco look pretty much the same. They don't get really high peaks. But Fresno seems to be the PAH and carbon capital of California.

Frankly, the entire Central Valley from about, oh, about Modesto up, or Fresno up, show this kind of pattern and it's primarily a fact that they use fireplaces, both for recreation as well as heating.

And we did a lot of total carbon analysis off of our PM 10 filters and of course the benzo(a)pyrene tracks the total carbon quite nicely.

DR. SEIBER: There's one other connection that those particular months is when the tule fog and inversion set in, so it's exceptionally cold in the valley and that's just when they burn their fireplaces that's when the air mass gets trapped. It's all connected.

MR. POORE: Most of us, anybody that's lived in

the valley, you walk out on a crisp November evening and the first thing you'll smell is fireplace smoke.

Okay. Some of the good things about the program.

These are some compounds that have been reduced by more than 50 percent over the last ten years.

Benzene, of course, very very important, and it's primarily based on our fuels reformulation. For chloroethylene, primarily due to the reduction of emissions from dry cleaning. Lead, of course, is dropped to pretty much world background levels, around 20 to 40 nanograms per cubic meter. Trichloroethylene, xylenes.

Comparison to California, the federal programs, federal program has 189 HAPs. All of those were identified under the 1807 process in 1993.

We've got monitoring data for about 54 of those.

79 are known not to be emitted in California and of course Stationary Source Division is prioritizing the remaining 46.

CHAIRMAN FROINES: Paul, this is one of the issues I think that is important.

This is when I meant about the tyranny of the list. The HAPs were defined by Congress. And whether or not they constitute a public health issue is, I think, at least questionable.

And so the question is you have this list that

everybody is working with, but it almost paralyzes you to answer the question what are the important compounds that we should be dealing with, because people tend to then pursue what Congress said we should be pursuing, which may or may not be of health significance.

That's just an editorial.

DR. FRIEDMAN: You've shown the careful procedure you use in quality control. Will you be showing us any data from these showing what the results of those comparisons are?

MR. POORE: I believe TSD is going to do exactly that. They have put together a very sophisticated way of looking at the data, as well as pretty much complete databases, and that's the next part of the presentation is actually what the data looks like and what can be done with the fact that we have both spatially and time resolved information over a long period of time.

Future challenges. Some of these are not future anymore. Lower the detection limit for benzene. Benzene has gotten so the concentration of benzene has gotten so low in the atmosphere that during the summer months the concentration routinely falls below .5 parts per billion.

And we were getting pretty much no detection limits, or nothing above detection limits during the summertime. So we've managed to drop benzene detection

limits down to around a tenth of a part per billion in our data.

Going back to the comment about what are we monitoring for. Again MTBE, methyl tert butyl ether, has become a controversial compound. And we started doing the monitoring back in 1995, knowing that it would be emitted into the air and we needed to quantitate that.

We expanded, just in October we've expanded the MTBE of all 20 sites, 22 sites actually at this point, sites in California and Mexico. So we are gathering data on that.

We need methods for t-butyl formine, which has been called the major breakdown product of MTBE in the ambient air. That one is a tough one. We'll probably have to go to something completely separate than what we've been doing in the past.

And we'd like to get some information on acetone, simply because acetone was declared as an exempt compound in consumer products just recently and we want to get some sort of baseline to see if there's going to be an increase in acetone.

And that's much the presentation.

CHAIRMAN FROINES: Is acetone an ozone depleter?

MR. POORE: Acetone is not an ozone depleter, but it's one of the half steps to the production of ozone. So breakdown of acetone, we think, will promote higher

formaldehyde and acetaldehyde concentrations.

DR. SEIBER: John, I don't know whether this is a good time, but we want to a raise a strategy question and maybe it will be addressed in the future presentations, but these samples are collected, Mike, as I understand it, at fixed sites except for your two rovers.

Fixed sites on a schedule, which would probably vary with the site and the compound and yet what people are exposed to, since people don't stay in one location they move about, they spend time in their yard, in their home and sometimes out of doors, I guess the strategy question is whether you have given any thought to collecting personal exposure data for individuals. I know you have.

And maybe at some point we can talk about this because ARB wants to track the change in concentration in the air over time. That's very legitimate.

What we need is information on what people are exposed to and that's not quite the same thing. We've got to come to grips with this question.

MR. POORE: You're absolutely correct. And in fact in our research division in our indoor air group, they have been doing quite a lot of work in personal exposure, lifestyle exposure. They've even done work on exposures of people inside automobiles during commuting. We spend a lot of time in our car.

So a lot of that work is being considered.

What I assume that you're talking about, though, is the possibility of taking a typical population and fitting them with personal exposure monitors and that's something that I don't think we really have done to that extent.

DR. SEIBER: Is it feasible?

MR. POORE: To the extent it's feasible there's been studies --

DR. SEIBER: You can't carry canisters around, but you can carry other things.

MR. POORE: You have to tailor it. There are diffusion monitors that are quite good, things like ozone, some of them are quite good for some of the organics.

It's unfortunate that personal monitors, for example, for benzene, classic example, the way you would be able to collect the sample and get enough volume requires something fairly heavy being carried around. And I'm not sure the technology is there yet.

DR. SEIBER: Anyway, John, I think we add this to our list of potential recommendations we want might want to make back to ARB.

CHAIRMAN FROINES: The Meets program in the south coast is going to be collecting some hot spot data.

Remember, for those of you who are relatively new,

we actually have to address issues from two laws. One is AB 1807, which deals with ambient toxic air contaminants. But the other law that we are concerned with is AB 2588, which addresses hot spots. And so the issue of to what degree are there hot spots and personal monitoring becomes intimately connected, and so that's an issue which we haven't really effectively talked about in the past and probably is a good issue for a future discussion.

I'm now told that there's some sort of computer problem and that we need a five-minute break.

Is that right?

Okay.

(Thereupon a short recess was taken.)

CHAIRMAN FROINES: If we can finish before lunch that will be good. I think if we can go to 1:00 o'clock and try and finish in that time, and then not break for lunch, if we can try and move it along.

We're going to start again, but Joan asked me to introduce her new deputy, Val Siebal, who we'll be interacting with on an ongoing basis, so welcome also.

MR. SIEBAL: Good morning, everybody. My first day on the job, my first SRP meeting. Good to see everybody. I have to be leaving here shortly.

CHAIRMAN FROINES: Okay. If we can try and move ahead, George. Everybody, let's move ahead.

MR. BRISBY: Good morning. My name is Steve Brisby.

Let me say a few things first.

When I did this work I was in the Technical Support Division and I'm now in the Resource Division in the indoor air and exposure program.

So I saw an opening there a second ago. We just finished our in-vehicle study where we had multiple monitoring systems, one set of systems in a vehicle, canisters, PM 10 filters, PM 2.5 filter, continuous PM 10 samples.

We then had a roadside set up along the edge of the freeway and city streets for our non-freeway routes and then we had an ambient station, so we could specifically look at the relationship between focused exposure in the vehicle, along the roadway and our ambient sites.

So I saw an opening there a second ago and we are looking at that. It is just finished. None of the papers have started to come out yet. The data should be available fairly soon.

Okay. This is trends in toxic air contaminants and availability of data.

As I said, this is the Technical Support Division presentation. And we'll continue.

We're going to take a look at some selected

compounds of benzo(a)pyrene, nickel, perchloroethylene, lead, and then we will look at benzene in a little bit of detail just to show how we're working with those compounds.

Here is the statewide annual average for benzo(a)pyrene since 1990. We're going to focus since 1990 because around 1990 is when they changed from bags to canisters, so it's a good baseline for beginning, a lot of compound started about then.

So we can see that there's a general downward trend, a lot of year-to-year variation.

Everyone has heard about El Nino and La Nina and some of those effects are in there.

Here's nickel. We can see that there's a much smoother trend. It has not as sporadic emission sources as benzo(a)pyrene, and it tends to be a little bit smoother.

There's perchloroethylene. It tends to have basically the same type of emissions. As Mike Poore said earlier, they're lower in the summertime, high in the wintertime. All primary emitted pollutants, tend to respond this way.

Here's lead. And lead has gone down significantly. What we have there is roughly when the transition from leaded gasoline to non-leaded gasoline occurred and we see a nice jump. That is almost the same size as some of the jumps we have seen in the earlier slides

that are just year-to-year variation and meteorology.

So what we do is we overlay our mobile source emissions inventory estimates on this graph and show that over the years the mobile source emissions inventory goes to '91 and basically drops to zero at '92. That's how we tell that that is not just a piece of year-to-year meteorological fluctuation. It does exactly what we expected it to do, exactly when we expected it to do it.

Here's benzene. That's the trend of benzene since 1990.

We separate the southern part of the state from the northern part of the state here is because there has been different fuel regulations that have been brought on line at different times in the Northern California versus Southern California, so it makes more sense when one is looking at the two to separate it into Northern California versus Southern California.

DR. FRIEDMAN: Question.

You showed all the compounds, you've showed all the substances, you have the overall downtrends. Did you mean to say when you're talking about lead that these others you think are just a variation or do you have some good explanation for the downtrend?

MR. BRISBY: Our stationary sources inventory shows that many of these compounds are going down -- or

excuse me. The regulation implies towards our inventory that they're going down and that we're seeing them go down in the atmosphere. The general downward trend is consistent and probably real. The year-to-year fluctuations tend to be just meteorology, but when they occur where we want them to in the manner in which we want them to, that's when we start that confidence that these reductions are real, but generally over a ten-year period most everything is going down.

The reductions in the ambient benzene concentrations, this is what we're going to look at a little bit closer.

The CARB predicted model used to certify alternate formulations of Phase 2 gasoline showed that going from the CARB Phase 1 to the CARB Phase 2 fuel we expect about a 50 percent reduction in tailpipe emissions. This is one of these complicated compounds because in the wintertime you can have oxygenated fuel, which can dilute the benzene in gasoline, and the summertime basically it drops off to zero.

So this is why when we looked at strictly the spring months, the values are high enough to be above the limit of detection, but not affected by the change in the fuel program.

For Northern California we saw a 48 percent reduction. In the Southern California we saw 51 percent

reduction.

We were expecting a 50 percent reduction. That's exactly what we got.

This is the graph of just the spring months. We can see that in the middle portion it's much more stable now, because we're looking at the transition periods between the wintertime and the summertime. It's the spring tends to be fairly smooth throughout the state. At the end we can see they start to drop off a little bit steeper.

In Southern California we have the introduction of the federal reform a year earlier. Then we went to CARB's reformulated gasoline.

In Northern California we never took the transition to the federal reform. We went a year later to CARB's cleaner burning gasoline.

That's why combining the two parts of the state really confounds what's occurring, and it's our job to find out.

Mike Poore and all those guys collect all this wonderful information, but if it just sits on a floppy disk somewhere it doesn't do any good. It's our job to make sense of it and get the information out to other people.

We're going to take a step farther forward. We're going to use what's know as locally weighted regression to overlay some of these so we can bring out a clearer picture

of what was going on.

This is Northern California. The black line is the regression. The blue data points is the earlier gasoline. The red data points are the Phase 1 gasoline. And green data points are the cleaner burning gasoline.

What we can see is exactly what Mike Poore described.

The summertime in '96 Northern California, benzene dropped off the map. We can see the stability even though we see a lot of noise in the individual data points. The smoothing technique allows us to refine and bring in some of our previous knowledge, so that it's low in summertime, high in the wintertime, it should be smooth. Emissions says it should be smooth, so we're attempting to smooth out some of the month-to-month, day-to-day variation.

So we can see with the Phase 1 gasoline it's fairly constant.

Then we get to the Phase 2 gasoline, there's a sudden drop down.

That's exactly what we expected to see and that gives us the impression that all this is real and we've achieved the reductions that we expected in benzene, even in Southern California.

Southern California is a little bit more complicated because the federal reformulated gasoline

reduced benzene in our emissions, then our regulation reduced it some more. But it's not -- it's hard to see, so we've combined them all together.

And we see once again in the blue it's higher. When we implemented the Phase 1 regulation it dropped down and remained fairly constant. And then when we go into the green data points, which is the newer gasolines, it drops down.

What we see is a peak around January of '96. It's the result of actually just one or two days of monitoring, so that we can remove those data points now that we know this isn't a global event. This is a particular cold day, maybe in Southern California, everything was very stable. We can see if we go into January of '97 the levels are lower than anything we've seen before, going all the way back, which means it's probably not just year-to-year fluctuations.

Now we're going to go to the second part of the presentation here. That's how we analyzed the data.

Find the escape key. Here we go.

Now we have our portion where we get the information out to people. We're going to start.

What we have prepared, and we're working on at the moment is a CD ROM containing the entire toxics monitoring network information for as far back as we can go.

On the CD ROM we intend to include ozone for the last since 1990, NOx, PM 10, the entire criteria of that work.

Then we're going to put on the toxics.

Now, that is a lot of information for anybody to look at. What we have done is we've provided a mechanism for people to start to look at this information.

And we're going to start this little program written by the Technical Support Division staff. And here it is.

What we have is read me files that explains how to use this. We provided a tutorial for people who have never seen this before and they would like to be able to do what I'm going to do here in a minute. I'm not going to get into it. It takes a while to go through it screen by screen. I'm going to go straight to view data.

What we have is a program called Voyager. It's a public domain program available from a university in the Midwest that does environmental -- they have a lot of professors there that one of them wrote this and I don't think he's there anymore. But it's not in --

DR. BYUS: He didn't get tenure.

MR. BRISBY: Or he's making more money in the industry.

But it's made up of a series of pages in a

workbook and each page can be attached to a data source.

The first page we have just set up as the introduction in table of contents.

The next page is our description of the ARB toxics network, samples collected every 12 days, basically 20 sites. They can come and they go. We give them samples. We have a limit of detections. Basically explains where things are and what the monitoring network looks like. For a who person is familiar with the information, they want it, but they don't have any detail. They don't know to work with it. They don't know its limitations.

So let's go to the next page.

Take a second for it to read this.

DR. SEIBER: How do we access this if we're somewhere else, how do we get into it?

MR. BRISBY: Basically you have to ask us and we'll send you a CD ROM.

Now, Mike Redgrave, my partner here, will present the portion of this information that's on the Internet and how it's there and how you access it.

But right now this is for lots of data.

What we have here is three windows. We have the spatial window, the temporal window, and the pollutant window. They're tied together.

So what happens is here I have here a little

blinking vane that says this is Fresno, 1st Street, 8th of December '91, the benzene concentration was 7.3 parts per billion, and there it is in the history of benzene at Fresno.

So we can go over here and click on another data point, and we automatically see that all the values over here change, the description across the bar change and then our description of our spatials all change.

Out here in the middle of the ocean for a prototype is the California number. That's either the statewide average, the statewide maximum for that period. I'll click on it and we'll see statewide maximum for that day is 4.10.

And we can easily see we have particulates and gases. We can close the gases, go up to particulates, and there's the list.

DR. FRIEDMAN: Does null mean it wasn't measured or there wasn't anything?

MR. BRISBY: Null means it wasn't measurable. Values beneath the limit of detection are given at half the limit of detection here.

The final page is the list of all the limit of detections so that you can have some reference as to what values are.

But for ten days in a row you see a .025. You

figure that you're probably at the limit of detection and that is half the limit of detection. The limit of detection is given on the last page.

For people who want to do comparison we can run up and say --

DR. WITSCHI: You picked up any particulates yet, still benzene all over the place.

MR. BRISBY: I have not clicked on and it's still up in particulates and here's the list I can choose from is not updated from benzene.

I get over here and grab benzo(a)pyrene, and then it updates.

And I'll go back to gases.

Because the benzene history is fairly complete and well understood.

One of the tools, because this is the entire state -- we were terminated.

We have a magnifying glass, which is our zoom, so I'm going to zoom into the Bay Area. And there's San Francisco Bay Area.

So I can say there's San Francisco, let's see what's going on in San Francisco. This is the Arkansas Street on December 20th, '91. The measurement is two parts per billion.

And now I can bring up and show multiple things at

the same time. So I can say open, benzene, Arkansas Street, let's see if there's something close by. San Jose is not too far away. Okay.

So what we now have is benzene on the same dates, the same time, but I can go over here and adjust it. So now I'm looking at benzene on this date versus benzene on this date here. So I can have a relative comparison of what's going on at the individual sites.

I can go down, this is double click here. And that's the San Jose 4th Street. It's a little bit cryptic at first, takes a while to get used to, but it's free, so we're getting a lot more than we're paying for.

We expect a better product in a year and in another revision we'll write better software ourselves, probably the year after that, the Technical Support Division is.

Let me go on to the next window. The next window is summarization. This is where we have our annual numbers. Let's come back out and pick San Francisco again. Okay.

Here's San Francisco. This is the benzene maximum for 1993 was 3.2 parts per billion. That's the standard deviation. I don't know why it -- well, it doesn't make a lot of sense graphing it, but the windows are connected, you click on a variable and it pops on the other window.

So we come back down to the median.

Well, I showed you before was the ability to plot multiple variables on the same window, so we could plot the maximum, the minimum and the mean, all at the same time. So you can see what the range of values are for each part of the state all at the same time.

Once again all the compounds are in here. That all 60 or some odd that Mike spoke of before.

Somebody asked a question before about some of these compounds that don't have risk numbers associated with them. What we use them for is quality control and source apportionment. If we see one compound in the presence of another compound we might see other source. If another place that second compound is gone, we know it's coming from a different source.

That's one of the reasons more of these compounds are important, at least to my staff or our staff.

And let me show you, zoom back in on the Bay Area. And you can have the move tool, so you can grab the screen and say, okay, this is the Bay Area, let me grab it and move it all towards Sacramento, which is to the northeast. So here's Sacramento County. There's Stockton.

So that it gives you quite a bit of control over how you look at the data.

One of the things that I found nice about this is that this is an integrated database environment, which means

if I come up here, I grab my choice tool back, to edit, and I hit copy, all the information in this window gets copied into what's known as a clipboard. So if I have a spreadsheet like Excel and I hit paste, I will see so many columns of numbers automatically put in the spreadsheet with all the dates and all the locations, for people who really need to do a little bit more than just look at the data.

That's how you find what you're looking for. As I said, we're going to have a lot of information for people if they need to be able to find what we're looking for and this is the tool we have at the moment.

Go to the last page and here's our LoD history, complete history of LoD changes for our toxics network back to 1990, up until current.

We have the first date, last date. Some of them are up to current.

This last compilation was done, as you can see, on the 30th. So our next compilation will have a different set of dates. The LoDs haven't changed much in the last six months, I hope.

And here's the list of compounds. You'll see several of them mentioned a couple times as the compounds change, as the LoDs change for them. Cadmium went to '91 and it changed down significantly, and it comes up until to our last data number which in '96.

It's coming out now. We expect to have all of '96 available, QC and compiled available on the CD. It's available at the end of this month, as I expect.

Let me say, that anybody who wants a copy we can easily get you a copy in the mail. We'll start writing numbers down or Peter can tell us -- you contact Peter Mathews.

Let me jump back to Power Point. And we go to my presentation.

I have one more slide here and this is what I was telling you before about the Voyager CD ROM. The public version is due late in December.

17 years of criteria pollutants, seven years of toxics. We will have annual files, daily files and hourly data for the criteria pollutants that are collected on a hourly basis. We'll have them broken down by sites, by basins.

The software is included on the CD ROM. There's an installation program if you chose to install all of this your hard disk it's a little bit faster that way. We find it's easier to run off the CD ROM, because this will turn out to be a lot of information before we're done.

As I've shown you, it's fairly user friendly.

This is the current state of affairs at least up to here in terms of TSD's effort to analyze the data,

provide information to decision makers and policymakers about how rules affect ambient air concentrations, and then how we get this information into the hands of people who want to do more with it, who need to make decisions, who need to look at, maybe even just public relations sometimes, because it makes a nice picture, it's easy to use, and very flexible.

And we tend to update it, there will probably be periodic updates and smaller files on the Internet that people can download and put on their hard disks.

Mike Redgrave, our Internet specialist, will be talking about that.

I'd like to introduce Mike Redgrave of the Air Quality Data Branch, and Mike's in charge of our database development and our Internet tools.

DR. BYUS: Is this all quality controlled data, is it all the official, so it's official legal?

MR. BRISBY: Yes. It's all been through airs, it's been through our system. It doesn't -- we don't put it out in this environment unless Mike Poore and the quality control people tell us. Because Mike does his quality control, Mike Poore, then our air quality data people take another look at it in terms of what makes sense, does the data that comes off the machine nicely pass our lab test, is a compound that's supposed to be going down looks like it's

going up, we call them and ask them if something has changed.

DR. BYUS: Thank you.

MR. REDGRAVE: Okay. What I'll show you today, I need to get logged back on again because that little message that we saw while Steve was giving his presentation was actually us getting logged off of the Internet.

Come on. Get out of here.

Okay. What we're actually going to do here is do this live and hope that it works. It will take a moment or two for us to log on.

We thought it would be best, since this is in fact available to anybody on the Internet, we thought it would be best to do it live on the Internet when I was giving the demonstration today.

What I'll be showing you are the Web pages that we put together that summarize the toxics data, and also give visitors to our Web site the opportunity to download the raw data itself.

It should be coming up here in a second. Now they promised me when I set this up that I could log on it and it would leave me logged off and not log me off without me telling it to log off, but in fact it did.

I think we have all gone through that in our Internet experience we'll be merrily surfing along and

suddenly our connection goes down.

I'm waiting. It will work. It's just it's -- I do, I really hope.

I do hope that our server in -- okay. Now, we're in. Okay. Now it needs to make sure it knows who I am. And that's not me. That's okay. We're in.

Okay. Now, in the handout that Peter gave you, it will show you the URL. This is where you need to go to see these pages, www.arb.ca.gov/aqd/toxics.htm, and I know that.

What we're going to do is just take a quick tour through the Web pages that we've put together and I've been asked to make it quick so I'm going to go fairly fast here.

We start off with what we call our substance chooser, and what it has is links to all of the compounds that we have up there at this point.

As you can see, we don't have quite all the VOCs up there yet. When we do all of the VOCs up there what we'll do is we'll be including later on the PAHs and the toxics metals.

Now let's take a look at the statewide summary for benzene.

Now, we've summarized the data on the statewide basis and then on a site-by-site basis.

When it comes up, you'll see that at the top of each -- oh, come on. Murphy's law is in play right now. We

tested this out last night and it was very snappy.

DR. BYUS: That's because no one was using it.

MR. REDGRAVE: Let's try this again. Well, I'll tell you what. I actually had a contingency plan. Let's do this.

DR. BYUS: A blackboard, right?

MR. REDGRAVE: Why is that whenever you want to demonstrate technology, it always lets you down? Okay.

We're going to do this off the hard drive. And if this worked, we would see the URL up here. Okay.

For every one of the substances that we have on the Web at the moment, we start out all of the statewide summaries with a graph showing how the concentrations have changed over the last seven years.

We have the usual statistics that you've seen in some of the other presentations today, the mean, and you can see that this is a mirror image of what Steve showed you earlier.

I think one of the more interesting things that we showed here is the 90th percentile. We don't use the maximum, because we tend to get the occasional very large value and it obscures the picture. But you can see the 90th percentile value has been dropping very nicely over the last seven years, which basically means we're knocking all the high values down.

We also have a graphical representation here of the data availability, how complete are the data over the last several years. You can see that for benzene our data is complete.

And then we present a table of various statistics.

What I'll mention here quickly is that the mean that we have presented here is actually the mean, monthly means.

As you saw with Mike Poore's presentation, the benzene, and in fact most of the toxics data, are very very highly seasonal, high in the wintertime, low in the summertime. And so because our sampling schedule is fairly sparse, we get anywhere on average between one and three samples per month, what we do when we calculate the mean is we'll actually take the mean of every month and then take the mean of the different months. What that does is that eliminates December, for example, having a greater emphasis on the mean than it really deserves.

And then we have of course all of the usual statistics in here, a standard deviation, to give you an idea of how variable the data are. And as you can see, the variation the data has dropped over the last seven years, which is exactly what we would expect, the dropping ambient values.

And of course then the number of observations.

What we have down here is an area where somebody visiting the site can actually download the data.

Now, I'm actually going to see if -- I'm going to go someplace else here to see if we can -- it's not going to let me do that.

I would actually like to -- let me just tell you that you can download the data here. When you click one of these it will prompt you for file name and then you can simply save it straight to your hard drive.

All of these files are in very simple, common, limited format that very very readily read into any spreadsheet or database.

And since the data do occasionally change, not very often, but they occasionally do change, this is -- these are kept completely up to date so you can always be assured that the data you get off of here is the most recent data.

Another page that we have linked to all of our pages is a description of the sampling schedule and a description of what we call data use. It's those warnings that Steve talked about. It is in fact exactly the same words that he showed you on that one page in the CD.

We also have descriptions in here of the monitoring and laboratory analysis methods.

And down here we have a link to the Web pages that

our colleagues over in monitoring, the laboratory division, have put together.

And if our link is working again, we should be able to see those.

And it's looking like it's not.

In any case what you would see here if you were -- if this link were to work, is the actual audit results. Mike talked about the through-the-probe audits and that's in fact, those are available on the Web as well.

We'll not follow that link.

DR. FRIEDMAN: It would interesting to see those. How well do the duplicates match? How well does the probe correspond to what is known in the unknown canisters?

MR. REDGRAVE: It's very interesting data. One thing was I managed the toxics database and I occasionally look over there just to get an idea of what data, what kinds of compounds have problems, and I have a lot more confidence in the data.

DR. FRIEDMAN: Can you show us at some point, maybe if it doesn't work today, send us a few examples so we can get an idea how accurate the data is? I understand you have this great procedure in place, but it's nice to know the results of it too.

MR. REDGRAVE: Right. It is available on the Web, and if you look down at the bottom, for reasons that are a

little bit obscure to me, my colleagues over in MLD like to have these very very long URLs, so but you can get all of that, all of those results just by following that link. And I apologize if it doesn't seem to be working today because it usually is very snappy.

DR. BYUS: How many hits have you got, roughly?

MR. REDGRAVE: Honestly, I haven't looked at that. I know that these pages, the last time I checked, are the second most popular pages at the ARB. The most popular pages being the regulatory pages. But I don't know exactly the number. They're very popular. Okay.

I showed you that one graph at the top of the one page that showed you how complete the data are.

This page illustrates that while the data might be complete statewide, you'll notice that there are a lot of gaps in the data at the various sites that we have. And this lists all the sites.

Let's take a look at San Francisco, because we're here today.

And you can see in fact that we did have a gap in the data in 1990 in May and we had another gap in December of 1993.

Now, what we chose to do, because the mean is the value that's used for plugging into a risk analysis and because of this seasonality in the data, we didn't want

people to be misusing those numbers. And so for those years where we don't have 12 complete months of data, we simply leave the mean blank.

We also have, since this site is operated by the Bay Area district, we have a link to their site, and I'm not going to follow it because it will take too long.

Again, on each one of the site pages we have the opportunity to download the data just from that site and again those data are kept up to date. They are the most current data.

You can go and look at the different benzene monitoring sites. The links here at the bottom of the page allow you to navigate through the site, and basically go from anywhere to anywhere.

Very quickly that's what we have.

I'd be happy to answer any questions. Are there any questions?

I hope that wasn't too fast. They asked me to go fast.

DR. FRIEDMAN: Sorry to keep beating this, but I don't want to spend the time in fooling around with the Web. Could you send us a few pages of data of the quality control data so we get a --

MR. REDGRAVE: If Mike is still here, Mike is the one who is involved in that, and I'm sure he'd be happy to

do that.

DR. FRIEDMAN: It would be interesting if we can see it.

CHAIRMAN FROINES: It says we're connected.

MR. REDGRAVE: I'm not sure I believe it.

CHAIRMAN FROINES: Somebody else had a question. Other question?

George?

Thank you very much.

I have a feeling you're next.

Gary, I'll follow up with Peter.

DR. FRIEDMAN: Thank you.

CHAIRMAN FROINES: To make sure that you get some.

DR. FRIEDMAN: So I can get a feel for it. Usually they describe these coefficient of variation or the degree to which the duplicates match. It would be interesting. The known levels as compared to what's measured when they ran it through as a blind sample.

CHAIRMAN FROINES: The next topic is Dr. Alexeeff and Melanie are going to discuss the technical support documents.

DR. SEIBER: John, before we move on, I was really impressed with that, but I want to make sure that I've gotten my name into the right place to get a copy of the disk. And you need -- what do you need?

MR. REDGRAVE: Just all you need to do is just talk to Peter Mathews and he'll -- there is Peter. He'll be sure that you get one.

DR. ALEXEEFF: Actually I've asked him to look up the Web site and show our document up there.

CHAIRMAN FROINES: Are you joking?

DR. ALEXEEFF: I'm not joking.

CHAIRMAN FROINES: Go ahead, George.

DR. ALEXEEFF: I'm George Alexeeff, chief of the Air Toxicology and Epidemiology Section at OEHHA.

And with me are Dr. Melanie Marty, who is the chief of our Air Toxicology and Risk Assessment Unit.

And also Dr. John Budroe, who is the lead author on the document we're going to be discussing today.

And I did ask if he was able to locate our OEHHA Web site because our documents are now on our Web site and that actually is the more common way that people are obtaining our documents these days. And it does save a lot on paper and a lot on costs, although we do have the regular hard copy which I generally prefer reading myself.

Anyway, today we're going to be discussing a hot spots document and it's one of a series of five documents that we expect to bring to the panel over the next year.

We've discussed the hot spots program, the guidelines to various extents over the last almost four or

five years. And this is the first time, though, that we actually have a document that we're bringing before the panel. We'll have a complete presentation explaining that as to why we're doing this and how this fits in.

But this is a little bit different from the 1807 process where we have looked at a single chemical or a class of compounds and tried to identify the health effects. Instead our responsibility here is to provide guidance to the air districts on how to conduct risk assessments. So a lot of the work that we're doing in this program is data gathering and sort of letting them know what we think is the best information out there to use.

In this particular document there are two issues, though, that I think are particularly noteworthy.

One is the -- and we'll be discussing this -- the hierarchy in which we've chosen cancer potency factors, in other words, which ones we felt were the most important or the most reliable. And then also the appendix A, which is actually going to be an amendment to our dioxin document, which the panel adopted in '86.

So those are sort of two issues that I think are particularly noteworthy.

So with that I guess we haven't been able to get on the Web site. Okay. Well, anyway.

We'll go ahead with Dr. Marty on the first part of

the presentation.

DR. MARTY: I'd start by giving an overview of the air toxics hot spots program, because I know some panel members know something about the program. Others may know very little.

So the air toxics hot spots program is a result of legislation, the AB 2588 bill. And it's frequently called the AB 2588 program.

Essentially it's designed to collect information on emissions and health impacts of specified chemicals from stationary sources.

There is a right-to-know provision in the statute, which I'll get back to in a minute.

DR. FRIEDMAN: What does that mean?

DR. MARTY: A right-to-know provision?

DR. FRIEDMAN: Yes.

DR. MARTY: Essentially facilities that fall into a certain category need to notify the surrounding communities of the risks that their emissions impose. And it's modeled after some of the federal right-to-know statutes that came up after the Bhopal incident.

In essence, the implementation of the hot spots program has followed a particular pattern and facilities provide emissions inventories of listed substances to the air pollution control districts.

The districts prioritize the facility using methods that account for the amount of emission, the toxicity of the compound and the proximity of the facility to people.

Higher risk facilities end up conducting risk assessments under the program of their emissions.

And OEHHA reviews these risk assessments, along with the districts.

If the risk is significant, then the facility notifies the public and the significance determination is made at the district level following district rule.

It's my understanding that all of the districts use a ten to the minus five cancer risk as a cutoff point for determining significance, a la Prop 65, really.

Risk reduction measures may follow for some facilities if the districts feel that their risks are high enough, and that again goes by a district rule.

In comparison to AB 1807, the TAC program, the TAC program has focused on identification of candidate TACs on a chemical-by-chemical basis. And typically we've done a very thorough evaluation of the toxicity of the compound, exposure assessment, and so forth, and presented that to the SRP.

In contrast in AB 2588 we must evaluate health effects from about 450 listed substances. And these are --

the entire list is actually longer than that, but there are -- it has been categorized or broken into substances that need to be quantified under the program by facilities, and substances that we don't feel are realistic to be quantified, for example hormones and some of the pharmaceuticals.

The list does includes the toxic air contaminants.

It also includes the federal hazardous air pollutants, chemicals from Prop 65, as well as other chemicals.

In 1992 Senate Bill 1731 gave OEHHA the responsibility for developing hot spots risk assessment guidelines in order to evaluate public health impacts in the facility emissions.

The law requires estimation of risk from both carcinogens and noncarcinogens emitted from stationary sources subject to the program.

For carcinogen risk assessment, one of OEHHA's responsibilities then is to determine the best values to use for cancer potency factors.

Quick overview of what we mean by facility- or site-specific risk assessment. We essentially need emissions information, we need an air dispersion model, you need an assessment of the exposure of the surrounding community, and you need an evaluation of the toxic potency

of the emitted chemicals in order to put it all together and characterize risk from facility emissions.

Today we are focusing on the cancer potency factors and not the reference exposure levels.

The information for the air toxics hot spots risk assessment guidance is presented in four parts, and George mentioned this earlier, that we have several documents coming out.

We put together technical support documents that describe acute reference exposure levels and we call that Part I.

Part II, which we're discussing today, describes the cancer potency factors available for use in the program.

Part III describes chronic reference exposure levels for estimating noncancer health effects.

And Part IV essentially describes exposure assessment and stochastic analysis.

The air toxics hot spots risk assessment guidance will actually produce a how-to manual or a cookbook, which provides facilities and the districts with essentially step-by-step guidance on how to do a risk assessment. That document will be issued following the completion of Parts I through IV, including running those four parts through the Scientific Review Panel process.

And today we are discussing Part II.

A little bit about the process of developing the guidelines. This statute requires that we act to prepare the guidelines, circulate them to the public and regulated community, to hold workshops and then to adopt the guidelines following consultation with ARB and CAPCOA.

In order to provide enough information and have ease of review, we did decide to put together these technical support documents with all of the background information and send those out for review, rather than just sending out a manual with tables and all the requirements that don't have information available for review.

That's why we ended up doing these in the manner we've done with the technical support documents.

We did conduct public workshops on Part II of the guidelines in July.

So Part II then has been out for public comment. It was a 90-day public comment period. We had workshops and revised the document and now we're bring it to SPP.

And now we're bringing it to the SRP. The Health and Safety Code Section requires the panel to evaluate the guidelines and to recommend changes and additional criteria to reflect new scientific data.

So the purpose of this document then is to comply with SB 1731 requirements for risk assessment guidance in part by supplying the best numbers to use for the estimation

of cancer risk for the 201 carcinogens that must be quantified as emissions from subject facilities.

We also want to provide a single source for the cancer unit risk and potency factors including the supporting documentation so that the risk assessment guidance can be adequately reviewed.

I just thought I'd mention these air toxics hot spots carcinogens, 201 of the listed substances which are subject to emission quantification are IARC/USEPA classified carcinogens.

We have found numbers suitable for use for 119 of these through the toxic air contaminant program, the Prop 65 program, and various US EPA programs.

Potency factors in this document have been calculated and they're similar to the TACs numbers the SRP has reviewed in the past, and there's no surprises there.

I'm going to turn the rest of the presentation over to John.

Are there questions before I do that?

John is going to talk about what's actually in the document in the various parts and appendices.

DR. ALEXEEFF: Any questions about the process or -- okay. We'll move ahead then.

DR. SEIBER: Melanie, in terms of the definition of a facility in connection with hot spots, is an

agricultural field considered a facility, an emitting facility? Has that discussion taken place?

DR. MARTY: In general, no. This program does not look at pesticides in their pesticidal use. So agricultural fields have not been considered a facility.

DR. SEIBER: A manufacturer of the pesticide, or a formula, that would be a hot spot?

DR. MARTY: Yes.

DR. ALEXEEFF: And actually there's also -- there are some fumigation chambers which had to be permitted by air districts which could then be subject to this program.

CHAIRMAN FROINES: Melanie, just one other question.

The 2588 only addresses fixed sources, so that if there was a particular, say, a manufacturing facility that had an enormous amount of vehicular traffic, mobile sources, that those mobile sources could not be included into the risk assessment process?

DR. MARTY: That's a good question.

I think that some facilities they did include emissions from what they considered mobile equipment, and in the inventories. But that's really a question for ARB and the districts.

I don't know if Genevieve can answer that question.

DR. ALEXEEFF: We have Greg Harris, who is from the Air Resources Board, that has worked on that side.

MR. HARRIS: The answer to that is if a facility has mobile devices on site, then they never leave the -- they never go off-site, then they're included. But for a facility like that that had drive-up services like a dry cleaner or something like that where somebody drove up to it and picked up their clothes, those aren't included. Gas stations aren't included. It would the facilities emissions there.

CHAIRMAN FROINES: So just to give you an example, let's take a bus garage, Greyhound bus, Federal Express, UPS, what have you, where you have very large numbers of mobile sources that could produce PAHs, or whatever, that would not be included under the 2588 risk assessment?

MR. HARRIS: No, I don't believe it would.

DR. FRIEDMAN: Is it included in any legislation, because that's -- is that something that's escaped through the cracks or is there some other thing that covers that?

DR. MARTY: Genevieve or Jeanette, their mobile sources program I imagine might cover --

MS. SHIROMA: It's folded into our mobile source program and mobile source emission inventory at large.

DR. FRIEDMAN: So you would look especially at a bus station or Federal Express thing?

MS. SHIROMA: Not in terms of a hot spot source, per se, but in terms of the overall contribution of the emissions from the heavy, medium, light duty vehicles. Our mobile source program would look at the fleet itself from both criteria and toxics perspectives.

And then as these uses are cited through the environmental analysis, there would be an analysis of what those vehicles would contribute to the immediate area for the siting of new facilities.

DR. FRIEDMAN: So you would look at the immediate area, not just the state average? I mean, the neighborhood around that Greyhound bus station would be looked at carefully?

MS. SHIROMA: For proposals for new facilities, yes. And this requirement has been in place for a number of years.

CHAIRMAN FROINES: That doesn't deal with existing facilities, Gary.

MS. SHIROMA: Right.

CHAIRMAN FROINES: It doesn't deal with existing facility. So if Federal Express can have 400 trucks, if they can fit them all into the same place irrespective -- the toxic air contaminants issues would not be a matter of concern at this point.

And I should say that this is an issue which we

will undoubtedly as a panel hear about because there are a number of suits that have occurred under Proposition 65 around diesel emissions from those kinds of sites under Prop 65.

DR. FRIEDMAN: I'm confused. I thought Genevieve just said that those 400 trucks, their effect on the immediate area would be looked at.

MS. SHIROMA: It's the defined -- no, it's defined, the clear difference between if you have an existing facility versus if you have a new proposal coming in. A new proposal coming in today would need to look at the immediate impacts from all of these activities. The facilities that exist today, no, they are not required to look at those impacts.

DR. BUDROE: The document itself starts with a short introduction that just lists the various sections of the document, and then proceeds to a look-up table that has the name of all the chemicals for which there are universal cancer potency factors, the CAS number for that chemical, the source, that is the program that developed the unit risk included here, the slope factor for that chemical, its US EPA classification from IRIS, and its IARC class carcinogen ranking where available.

The next section is the description of the criteria used for the selection of the cancer potency

factors.

Sources for unit risk and cancer potency factors were chosen in the following order. Toxic air contaminant documents; standard methodology Prop 65 documents where the methodology was similar to that used in the development of the TACs document; US EPA IRIS documents; expedited Prop 65 documents. This is where a special methodology was used to derive unit risk values and cancer potency values from the Gold database. And then finally air toxicology and pesticides environmental toxicology section documents.

Now, the source hierarchy was designed to maximize the following parameters.

No. 1, use of the most recent data sets.

No. 2, use of the most recent methodology.

No. 3, whether or not external peer review is done.

No. 4, whether or not there was public comment procedures.

The document then describes the cancer risk assessment methodologies used by the various programs.

First the methodology generally used by OEHHA.

Second methodology generally used by US EPA for their chemicals listed under IRIS.

And then finally the expedited Proposition 65 methodology.

The main part of the document is chemical information summaries. There's a summary for each chemical with the exception of the toxic air contaminant chemicals for which there are TAC documents.

Each of these summaries contains a short description of the physical chemical properties of that chemical, the health assessment values, the unit risk and slope factors for that chemical, a short description of the carcinogenic effects, data from human studies where available, data from animal studies, how the derivation of the cancer potency factors were done, and the basis for the cancer potency factors and the methodology used to derive it, and then finally the appropriate references.

Following the summaries is Appendix A, which is a description of the use of toxicity equivalency factors for determining the unit and cancer potency factors for polychlorinated dibenzo-p-dioxins and dibenzofurans.

The 2,3,7,8-TCDD TACs document was approved by the ARB in 1986.

In this document California toxicity equivalency factors for CTEFs were developed and adopted to evaluate the cancer risk due to exposure to samples containing mixtures of polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

That was based on experimental cancer and

noncancer data for many 2,3,7,8-PCDDs and the 2,3,7,8-PCDFs and on the assumption that the mechanism of all PCDDs and PCDF related biological effects are based on initial binding to a specific protein, the Ah receptor.

In this document we're proposing that those CTEFs be replaced with ITEFs, international toxicity equivalency factors.

They incorporate more experimental data from cancer and noncancer studies for more PCDDs and PCDFs than do the CTEFs.

Following the Appendix A is Appendix B, a listing of toxic air contaminant documents reviewed by the SRP and approved by the ARB.

Appendix C, which is a description of the IARC US EPA classifications.

Appendix D, which describes the asbestos quantity conversion factor for calculating asbestos concentrations that are expressed as 100 fibers per cubic meter, the value as listed in the TACs document for asbestos, from the asbestos concentrations that are expressed as micrograms per cubic meter, which is and generally how asbestos concentrations are reported to the air districts.

Appendix E lists the US EPA IRIS unit risk and oral cancer potency factors that are available for the listed chemicals in the documents.

DR. SEIBER: I have a question on toxic equivalent factors. This is for dioxins.

Is there a similar methodology for polynuclear aromatic hydrocarbons and if there isn't do you see any possibility for developing that?

DR. ALEXEEFF: The answer is yes. And in our benzo(a)pyrene document we called them PEFs, potency equivalency factors and so and actually kind of modeled it on this kind of a process. So the answer is yes.

DR. BUDROE: There are a number of PAHs that are listed in the document in the look-up table and they have a footnote that refers to the derivation of that in the benzo(a)pyrene document.

DR. SEIBER: And that's based on a common mode of action then, assumed for PAHs?

DR. ALEXEEFF: Yes. For PAHs it was actually based upon the relative potency compared to benzo(a)pyrene and other animal studies and they were all assumed to act by a similar mutagenic mechanism.

DR. BUDROE: Appendix F is a list of hot spots cancer unit risk values which differ from corresponding US EPA IRIS inhalation unit risk factors.

Appendix G describes the procedures we're revisiting for delisting cancer potency factors by the program of origin.

Finally Appendix H is a listing of the exposure routes and study types used to derive the cancer unit risks and slope factors.

To summarize the contents of the document, this document provides districts and ARB with cancer potency factors to implement the risk assessment provisions of the hot spots act.

This document also presents sufficient documentation of those numbers in one reference.

DR. ALEXEEFF: Now I wanted to briefly just mention the comments we received.

As I mentioned, we did have a public comment period. We had in the spring we had a 90-day public comment period and two workshops. We received very few comments at that time.

And in our -- in sending the document to the SRP we also added another additional comment period. During this second comment period we actually received more comments than the first comment period.

I just wanted to mention some of these comments and actually go through all the substantive comments. And it does raise some issues that we may want to discuss briefly.

The first one is from the Chemicals Manufacturers' Association and they were requesting that we reconsider

1,3-butadiene's cancer unit risk and potency factor.

Now 1,3-butadiene, the number we used was the number that went through the panel and was reviewed and approved by the panel.

So what our response to this is that the SRP has set up a procedure for revising any of the documents or potency factors. And the process we've included in the appendices what that process is, explaining what the steps are.

So Genevieve, the Air Resources Board and I will contact these individuals and let them know what the process is. If they feel there's sufficient information now to revisit butadiene, then we can go through the process that's been already developed.

DR. FUCALORO: Did they give a reason why they felt the butadiene results were not good?

DR. ALEXEEFF: Well, they said, they indicated they originally disagreed with our original conclusion in 1992.

They said that there was some additional information in showing that mice were more sensitive than rats or humans. So that's the basic contention.

And our study is potency is based on effects in mice.

So there could be a basis, but they would have to

provide the information in the process that we have.

CHAIRMAN FROINES: But Tom Smith at Harvard is doing work on butadiene and has found some -- he has identified some new metabolites that are more potent than some of the things that have been talked about in the past and has been looking at interspecies and individual variability.

And so there's lots of data out there that's developing on the number of these chemicals, so that the issue is is this going to be a formal request to the SRP or to reconsider butadiene, because it opens up -- there's quite a bit of data on butadiene that's emerging and the human epidemiologic data has gotten considerably stronger since 1992. I mean, in fact the industry epidemiologists were the people who reanalyzed the data and in fact concluded that it is a human carcinogen.

So that there is a lot of data on butadiene, so the question is is it going to come as a formal request for reconsideration?

DR. ALEXEEFF: Yeah. Well, that's -- we don't feel that the comments they submitted constitute a formal request, but we wanted to ask them if they do want to make a formal request. So that's what we will find out.

And if then, we'll let them know what information we would like submitted.

But if we did open up the process we would have to look at all of the butadiene information and revise the document and open it up. And so it would be a fairly extensive process.

CHAIRMAN FROINES: I think butadiene is one of the, if not the most important toxic air contaminants there is. Period. And so this is a issue of major major significance.

DR. ALEXEEFF: Right.

DR. SEIBER: Is the State of California's cancer unit of risk and potency factors different from the federal EPA and other authorities and, if so, by how much, is it substantial?

DR. ALEXEEFF: Yeah. In fact, that was one of the things we added to this document was a table, is it in the back, I think it's appendix F, which compares California and US EPA values. And in this case I believe the butadiene value is one half that of the US EPA value, roughly speaking. And that is -- okay. 60 percent of the US EPA value.

And that's because we used a new -- when the document came to the panel we used a newer study than the US EPA study. And the US EPA, to our knowledge has not updated their butadiene number.

DR. SEIBER: Does that have implications for the

fact, that factor 60 percent or that doesn't sound like a very large difference but does it have implications?

DR. ALEXEEFF: Yeah, it does have implications. But in this case this is the California number suggests that butadiene is less toxic than the US EPA number, but the California number is what has been used by the air districts and the Air Resources Board in their planning and all their procedures. So it does have an implication.

CHAIRMAN FROINES: I think, though, that, Jim, don't you think that the primary issue here is not an 1807 question in terms of fixed source, but it's a mobile source issue. It's not a -- what I'm saying it's not a 2588 issue as much as mobile source question.

DR. ALEXEEFF: Yeah. I would -- yeah. I see the Air Resources staff nodding that butadiene is primarily an issue from mobile sources as opposed to stationary sources.

CHAIRMAN FROINES: This is a great place to sit. I can sit here and I can watch Genevieve and Joan's heads and Bill's heads, all three were going up and down so I must have been on the right track.

DR. BYUS: No, they're shivering.

DR. ALEXEEFF: That's the story on the request for reconsidering that. That issue I think is fairly straightforward for butadiene.

For toluene diisocyanates there were two issues

primarily raised by the Chemical Manufacturers' Association.

One is that they felt that we should include additional information in the document on several epi studies that they provided to us.

And so our response to that is to go ahead, add some additional information in the description for three of the studies they suggested, Hadmar, et all in 1993, Schnorr, et al in 1996, and Soracandol in 1993. So these will just provide additional information describing some additional studies that were done.

They also suggested that we use a different set of data for the cancer unit risk and the cancer potency factors and in that case when this particular number was developed by Proposition 65 and they based it on an animal lavage study. There is an animal inhalation study which was negative. But those are the only two studies there. So the inhalation study was available at the time of the Proposition 65 unit risk determination, so there isn't any new data for us to base it on.

So one issue in this case is the unit risk and potency factor was developed by another program in OEHHA, so we would have to, if we were to change that value, we'd have to inform that program to initiate a process.

But the same time there isn't the data that they're suggesting to use was already available at that time

and it was already considered and rejected. So there isn't any change in the data for the data set that's available, so probably wouldn't take any action on this particular item.

But I will pass it on to the Prop 65 program and they can look at it again.

CHAIRMAN FROINES: This is a particularly, just for the panel, this is a particularly important 2588 hot spots issue because of the respiratory effects associated with TDI. So that one of the issues made -- if there are hot spots may be immunologic changes and respiratory effects in people who live near or around TDI facilities.

And so it becomes sort of one of the classic examples of why this law was passed and to the degree to which we can identify TDI spots that's the place where Jim's interest in personal monitoring would be particularly valuable, but also particularly difficulty, not so much for the cancer effects, but because of the respiratory effects in the lung.

We have some data we've done -- we have done a lot of work on looking at hemoglobin and DNA adducts in TDI in humans and in animals, and we find that TDI inhalation is off the charts in terms of the DNA and hemoglobin adduct formation that you get. It is very different than what happens if you do IP or subcutaneous or topical, the actual inhalation you get enormous quantities of hemoglobin adducts

and it's not even clear why you get so much.

This stuff is really quite reactive with protein, so it is a particularly important one I think for 2588 to follow upon.

DR. ALEXEEFF: Yeah. It's actually interesting in the comment that that was submitted by CMA they indicated that the chronic reference level, and we will be discussing noncancer chronic reference levels later on this year, which the respiratory effects that the -- excuse me, CMA is saying that the chronic reference levels will be more sensitive than the one in a million cancer risk level. That is to say, that the one in million cancer risk level would not be protective of the chronic irritation effects, so it may be ultimately a situation like lead where we may have a cancer unit risk number but really defining the characteristic of that number will be a noncancer effect, which would ultimately in the end make the cancer risk number probably a moot point in evaluation of the hot spots facility.

DR. SEIBER: That's fantastic. We've been hypnotized by cancer-driven risk assessments for so long, what I think you're saying is really good news, that we're going to look at other drivers for the process.

DR. ALEXEEFF: Right. Yeah.

And just -- we have right now, just I'll just mention that, currently we are in a public comment phase on

our noncancer document for the hot spots program, which includes TDI, which includes the reference level we're talking about. So and in that document we discuss 120 noncancer levels, so we will be getting into that this year.

The next compound is DEHP, which is also di-ethyl-hexyl-phthlate. And in this case it was also a request for reconsideration of our cancer unit risk value potency factor. And this actually, this reconsideration is already happening in the sense that the DEHP value was developed by our water program originally, and our water program is in the process of reevaluating its numbers, so when it comes out, if it comes out with a revised number on this that's different, we'll bring that back to the panel and update the number at that time, and this could happen this year, the likelihood is that it could be happen this year, depending on how the comment period goes.

Which kind of brings up just another point in that this particular document is almost a secondary type source, as you can tell. We haven't developed new numbers, we're describing what we think are the best available numbers. And our anticipation is that the numbers will be changed over time and we will be bringing back these chemicals, if the number has changed, back to the panel just to let you know that the numbers change and what the basis of that was and updating these values.

So part of our process will be surveillance of other programs that are developing numbers to make sure that we're current.

The next comment was from Dr. Elizabeth Margosches, and she's actually from US EPA and she did comment on the first portion of the -- during our official comment period in the spring and a lot of her comments that she supplied to us this time were referring to things that we had addressed in our response to comments, that is in addition to the document, we did do a response and we did summarize the comments we received from the public and responded to them. And apparently she did not see our responses to her comments in the first go-around.

So I think most of the issues that she raises are this. In the particular -- but this particular issue is one that we did address, but I think it's worthwhile pointing out again. Again, she says there's some new data that one could use to develop a new number for ethylene thiourea.

CHAIRMAN FROINES: George, going back to what Paul Blanc asked this morning, is there any of this in the air anywhere?

DR. ALEXEEFF: Yeah.

CHAIRMAN FROINES: But it must be --

DR. MARTY: Very low emissions.

DR. ALEXEEFF: 400 pounds per year.

CHAIRMAN FROINES: Really is a major public health issue?

DR. ALEXEEFF: It might be near one location just a hot spot.

CHAIRMAN FROINES: 400 pounds?

DR. ALEXEEFF: No, I don't consider it a major issue, but it's one of the available values we had, so the districts can make their evaluation.

So in this case we'll provide the data to the Proposition 65 program and have them look at it. But we're not even sure how this data set would affect the number, and no one has developed a new number with this data set so --

CHAIRMAN FROINES: It's a devil's advocate kind of thing, I'm just raising it because Jim Seiber and Paul Blanc and I all raised the same kinds of issues this morning, which is we have really got to start figuring out what are the chemicals out there that might hurt people as opposed to just our ability to do risk assessment is not a sufficient criteria for inclusion.

DR. ALEXEEFF: You're right. And in this particular document, the cancer documents, and it's more a compendium of available information as opposed to we didn't spend resources to develop new information, then we just kind of looked at what was there.

For the noncancer documents, the acute and chronic

documents, we actually went -- since we were developing new numbers, we did go through some decision criteria as to which ones were potential threats based upon the not released, so it's a slightly different group of chemicals.

The next comment was sent by the Nickel Producers Environmental Research Association. And their comment is with regard to the nickel numbers that we developed.

And it's the issue again this is a TAC number. And actually the first point they have is a request to clarify the table that we have. And so we will go ahead and do that.

There are some differences in the way that the Air Board has listed nickel versus the way that IARC has listed nickel, versus the way that EPA has listed nickel, and we didn't really break that out in the table, but we will do that in the revision.

Do we have a slide on that? We actually have a slide.

The issue has to do with -- sorry you can barely see this -- but metallic nickel is separate from the other compounds. That's one of the main issues. So the classification -- I don't know, I can't even read that. But it's considered, A, for most nickel compounds except in the footnote now we'll indicate that metallic nickel is, you can see down at the bottom, the nickel refinery dust, nickel

subsulfide are Class A nickel. Carbonyl is in Class B too. So it has to do with the way other organizations have classified it.

So, anyway, we'll go ahead and clarify this in the table so it's clear what the different classification schemes are for the different organizations.

The other comment had to do with the cancer unit risk that we used for soluble compounds. This wasn't a specific issues which we discussed when the nickel came before the panel, the issue of soluble versus insoluble nickel compounds. And we all felt that the data at that time showed us that the soluble nickel compounds should be included.

So we will let these individuals know also that there is a process for updating these numbers if they feel there is new information.

There is, since the time that we have -- we deliberated on nickel, there have been some animal studies published that came out of the Lovelace Institute, some rat studies.

So one of the issues raised by this comment and the next comment is that the animal studies should suggest that we might want to reconsider that.

And actually we're in process right now of working with the nickel industry and trying to determine -- they're

working on a petition to come back to the panel on nickel, so that may come back at some point in this year in terms of considering the animal data or at least --

DR. BYUS: Are they the studies with methylation, the gene methylation of nickel? There have been a number of studies with that too. New mechanism or gene mutation.

DR. ALEXEEFF: That's not the study they are referring it, but it sounds like something you would have to look at.

They were simply referring to the three bioassays that were done at Lovelace, nickel sulfate and nickel subsulfide and nickel oxide. And there's some differences in the results in the rats, so they felt that might help --

DR. BYUS: There's a new mechanism for nickel carcinogenicity and it's actually for an old friend of mine has worked out and published and made a lot of press on, so I'll make sure you see it.

DR. ALEXEEFF: If we were to reopen nickel we would have to consider that as well.

Next one is Pacific Environmental Services. As I mentioned, we're working with them now on nickel. And one of the issues that they noted was that our description in here about the SRP procedure is incomplete and there was a typographical error leaving out of the process, so we'll add that back in.

And then they raise the issue that the difference between US EPA and OEHHA should be that we should define how to eliminate those differences.

And that is clearly beyond the scope of this particular document.

We have identified some of the differences. In this case, the reason the difference between US EPA and OEHHA, our opinion was and still is that US EPA hasn't included or incorporated the study which they funded into their risk assessments yet, and we did.

So in this case US EPA is far behind in terms of revising their risk assessment and that's the result of discrepancy for nickel.

But anyway we have a table in the document which indicates which chemicals are different and we tried to give some general information why they're different.

I think, does the next slide also talk about this issue?

They felt that we should somehow reconcile these differences and the issues between 95 percent and maximum likelihood estimates and such.

That clearly is beyond the scope of this particular document, but I think that looking at the document one can help in -- it can help in the prioritization procedure if we felt we had to revisit some

of these, because it does indicate which ones we think would benefit by more research versus those that we saw the same data, but we simply calculated it differently.

DR. SEIBER: This is an important issue.

As you know, the risk assessment advisory committee has spent a lot of time on this subject of reconciling and harmonizing.

And I think the bottom line was that there are the legitimate reasons why California risk assessment products might be different from federal EPA and other agencies.

What needs to be done, the two things.

First, if they can be reconciled that would be great and then we would have consistency throughout the country.

If there's legitimate reasons for not being able to reconcile them, these need to be stated so people understand them. And I don't think the RAAC committee said everything ought to be the same for all chemicals, but we simply need to explain and defend and make it clear where the differences exist.

The second comment on a process for SRP to revisit toxic air contaminant decisions of the past, which I think was the first bullet up there, that's important also as new science comes about and we've heard several examples. We need a process.

We're going to discuss shortly our priorities for the future and all the priorities are driven by new chemicals.

So maybe we ought to keep that as kind of an open question, how can we bring back things that legitimately should be reconsidered.

DR. ALEXEEFF: The SRP actually has a formal process adopted in 1990 on how to revisit it. And it's fairly straightforward and it's cited in the document.

And the process simply requires someone to petition the Air Resources Board and indicate what the change might be. Is it a change in whether it's a carcinogen or not, or is it a change in the potency? And then to provide the information backing up that claim.

DR. SEIBER: Someone needs to petition, that sounds like an outsider needs to come in.

But as a group we ought to have a process internally just as we're doing for deciding on adding new chemicals and say there's a new study out here, we better relook at that.

DR. ALEXEEFF: That is a good point.

And the last point had to do with procedures for easier changes in the cancer potency factor. This is referring to another thing we were just talking about in terms of the SRP process, but in terms of updating this

document. The way we described it they felt it sounded pretty onerous that we would quickly get out of date in terms of this process.

But we feel that if a new number is developed let's say by US EPA or by the Prop 65 group, we will go out and send it out to public comment and bring it back to the panel and update the panel.

I don't consider it that onerous of an activity and I think that if there are a number of changes we can easily bring it back to the panel in a fairly reasonable length of time if -- since the panel is now meeting on a regular basis we can just add it in an item. I don't think that's a big problem in terms of updating the documents.

I'm sorry, that is what's referred to right here, this revision process, that we shall clarify that. We'll add some additional language explaining what the process is in that.

And the previous -- I'm sorry, the previous point, I jumped ahead to the point, the previous point in the bottom slide was appendix G. We tried to provide guidance on how people might want to revise these numbers, for example it's a Prop 65 number, who do you contact or if it's a TAC number who do you contact. So we tried to provide those procedures there, that are currently available.

So that's the current synopsis of our document.

So if there are -- we can discuss other questions you have with regards to that.

DR. SEIBER: That's a heck of a lot of work.

I guess one question I would have is since we heard similarly on the ambient air monitoring program, all of the trends and successes and how the air quality has improved over the years, do you have -- is there a similar document for the hot spots program to show the incremental improvements in the health of people in the state or at least in terms of exposure to these materials?

DR. ALEXEEFF: Well, there isn't a similar document, but there is such information. Information is available.

The hot spots program, when it began, was not envisioned as a very very large program. But what happened is that approximately 20, 25 thousand facilities in the state ended up being subject to the program, so it ended up being much larger than what it was anticipated.

But there was only about 7,000 of those were subject to the program in its more complete fashion, as Melanie described here in terms of the emissions and things like that.

There were a lot of other facilities that were subject to it such as gas stations, dry cleaners, print shops, small facilities, but there's lots of them, that are

subject to the program, but are treated separately and differently.

But over the years as we've gone through the program we've actually been able to identify which facilities are not significant health risk and take them out of the program.

So the program has actually decreased in size over the last years, and now it's down to maybe around 15,000, but of the core program which was originally 6,000, has dropped to 700 facilities. So that's what we call the core.

CHAIRMAN FROINES: How many risk assessments were done?

DR. ALEXEEFF: There were 750 risk assessments that we reviewed.

CHAIRMAN FROINES: Out of a scope of 7,000?

DR. ALEXEEFF: Out of a scope of 7,000. So 7,000 facilities were looked at. It's only again the higher priority ones that had to do the risk assessments, that were triggered into doing that. So we reviewed those.

Some of those were found not to be significant risks. They have been taken out of the program. Others have been taken out of program for other -- once they realized there weren't significant risks.

So also there's other success stories which unfortunately haven't been as well documented where

facilities have reduced their emissions or found better ways of conducting their business, which either by switching to a different substance or something like that.

And there's different members of the air districts when we speak with them they can tell us the success stories, we are going to put in a compendium.

DR. MARTY: I think the provision in there to notify the public was a real driver for some facilities. They did not want to be put in that position so they took steps to reduce their emission.

This is what I hear from the air pollution control districts.

DR. SEIBER: I don't know how to tell that story most effectively, but that's really what people want to know. The law was set up, the OEHHA and Air Resources Board worked together and then there are some results out at the other end. What impact has that had on improving air quality?

DR. ALEXEEFF: If you look at certain districts, and Dr. Pat Holmes is here, the Bay Area is one of the first districts that really worked on this program, and their emissions database is very complete. And you can look at that emissions database and see reductions in the emissions from stationary sources specifically of these substances.

Some of the other districts aren't as organized

and so it's on a statewide basis it's much harder to say, well, in 1987 we had these emissions and currently we have these from stationary sources.

But you can just about do that for the Bay Area district and using them as examples and that's clear there's substantial reductions.

CHAIRMAN FROINES: But if you assume that there are two variables, one is the risk assessment, the potency issues, and one is the emission or exposure question, the risk assessment methodology is fairly well defined, and so there's not a lot of flexibility with how one approaches those risk assessments, although people have the right to approach them differently, as we know.

Where the uncertainty of the estimates of risk become are actually in the exposure emissions part.

And I guess I still feel that at some point it would be good to actually do some monitoring to compare estimates of emissions and actual emissions and actual concentrations, because we have no way to check on some of this, and so we are forced to take people's estimations of their emissions and that may be perfectly reasonable and it may not be, but we don't have any way to find out.

So it seems to me that that's the hole in this whole process and that this notion about how can we do monitoring to actually see what people are exposed to seems

to me to be fundamental to this question.

DR. SEIBER: I think emissions are, as you say, estimated. They're calculated, they're not actually measured. And that's always been a weak point about facilities and so forth.

DR. MARTY: There's actually a couple classes of facilities that had to do stat gas testing, but it wasn't very many and it was primarily combustion sources, large incinerating sources.

CHAIRMAN FROINES: So the one action item out of this particular discussion is -- Joan is not here -- but that we do want to pursue this issue of as new scientific information that emerges we'll tell you and you'll tell us of what your finding is on new chemicals that you've identified, so that we have some sense of what kind of progress is made in terms of the potency values.

I think that's what Jim is bringing up.

DR. ALEXEEFF: Actually we can just discuss a little more action in the next item, which is really the whole prioritization scheme for the TACs program.

The hot spots program, it is a fee-based program, and as the facilities have wound down, so has the funding for the program.

So we're moving more to a maintenance level of the program, so once we get those guidelines out we will have

just enough resources to kind of keep them current with the rest of the information, but it won't be a major program coming up with new information.

But the TAC program will continue on as it has been.

DR. KENNEDY: Based on the impact of this program or at least the threat of information developed on this program, that sounds like a mistake. I would think the continued support would be an important component of this.

DR. ALEXEEFF: Yeah. Well, there is some -- there is some funding available for the hot spots program, but that is something that we're continuing to struggle with working with Air Resources Board.

I'm trying to figure out how to keep the program stable, at least at a maintenance level.

But our vision is that this program, once we get these five documents through the panel, that the staff will mostly be involved with just making sure that all that information is current and bringing back to the panel those changes that occur.

And we'll be relying more on other programs to feed us information at that point.

DR. SEIBER: But the actual enforcement still will take place in the air districts?

DR. ALEXEEFF: Oh, yes. Oh, yes. The air

districts continue with this program. Yeah.

DR. MARTY: I think we should add, the resources for this program is a fee-based program, so industry supports it by fees, through fees charged to them by the districts. And as fewer facilities are in the program, then the resource base shrinks correspondingly. That's part of our problem.

CHAIRMAN FROINES: You know what's the problem? The whole idea of a hot spot is developed and led to the law, it still seems to me to be that there is a big question mark about it, which is are there hot spots out there. We still don't really know.

And so what worries me, and I think Peter is right, but this is something that should be supported because at some level if the program is shrinking we don't really know to what degree there are problematic hot spots.

So we're sort of heading in the wrong direction in some ways, it seems to me.

I'm glad you said the thing about the fee-based program, because before you made it sound as though the program is shrinking because the emissions were getting lower, when in fact that's really not the case.

DR. KENNEDY: That's right.

DR. ALEXEEFF: Well, it is to some extent the case, but I think I was referring simply to more of the

state portion of the program as opposed to the district portion. The district portions are also decreasing as well, but a lot of it's due to, you know, improved information storage technology using computer databases, and it's just become a more computerized activity which also reduces resources there. It's also being combined with other existing programs.

CHAIRMAN FROINES: I don't know what the Bay Area is doing, but I know that the South Coast that that group has been very depressed about 2588, that they just felt that they haven't been able to work as effectively as they would have liked.

DR. ALEXEEFF: As I indicated, the Bay Area was working -- they had essentially a computerized database established at the time the program was beginning, and that was pretty much the only district that had it.

And the South Coast, which has roughly half of all the facilities in the state, is still struggling with having complete tabs on all the facilities.

CHAIRMAN FROINES: We should probably move ahead before everybody fades.

DR. ALEXEEFF: The other thing is just to mention in terms of this, there is kind of, as we update this process, there's a feedback loop with the districts. As new health information is developed then that information goes

back to the districts and the districts can reprioritize the facilities, and bring them back.

If all of a sudden, you know, if a new chemical -- if we didn't have a health value for a new chemical and it was never evaluated properly, and now we've established it is an issue, there is a feedback which they can bring that facility back into the program and establish proper permitting requirements or whatever they need to do in terms of the program issues.

CHAIRMAN FROINES: In some cases I think the actual exposures measured were apparently considerably lower than estimated. I think some of the chromiums exposures are now probably seen as being too high and in some ways it will benefit industry once you find out the situation isn't as bad as you might have thought it would be.

My guess, judging from the chromium work we're doing in aerospace industry.

DR. ALEXEEFF: I guess the sense that we're seeking from the panel in this document, what we will be doing is we'll be bringing back a document, hopefully by the end of -- towards the end of next calendar year in 1998, that will have brought four documents before you and that final document will be summarizing this information.

So we're seeking is sort of a sense to go ahead and proceed. We'll be bringing back these numbers similar

to the look-up, the so-called look-up table that we called it in here. That's what you'll see in the next document.

And this then will make the changes here in terms of just bringing this reference document up to some additional text information.

CHAIRMAN FROINES: I think it's useful when you bring a document for us, I appreciate what you did today, but in some respects the panel can go through the documents and see what's in it.

What we really need you to do is bring issues before us, what are questions -- we had more of a discussion when we talked about TDI and some of the things where people had put in comments than we did on sort of going through it all. Because those are where there's potential issues that the panel will have to deal with in the future.

The more you can help us say here are five problems that we're going to have to worry about in these documents, then that will help the panel give you better feedback.

DR. ALEXEEFF: Yeah.

Prior to this comment period that was in discussing with Dr. Witschi, I believe there were no issues. I mean, we had no issues to bring, there were no comments, so it was hard for us to come up with issues at this point.

In contrast to our other documents where there's

lots of --

DR. WITSCHI: If you're mixing up things to some extent because there's one thing I think this is an excellent support document, and I really wish to congratulate you, how you pulled that one together, because it's a very valuable resource.

Only a few minor things.

One of them, I really would also like to see the TAC documentation in this document, so you have one book, instead of having to go to the different documents, just as a resource.

Also would like to have someplace to explain what you mean by potency exactly, because in this document the bigger the number, the more potent the thing. In the Gold pages, the smaller the number, the more potent the carcinogens are.

Just for didactic reasons these things need to be clarified.

A few other things we talked about.

I also would like to take issue with, why it's standard procedure to extrapolate on a surface basis rather than on a mass basis, which is always important contention.

In this document we really could provide the scientific background why this is so.

The way I look at it is really is being a very

useful resource document, not just for the air districts, but it would be great for teaching the same thing.

And what's here already I think is very good and very useful.

On the other hand, you know the issues come up, that's to be anticipated, everybody is going to look at his favorite compound and say, no, that's not right, but that's a totally different issue from what the secondary document represents.

And we talked about this already. You know how, what are going to be mechanisms of things that are to be revised, so that what's in here reflects current state of the art, but this is open to refinements.

CHAIRMAN FROINES: Thanks, George, Melanie.

Are you staying with us on this next one?

DR. ALEXEEFF: I guess so.

CHAIRMAN FROINES: It's ten after 12:00. I was hoping that if we could, we could finish about 1:00 or 1:15 and everybody could go home, as opposed to breaking for lunch and them coming back.

(Thereupon a short recess was taken.)

CHAIRMAN FROINES: Now, here's the real test. Genevieve says she's going to be finished in ten minutes. Whether we're finished in ten minutes, may or may not be right.

MS. SHIROMA: Okay. Thank you. The next topic is --

CHAIRMAN FROINES: This is -- I'm sorry. There are new members of the panel. And this is Genevieve Shiroma. My apologies.

MS. SHIROMA: Yes. Thank you.

My name is Genevieve Shiroma. I'm the chief of the Air Quality Measures Branch at the Air Resources Board.

With me are Michelle Houghton and Jackie Johnson.

These folks are air pollution specialists within my branch and are responsible for working on the AB 1807 list we're preparing to go to our board in February with an update of the list.

And Michelle is going to give a very brief presentation on the background of the list and the schedule.

MS. HOUGHTON: Thank you, Genevieve.

Good afternoon. I'm here today to present to you the update to the AB 1807 toxic air contaminant or TAC identification list.

I'm going to give you a shortened version of the presentation in the interest of time.

DR. FRIEDMAN: Excuse me. Is it possible to turn up the volume a little? Or maybe you could speak more into the mike.

MS. HOUGHTON: My presentation will include a

background of the toxic air contaminant identification list, revisions we have made to the list, our future plans and a summary of the process we use to update the list and the next steps we plan to take.

First, I'll go through some background on the toxic air contaminant program and then the TAC list.

Because we have some new panel members, I'm going to start by giving a brief overview of how the AB 1807 list fits into our comprehensive air toxic program in California.

In 1983 AB 1807 established a program for the formal identification and control of air toxics.

This program separates risk assessment, identification of a substance from risk management, the controls.

This overhead shows the process used for the identification and controls of air toxics in California.

As you can see, public outreach is a key component of both processes and includes public comment periods and workshops.

The purpose of the TAC list is to identify substances of potential concern in California.

It also fulfills requirements of state law by setting priorities for review of listed substances.

The ARB staff uses a prioritization scheme, which I will discuss in a minute, to assist in setting these

priorities.

The list also informs the public of substances under evaluation and provides the public with an opportunity to comment on program priorities.

This list is dynamic and reviewed and updated periodically. This list has been updated eight times since 1985.

In April 1993, the ARB identified the federal hazardous air pollutants listed in the federal Clean Air Act as TACs under AB 2728.

Use of the prioritization scheme was our first step in setting priorities for the list. It is a methodology for prioritizing substances using a point system.

This scheme was presented to the SRP in 1990 and revised in 1993 after a consultation with Drs. Seiber and Glantz, who are the SRP lead persons on prioritization.

Listed here are the criteria used in the scheme. It includes the International Agency for Research on Cancer, and the US EPA cancer classifications, availability of ambient monitoring and atmospheric persistence.

We used this scheme to prioritize over 300 substances. The sources for the 300 are the US EPA federal HAPs, the AB 2588 air toxics hot spots program, IARC, NTP, Title 3, and Proposition 65.

On June 19th of this year we presented to you our formal proposal to update the list. The process used to update the list included reprioritization of all substances, listing the top 40 ranking substances, and consulting with local air pollution control districts and the Office of Environmental Health Hazard Assessment, on which substances were in need of health values.

We also conducted additional sensitivity analyses of the scheme as requested by Drs. Seiber and Glantz. This included applying default scores for these substances without -- sorry, those substances without health effects.

The list was then reorganized into six categories for three primary reasons.

First, to separate out the substances identified as TACs from those not formally identified as TACs.

Second, to note which substances have health values under development in SB 1731 risk assessment guidelines.

And, third, to reflect the substances nominated for review as a result of our prioritization work.

The draft list was then mailed out for our 60-day public review period this past September.

You have a copy of the latest version of the list, and in the interest of time I'm not going to give you a detailed description, I'll go straight to the revisions.

MS. SHIROMA: On the overhead that would be the 13th page.

DR. SEIBER: Do you have your transparencies?

MS. SHIROMA: It looks like you don't. They were out on --

We're now on page 13, the 13th page of the overheads.

CHAIRMAN FROINES: This is what we're talking about?

MS. SHIROMA: Everyone is getting their copies.

As Michelle said, we're skipping the detailed description of each category, again with the review that you divide up according to whether they had already been identified, whether they are identified by virtue of being hazardous air pollutants, whether they are part of the several hundred health effects efforts that OEHHA has undertaken, some of which you heard about just prior to this presentation. And then resulting in a nomination list.

So Michelle is going to talk about some of the revisions we made to that nomination list.

And we originally had 14 substances in the nominations categories.

MS. HOUGHTON: Okay. First we removed antimony and compounds, 1,1-dimethyl hydrazine and methyl chloride out of Category IIb, because emissions and the number of

facilities in California are low.

We moved hydrogen fluoride out of Category IIb because it has a full set of health values already under development.

We planned to --

DR. BLANC: Could you again repeat the first part of what you just said, the ones that you removed because there isn't enough being made?

MS. HOUGHTON: Yeah. We removed antimony and compounds, 1,1-dimethyl hydrazine, and methyl chloride.

MS. SHIROMA: Out of the nomination category and into the candidate pool, into the holding tank.

MS. HOUGHTON: They're already identified and we're thinking of developing more health numbers for them.

DR. SEIBER: They are emitted in California, are they significant?

MS. SHIROMA: Low emissions. They are emitted, but they have low emissions.

DR. BLANC: Let me clarify. These are the chemicals which you had initially thought did need health standards developed and now you're saying they don't need health standards developed because there's not enough of them?

MS. SHIROMA: Lower priority.

DR. BLANC: Lowering their priority to some other

place on this list or off the list all together?

MS. SHIROMA: No. Everything -- these are all staying on the list. We're moving them to Category III, which is a lower priority than the Category II.

The Category II is either there's work already underway, they have entered into the process, or they're nominated for entry.

So for these three compounds, because of the low emissions, numbers of facilities, in terms of priorities --

DR. BLANC: I understand. I just wanted to follow that through. I want to make sure I understand that.

And that's already reflected on the handout that we have.

MS. SHIROMA: That's reflected on the handout that you have here.

Hydrogen fluoride it was originally in the nomination category because we thought that it needed one additional health value. It turns out the health value efforts for the hydro fluoride value had already been undertaken and so it's properly reflected in IIa, therefore does not need to be listed under IIb. It's already in IIa, which is the current effort of work by OEHHA on the health values.

So these --

DR. BLANC: In terms of, well, I'll let you finish

and I'll come back to the questions. I just want to understand.

MS. HOUGHTON: Okay. We planned to add nitro-PAHs and other PAHs to category IIb.

It has been some time since we finished the benzo(a)pyrene risk assessment, and it may be possible to develop potency equivalency factors for additional PAHs.

We have moved the class of chlorophenols --

CHAIRMAN FROINES: Could I ask a question about that?

POMs is on IIa, IIb, and III?

MS. HOUGHTON: Right.

CHAIRMAN FROINES: And the one that's on IIa contains DBCP, which is not a POM, but that's a typo, I assume.

But the -- how could something be on three lists at the same time?

MS. SHIROMA: It has to do with the health value. Okay.

First of all, POM under the HAPs, POM is listed as the category of hazardous air pollutants. So under our state law, POM became identified as toxic air contaminants.

But within that group we have identified a number of those substances with potency equivalency factors under PAP, so those appeared in one.

Then there are -- and those were for the cancer endpoint.

Then OEHHA has been working on some, I think -- the OEHHA has work, has efforts underway for some of these substances for noncancer health values and those were reflected in IIa.

CHAIRMAN FROINES: In Part IIa contains the series of chemicals that with the exception of naphthalene are not POMs. 4,4-methylene bis(2-chloroaniline), 4,4-methylenedianiline, methylene diphenyl diisocyanate, and p-nitrosodiphenylamine, none of those are POMs.

MS. SHIROMA: Okay. We will take another look at that, but we're going by the definition given --

DR. BLANC: I think it's a typo.

MS. SHIROMA: It's a mistake.

DR. BLANC: I think what happened is that something -- there's a typographical error.

MS. SHIROMA: Yes.

CHAIRMAN FROINES: You think that's a typo?

MS. SHIROMA: Yes.

DR. BLANC: It's going down in alphabetical order.

What I don't know is what you were -- whatever the statement which was supposed to follow, including but not limited to, somehow got dropped. There was some substance there that you were referring to and that got dropped and

then all these other things, which should have been a continuation of the bold, non-indented list got put there and I don't know what it is that you dropped, so you'll need to clarify that. Clearly, wasn't anything on that list.

MS. SHIROMA: Right. Exactly. You got it exactly right on. That's exactly what happened. Okay.

So we'll need to correct that.

But that category of IIa is the category where there are efforts currently underway to develop the health values for these substances listed.

Then in Category IIb is where there are additional health values to be developed where we are missing health values, whether it's for the cancer endpoint or others.

And Category III is the lower priority catch-all category that I mean there are other POMs that are not included in these other categories, so we listed it there to assure that we ultimately didn't leave anything out.

DR. SEIBER: They're lower priority -- let's see, are they lower priority because they don't have enough health values to make decisions on, or because they're simply not important relative to the others in terms of emission and so forth or both?

MS. SHIROMA: It's a combination, because as you go through the prioritization scheme, we looked at what information is available for each substance, whether it's

for exposure or health, whether there are multiple health endpoints or whether we even know that. All that factors in.

So those end up in Category III, have that lower priority, either because the health endpoint -- either because the health effect is not there, or because there is a lack of information.

So but in the meantime we did go and put in default values to these various substances to see if we had missed something for the lack of data. And in prioritizing these 40 we still ended up with the same substances that we're presenting today. Okay.

Michelle has a couple more to tell you about.

MS. HOUGHTON: Okay. We have moved the class of chlorophenols from Category IVb to Category V. This is because there are very low emissions reported for chlorophenols as a group.

MS. SHIROMA: I'll jump in here and add that again remember that the list is divided up according to whether the substances are already identified or not identified.

So now we're into the realm where these are substances that are not federal hazardous air pollutants, but are on our list because of the 2580 program showing that emissions are existing in California and tapping into some of these other programs, like Prop 65 and so forth.

But on the chlorophenols, again because of the lower emissions, we're saying it's of a lower priority.

DR. SEIBER: That's kind of interesting, because chlorophenols and gasoline vapors fall in the same group. Some chlorophenols are on the federal HAPs list, trichlorophenol, but not the whole class of all chlorophenols.

So we're getting into a kind of a semantic thing here.

How do we want to deal with chlorophenols, as a group or as individual compounds and of course it makes sense, we can argue either way.

Some facilities only emit pentachlorophenol and if you live in that area that's the only chlorophenol that may be important.

But it sounds to me like we are making a decision to deal with the whole group.

MS. SHIROMA: Right.

DR. BLANC: Maybe the way to handle that in your document would be to edit it such that there is a parenthetical comment, not elsewhere specified, after that one, because then you otherwise legalistically I suppose you'd be saying that chlorophenol that you already mentioned was being moved out.

MS. SHIROMA: Yes. We can do that. Because there

are three chlorophenols that are listed specifically in -- which category?

MS. JOHNSON: Category IIa.

MS. SHIROMA: Where there are the health values being developed by OEHHA. There are three specific chlorophenols. But the group of the whole, similarly to -- we have a generic grouping we're saying move it to the lower priority.

MS. JOHNSON: Just two chlorophenols, 2,4,5 is listed in Category VI.

DR. WITSCHI: I had a question. Why was carbon black nominated for review?

MS. SHIROMA: It ranked -- we went by a ranking and it did rank above 40. We used a ranking of 40 to just help us to prioritize in looking at the various health --

DR. WITSCHI: Yes, first of all, carbon black was reviewed by IARC.

The other ones are we to not learning from history and are condemned to repeat it, because the carbon black has a lot of tumors in rats and lung tumors in rats and we know where that one led, as being irrelevant to humans and all these things, are we going to do the whole thing again with carbon black? We're going to listen to Joe Mauderley, what he has to say about how rats get lung tumors from particle overload.

MS. SHIROMA: We have no intention of repeating any unnecessary history.

What this list is, and clearly I don't have a toxicological answer to your query, today what we're doing is giving our listing of priorities and we'll go through which ones we think would be the next ones for OEHHA to take a look at and work on with us and then eventually come back to SRP with.

Carbon black did rank above 40 in our prioritization scheme, and so hence it is in our nomination category.

Now, why don't we go ahead and tell you what else we're going to change and then if you have more questions, Dr. Witschi, we'll come back to that.

MS. HOUGHTON: About a year ago we received a request from the BASF Corporation to remove caprolactam from the list, because it had been delisted by US EPA as a federal hazardous air pollutant.

We are proposing to keep caprolactam on the list, primarily because it has noncancer health effects.

In addition, because it has uses in nylon, plastics, paints, and coatings industry, new facilities could be located in California in the future.

Other clarifications we made were to list individual polycyclic organic matter compounds to Category

IIa, and to move the compound 2-chloroacetophenone from Category VI to Category IIa. This is because it is a component of tear gas and is emitted during certain training exercises.

MS. SHIROMA: That Category VI --

DR. BLANC: Mace, for those of you who --

MS. SHIROMA: Right. And Category VI are a listing of hazardous air pollutants, thus toxic air contaminants, where we didn't have any emissions data, but there are training facilities where mace is used and there is potential for neighbors to be exposed to the material.

MS. HOUGHTON: Based on our proposed revisions, we now have ten substances nominated for review. Those substances in Category IIb are federal hazardous air pollutants and there are already TACs. Those substances in Category IV are not TACs.

Now I will discuss our future plans.

This overhead summarizes our near-term plans.

For MTBE we plan to start an AB 1807 type risk assessment next spring.

We would ask OEHHA to develop a cancer potency value and if possible an acute reference exposure level.

There are over 20,000 pounds of MTBE emitted per year from stationary sources and over 43 tons per day emitted from mobile sources.

The public is also concerned about MTBE because of its use as an oxygenate in gasoline.

For PAHs we plan to ask OEHHA to review the literature and if data are available to augment the BAP risk assessment to add to additional potency equivalency factors.

We understand new health studies will be completed next year on styrene. We plan to ask OEHHA to review these studies and all other related literature to determine if it would be possible to develop additional health values.

Our next step will be to release a staff report on the list update in January 1998, and take the revised list to our board for consideration in February.

DR. SEIBER: When you talk about MTBE do you include this t-butyl formate conversion product? Are we to assume that all toxic conversion products are included in that category?

I mean, certainly if it's not, that would be my understanding. I'd want to see the whole enchilada, not just the parent compound. And we heard earlier from the monitoring folks that they're starting to look at the other products.

So I'd like to suggest that we add that as some kind of a notation in here, toxic conversion products should be included.

MS. SHIROMA: That's a very good point,

Dr. Seiber.

And I know there is growing interest in looking at the breakdown products of these materials. So that's something that we'll discuss with OEHHA, in terms of our request.

MS. HOUGHTON: We'll end our presentation with a summary of the process used to update the list and our next steps.

In summary, we have prioritized over 300 substances.

Once this was done, we focused on the substances in the top 48 ranks of our prioritization scheme.

Our next step was to determine if substances had full sets of health values, accounting for the health values being drafted by OEHHA.

As a result of this exercise, we nominated ten substances for review in consideration of exposure potential and reorganized the list.

The reorganized list clearly separates the substances identified as TACs, most of which are federal hazardous air pollutants, from those not identified as TACs.

Our plans next year include asking OEHHA to begin an AB 1807 type risk assessment for MTBE and to augment the benzo(a)pyrene risk assessment to add more potent equivalency factors if data are available.

We will also ask OEHHA to review the expected new health studies and available literature on styrene.

And that concludes our presentation, so let us know if you have questions.

CHAIRMAN FROINES: Thank you.

MS. SHIROMA: And I lied. That was more than ten minutes.

CHAIRMAN FROINES: Questions?

DR. BLANC: Let me see if I can clarify a few things for my own edification.

If something is on IIa, on the IIa list, where they have something less than full set of health values and have not yet any time been considered by the Scientific Review Panel, is that correct, in terms of any kind of --

MS. SHIROMA: Yes, except that today there is a presentation from OEHHA for 120 cancer health values and --

DR. BLANC: Other than that. I understand.

In terms of these kind of full-blown, full-court press considerations by the SRP, the things on the list one have undergone such an evaluation. Things on list two have not and --

CHAIRMAN FROINES: No, that's not right. They have -- under IIa they have benzene, butadiene, they have chemicals that we -- that have already undergone the TACs, so there's -- if they don't count it in there.

MS. SHIROMA: For example, for benzene the chronic and acute values have not been evaluated by this panel.

DR. BLANC: Just the cancer risk.

MS. SHIROMA: Just the cancer.

That's why you see substances which are on Category I also listed in Category II, because there is work underway for these other endpoints.

DR. BLANC: Perhaps I understand that the introduction to IIa where it says substances which have established health values or have health values in the review process for development, also have a set of health values, I mean, you may need to have some footnotes there that would clarify the confusion that John is voicing, because certainly the implication here is that these are not substances which have come before the SRP, given what has been stated as the definition of Section I.

But following up on that, does it mean that if something is in IIa and has less than a complete set of health values that how could one tell from this list which of these things which don't have complete health values are to be addressed further, because the implication is also that although some of them are there for further review -- and here I'm not talking about cancer potency values, but excluding that process --

MS. SHIROMA: You know, that is another footnote

that we need to add to this, that where it is a substance where this will then constitute the full set or is it a substance where there are -- there will still be remaining work to be done even after we're done with it. We need to do that.

DR. BLANC: How can this panel comment on what -- or understand what your priorities are or would be in terms of filling in then those missing gaps? Because it's hard to understand what the difference is between the stuff on IIa and the stuff on IIb.

The stuff on IIb doesn't have any health -- didn't have any health values at all done. Is that right? Do you understand my confusion?

MS. SHIROMA: Yes. Yes. And --

DR. SEIBER: All the ones in IIb are in IIa. It's a subset that it's been pulled out for --

MS. SHIROMA: First of all --

DR. BLANC: I see what you're saying. I see. Those are the ones that we're going to start working on. The ones in IIb will then -- that should be clarified, because I finally understand that.

But there are other ones that have things missing where everything else that does not have an asterisk has nothing missing.

DR. ALEXEEFF: No. I'm sure some of the other

ones also have information that is missing. So what we did was we looked at the -- it was mentioned early on there was some that had information, for example antimony, but it had low emissions, so there was some decision-making process that was done.

What we did is we tried to identify which ones will have information missing.

Then we looked at emissions.

And then if it had low emissions, we said we will put those on the back burner.

MS. SHIROMA: Let's go back over it. Okay.

We used a very methodical approach to prioritize the entire list.

So first of all we used the criteria, looked at all those that ranked above 40.

And we also looked at all of the work that OEHHA had underway for either the cancer, acute or chronic and listed those in IIa.

And, again, looking at all of the substances, those ranking above 40.

So those substances remaining that are in need of health value above the rank of 40 are in category IIb, if they are HAP, or Category IVb if they're not a hazardous air pollutant.

It's so in terms of culling the listing it is just

that.

Above the rank of 40, missing a health value and wasn't already being dealt with OEHHA in Category IIa, went into the nomination category.

Now, we do need to add the footnotes and references to the status of each of these substances, especially since they appear in several different categories, depending on the health value that's either done or in progress or needs to be done.

Those that rank below 40 then end up in the Category III or Category V.

DR. BLANC: How much of the ranking was driven by cancer risk potentials? Overwhelmingly, would be my assumption, is that right? Or am I being too cynical?

MS. JOHNSON: The prioritization we gave equal weight to both cancer and noncancer.

MS. SHIROMA: We've got criteria that looked at the other noncancer health endpoints and then also we tested that prioritization for substances that we're missing health values. We put in a default value to see if that would change the prioritization, and it did not.

DR. BLANC: Let's take an example then. Let's take manganese and compounds, which is on IIa, but not on the IIb supplement, which complies, therefore already recognized toxic and all of the health assessments have been

completed or there's missing health data but it's low priority. It's one or the other of those, right?

MS. SHIROMA: I'm checking to make sure.

So for manganese, it is listed only in IIa, not in either IIb or III.

DR. BLANC: Right.

MS. SHIROMA: That means that the -- there is just the one endpoint that OEHHA has identified in terms of the chronic and that health value will be in their chronic documents that comes before this panel next year.

DR. BLANC: It's done?

MS. SHIROMA: It's near being done, yes.

DR. BLANC: It's not because it's low priority, it's because everything has been done.

I think what would be helpful, therefore, would be a way of being able to tell from this if something isn't on IIb, if the reason it's not on IIb is because it was -- it's done.

MS. SHIROMA: Dealt with.

DR. BLANC: It's not dealt with, but it's been considered too low priority.

And that's what one cannot tell from this list without some additional footnotes or clarification, because it's hard to give you feedback, otherwise in terms of saying, I don't understand, I think this should be a

priority, what happened to the prioritization scheme.

Or it does come back to what John says is that maybe it's opening a whole kettle of fish, but it seems to me that feedback on that level might be useful to you.

CHAIRMAN FROINES: Genevieve knows that I've been very troubled about this. I think there are a lot of chemicals on this list that shouldn't be on there for which there is no exposure risk, for which there is very limited toxicity.

And when you ask yourself what are we doing to protect people's lives, this is what concerns me, is these kinds of lists that are not based on any kind of real prioritization around what we think is a health problem.

So I have been troubled. I mean, 1,3 propane sultone doesn't even exist anymore. It's on a list. It's on the IIa list. Hasn't been around since the '70s.

DR. FUCALORO: Just another question. Why do you list both chromium compounds and chromium VI in group IIa?

MS. SHIROMA: Okay. George, in IIa we've got chromium and --

DR. FUCALORO: You have chromium VI, of course, in one.

MS. SHIROMA: It's for the noncancer health endpoints. Yeah.

CHAIRMAN FROINES: My question, Paul, is if I went

to a member -- if you had 25 citizens here and they said tell us what are the important toxic air contaminants, what would you pick out of this?

I don't think we have the right answers. I think we have a way of prioritizing things, but it doesn't necessarily lead you to addressing real problems.

And I think there are for -- I'll give you an example. One thing, HEI has an RFP right now in which they are asking for exposure assessment for people to apply for grants on exposure assessment in ambient situations for aldehydes and they have listed maybe six or seven aldehydes.

And one notion is that six or seven aldehydes that are in air together constitute a series of compounds that may produce respiratory effects, irritation, sensitization, asthma or whatever the endpoint might be, but that the six or seven aldehydes that are in the air are toxic air contaminants and do produce respiratory effects.

That makes perfect sense to me what HEI is doing.

But half those aldehydes are not on any of these lists. And the question is aldehydes cause respiratory effects, therefore as a class of compounds we should be thinking about them.

But we are into a process where we have all these chemicals, but we don't have a sense of the connection.

What's going to happen is most of these compounds

are going to be in little tiny amounts and the question is what are -- how do the chemicals together constitute a risk and can we think about it that way.

So this may be a good list to take to an Air Resources Board, but it doesn't answer the question of what is the toxic air contaminant problem in California.

We have no idea, based on this list, because everything is seen, except PAHs, are seen as separate entities, and they're looked at that way.

And I don't think we can do that.

I think gasoline is a very good example of something we should take up. I think aldehydes is a very good example. I think PAHs is a good example. And I think diesel is a good example. Because those I think have health effects that we can document.

But I think the problem we're into here is this problem of chemicals on lists and I think we have to do better than that.

DR. SEIBER: Well, I think this is a draft list, first of all, and I actually applaud ARB for bringing us the list. I think this is the first time they've ever asked for our input.

And I believe the next logical question is what isn't on this list for our workload for the next year or two that ought to be because it's just a crying priority now.

MTBE, I think probably all of us would say should surface to the top and, yeah, we can start the debates on some of the others whether they should be there or not.

CHAIRMAN FROINES: I think I agree with you. And I don't -- I really appreciate everything that Genevieve and her staff have done, because this is very helpful. There's no question about that. I'm not trying to be overly critical.

I'm trying to get us out of the dilemma of how can we set up a process, especially now that Joan is over at OEHHA, to begin to -- am I saying that because you left or because you stayed?

Now to somehow set up a process where we actually begin to make some health effects decisions. And I think this panel can help a lot on that. And I think that process is something worth doing. To get away from this sort of lists that people have been raising.

DR. SEIBER: I'll hope we'll ask that question.

During our phone conversations earlier this week they asked me what's not on the list that ought to be there and that kind of stopped me for a minute. And I mumbled a few of my favorite chemicals, but without a process in mind, so.

CHAIRMAN FROINES: That is what I mean. I think we have to have a process. If the panel wants to have

feedback then I think we had better set up some kind of process.

MS. SHIROMA: And you do have two lead members, Dr. Glantz and Dr. Seiber, that you had designated to work with us some years ago and therefore helped us with the prioritization scheme and now we go to the next generation of looking at groupings of substances.

CHAIRMAN FROINES: I have no disrespect for Stan Glantz. I think he's one of the greatest people on earth. But he's a statistician. He has no idea what some of these chemicals are all about. And I think we now have people on this panel who do know about chemicals and we can perhaps -- this is not a criticism of Stan, but I think some of this stuff means you need to know some toxicology and some chemistry. It's not --

DR. BLANC: Can I ask another question, to help me clarify so I really truly understand how things are divided up on the list.

Category VI substances, these are toxic air contaminants, but they're not emitted in California based on both not appearing either on the air and toxic hot spots or the toxic releases inventory? Is that right? Do I understand that?

MS. SHIROMA: That's right. And they're toxic air contaminants by virtue of being on the federal --

DR. BLANC: Right. So let's take something like parathion, the implication is that there's no parathion at least in California?

MS. SHIROMA: You know, the other criteria is that from stationary source. Its pesticidal use, there could be emissions.

DR. BLANC: Why would we put it on List VI then?

DR. SEIBER: Parathion was banned about five years ago, so the assumption that it's not being used, but there are still residues, just like there are chlorinated and some of these other things that are slowly boiling into the air.

DR. BLANC: And then all of the other, let's say, related pesticides and the organophosphate class, which have not yet been controlled, and aren't listed on the federal list, and have not yet been -- have not yet been identified in let's say the toxic air contaminants list --

DR. SEIBER: There is a separate process for pesticides. Maybe you should explain.

DR. BLANC: They're exempt from this process?

MS. SHIROMA: There was a possibility for -- the program for pesticides rests with the Department of Pesticide Regulation, so it's a different department that runs the similar program to ours for pesticides and their pesticidal use.

DR. BLANC: Since certain pesticides or

agricultural chemicals do appear on the list, it might be another footnote that would be useful so that you're -- one is not, you know, taking it to mean that it -- one wouldn't interpret it the way I just did as sort of a layperson.

MS. SHIROMA: Just so we understand, Category VII is the category where we listed the pesticides.

Now, the parathion, because it's -- we need to work with DPR.

It's no longer used and so forth, but it's pesticide and so they had wanted us to glean out which ones were and were not, and use Category VII.

Perhaps we need to talk to them about putting parathion there.

Because these all end up on the federal hazardous air pollutants list, so we can clarify that.

DR. ALEXEEFF: Maybe we just need to add some more clarification because under VI it says they're not released into the hot spots program or the TRI, but then No. 7 are basically substances which are in current use in California.

So maybe we should confer with DPR and affirm -- I think the intention was that the pesticides in Category VI are not in use anymore either and we can just clarify that and indicate that as a footnote.

CHAIRMAN FROINES: One question.

This is my favorite compound. Under Category IIa

you have listed as 1,3 dichloropropene. Is that listed because you think that there are manufacturing facilities in the state or formulators as opposed to pesticidal use?

MS. SHIROMA: Double checking that.

I'm thinking offhand -- I think you bring up a good point that as a pesticide, we have stationary source emissions of -- we'll go back and double check and see the source of the emissions in our air toxic emissions inventory on that.

CHAIRMAN FROINES: Under IIa also you have organics. I see that's where you have it.

DR. BLANC: There's another thing that, you know, but I'm really having trouble with the overlapping circles here.

Section III, these are things that have as written, they are hazardous air pollutants, that's not the issue. They are released. There's less than a full set of health values. Right?

And Section IIb are also things that which are released, have less than a full set of health values.

It's the difference between III and IIb that actually III has no health values at all, it's not even less than full set, it's got nothing or what makes something be in III, not in II?

MS. SHIROMA: It was ranking of -- it's a lower

priority, a lower ranking.

DR. FUCALORO: The overriding principle is that priority?

MS. SHIROMA: Yes. Priority ranking and the availability of health values that have already been addressed by the SRP or work in progress by OEHHA or where we have a need for the health values and are aware of a health endpoint.

DR. KENNEDY: We keep coming back to the issues of the priority ranking. Is it of any value for us to see this? Actually, look at the process, the review process. It seems pretty basic to me.

DR. BYUS: We've done that.

CHAIRMAN FROINES: Peter and Paul and Tony, at least, haven't ever been involved in this so, yes, I think maybe if you can circulate information to everyone just so everybody can get back on the same page. Because we haven't looked at it for a long time, so most of us have forgotten elements of it anyway.

DR. SEIBER: Can you just -- maybe you can just tell us, verbally there was X number of categories, you assigned five points for each category and --

MS. SHIROMA: Can you put that overhead back up.

It's eight different categories, each one had various amounts of points and perhaps Jackie can quickly

describe each of the categories.

CHAIRMAN FROINES: Let's not do it today.

DR. SEIBER: If we can see the categories, maybe that can answer some of the questions.

MS. SHIROMA: We can send out a packet of material to the whole panel or --

CHAIRMAN FROINES: Everybody.

MS. SHIROMA: To everybody and you can see what was done.

DR. KENNEDY: That would be helpful.

CHAIRMAN FROINES: One of the problems we have in this is lot of these chemicals do have toxicity, but you know a lot of these chemicals are not going to be in the air at all. And so the exposure issue becomes one of the big uncertainties in all of this, or it's going to be in such small amounts it's not going to constitute much of a risk.

DR. KENNEDY: But shouldn't that somehow work itself into the prioritization?

CHAIRMAN FROINES: It does.

MS. SHIROMA: It does.

CHAIRMAN FROINES: It does at one level, but I'm saying at a more fundamental level when you start to state what are the real problems then it's a little more troublesome, because we don't have monitoring data for a lot of the things.

DR. BLANC: Sort of my final question, now I'm really confused, as to let's say something is on IIa and -- or especially if something is on IIb, are all of the things which are on IIb, let's take dimethyl formamide, potent hepatic toxin which is used in the fabrics industry, so I guess there are releases, and it's a common solvent in certain other industries, so I assume that there is some release of it. There is certainly no question that it's quite potent acute toxin and chronic toxin in terms of liver damage.

Is dimethyl formamide something that's being sampled for currently by all these air stations around California?

MS. SHIROMA: Let's look at a few there.

And it's the hot spots program, it's -- double check the monitoring to see if it's being monitored.

MS. JOHNSON: No, it's not being monitored.

DR. BLANC: So there's a great example.

You've gotten to the point in your minds where you believe that there needs to be more criteria developed in this material, which you're probably going to maybe bring to us at some point for comment, is that right, on dimethyl formamide?

MS. SHIROMA: Yeah.

What it also means that we feel for example this

would be a substance where we would then go to our monitoring laboratory division and say can you develop a method to collect, monitor and test for this substance for these others that are in the priority --

DR. BLANC: When will that be happening or can we assume therefore that everything that's on the IIb list that isn't already being sampled for will start to begin being sampled for? Some of them already are.

CHAIRMAN FROINES: Paul, I would argue that there's another level before you get to that -- I'm sorry, Peter, you want to say something.

But I think at some point we need to go through and say hot spot, ambient, and differentiate between the two, because there's some chemicals that the only concern is going to be because it comes out of factory X in the South Coast Basin, and it's not an ambient issue, so you don't want to spend millions of dollars.

But other chemicals, which are more broadly distributed you may want to do.

So I think we need to separate on this list, for example, and go down and say ethylene thiourea, well, we already heard earlier today that there's 400 pounds and maybe the 400 pounds comes from one place.

Well, do you want to monitor that? Now, you may choose to forget it at that level.

The point being that it's certainly not one you want to set up a monitoring system to do.

Genevieve and then I guess Peter.

MS. SHIROMA: I was just going to say that in fact as you look at the criteria, and we'll send more information to everyone about it, use the entire set of criteria for ranking, but we could take a look at what happens if you look at what's going on with the risk assessments and compare that to what's happening -- in terms of the risk assessment work, compare that to what happened with the emissions, and therefore this is a dynamic process.

DR. SEIBER: It almost sounds from the discussion like something we can maybe talk about is there ought to be a Category III with an A and B under it. That might have been clearer, based on what Paul was saying. Those that are nominated that will be reviewed and those which are kind of waiting in a holding pattern, because admittedly the difference between IIb and III isn't very clear in this document.

If you hand it out to people they're going to ask a similar question.

MS. SHIROMA: We're saying it needs to be a stand-alone table. So we'll --

DR. SEIBER: Maybe we can work on that.

DR. BLANC: I think even the terminology of

listing something as A and B where things appear on both lists is counterintuitive. However you handle it I would say make it clear that the following list is a subset of the list you just saw, because when you do A and B, you know, those things --

MR. VENTURINI: There's no question we have spent a lot of time trying to make this as real as possible. We're going to keep working at it.

One of the things we've talked about doing, because we're dealing with each subsets, one of the things we thought of doing is by each subset identify which endpoint is needed or is not needed, so if you see something and say Ia, you might see cancer, that means there's a cancer there. If that same substance is again in IIa, it may be because it's for an acute and/or chronic endpoint.

That may help with these three things.

But the larger thing we're trying to do and, Dr. Froines, and some of you may remember, before we had to identify for all these 189 we had a pretty streamlined list that we used to work with and the dilemma we're facing is we had these 189 substances state law required us to formally identify.

And we've been trying to do, OEHHA and the panel, is trying to take those 189 and say which of those do we need to be concerned about in California, which of those

need to be developed values for.

And that's what we're trying get to that.

And I think then, Dr. Blanc, to answer your question, as part of our process with respect to monitoring, is we consult with OEHHA and with our Monitoring Laboratory Division, try to identify ahead of time what additional substances do we need to enter into our monitoring process to monitor for, so when we get to the stage of doing a risk assessment we'll have a basis of some exposure data from which to give us some sense of where to go.

And that process is continuing and ongoing. It takes into account whether it's just a hot spot or it's widespread and it also takes into account the difficulty of monitoring and methods and so forth.

So what we're really trying is to synthesize this monster down to something that is meaningful and really focus on where do we and OEHHA need to focus our efforts.

CHAIRMAN FROINES: I think, by the way not -- just so you understand, I think that the chemicals that you've identified priorities today are really very important. And that's very solid I think.

It's dealing with the rest of it, because we all -- it's easy to pick on Congress because of the 189, but we know that they certainly weren't done by people who have spent a lot of time thinking about toxic air contaminants.

MR. VENTURINI: We know some aren't emitted in California, so we tried to weed those down.

CHAIRMAN FROINES: George.

DR. ALEXEEFF: Yeah. Having looked at these lists many many times over the last several months, and I still don't feel I can answer all your questions as quickly as I like, but getting back to Dr. Blanc's question, if you look at IIa those are ones that some work is being done on.

And then when you look at -- really in some ways it's IIb and III that are a little bit linked. IIb and III are the ones that which at the end of the process they'll still be work to be done.

And the ones that are in IIb are the ones we've selected that are higher priority.

So something like manganese, as you mentioned, that one will be done, or benzene will be done. They're not listed in either IIb or III.

Methyl bromide, there's a number of compounds which will be coming out with levels for.

Maybe, and I don't know how it might affect the process, but just in terms of your comments you made on the categorization, would it make more sense to you if the IIb was linked with IIIa and IIIb?

DR. BLANC: Not if the things appear on both lists. It's very confusing. If B is a subset of A then it

lists -- I don't know, but --

DR. ALEXEEFF: III would be a subset of II. And within that it would tell you which ones are high priority, which ones are low priority. So in that sense it would be a little bit more -- I don't know, we can try to figure it out.

DR. BLANC: Part of it is how you explain it in the beginning. But having things appear on multiple lists is highly confusing unless you're making it clear.

MR. VENTURINI: Just one final point.

I think the overall objective when you look at all these lists, what happens with these, the overall objective is one, Category I. Category I are those substances that have been identified for which health values have been approved by you folks.

So ultimately, and maybe what we'll talk about this some more, is what's really more from our perspective which are the ones that we need to be moving into one, and into the priority.

So look at all these others and it's a little complicated because some cases you don't have all three endpoints, you have one. You need other endpoints for some of these others. Ultimately in my mind is what do we want to get into one.

CHAIRMAN FROINES: Very good.

I think that the -- and I just actually am arguing that one of the things we want to do as we move along is let's take the IIa, I can name at least five compounds, carbon disulfide, hexane, manganese, let's just pick those three, they're all neurotoxins.

The question is do they -- do we think that the mechanism of those three neurotoxins is sufficiently similar that we should be looking at them as a group of three.

And it's like aldehydes produce similar effects.

And so I think as we move along, I think you want to do is to try and take what we know about health endpoints and mechanism and try and see where there's logical groupings that we can then pursue, so we're not just dealing with everything that's a chemical.

Because the levels of these are going to be so low that unless they act together they're probably not going to be acting at all.

You agree?

DR. BLANC: I don't know, but of the things you listed, two of them are -- one of the manganese, the manganese compounds is likely to be a huge issue because the organo manganese gasoline additive is not yet as per chemicals, so we're going to be dealing with that, I'm sure.

And carbon disulfide, which is released ambiently in relatively large amounts, surprisingly, to me, as these

things go -- I don't know if you have the number of pounds there per year.

FROM THE AUDIENCE: 230,000.

DR. BLANC: It's all from one facility? Everything is the one hot spot?

FROM THE AUDIENCE: Wrong number.

FROM THE AUDIENCE: 1288 pounds per year, but it doesn't tell me --

CHAIRMAN FROINES: All these chemicals --

DR. BLANC: There's a different number, must be the national number. Never mind.

Something like hydrogen sulfide, on the other hand, which is an acute respiratory irritant, and because it occurs in natural sources and manmade sources, must be very diffuse, as sources, and what's the source of that?

FROM THE AUDIENCE: We've got it there.

DR. BLANC: Hydrogen sulfide --

CHAIRMAN FROINES: You have to start, in terms of going back to the point in time, maybe Jim, that as we think about what kind of monitoring to be doing for exposure, we need to be thinking about what ones -- how can we do our best job possible to come up with some ideas which ones of these things should we be doing --

MS. JOHNSON: 5.8 million.

MS. SHIROMA: What?

MS. JOHNSON: I understood that Dr. Blanc wanted emissions?

5.8 million pounds.

CHAIRMAN FROINES: All in petroleum refineries.

DR. FUCALORO: In California?

CHAIRMAN FROINES: Petroleum refineries.

DR. SEIBER: Could be power plants.

DR. BLANC: There's an example of an example of interesting compounds, you know, that it's not a cancer issue at all we're talking about. We're talking about acute respiratory irritation, potentially neurological effects and more respiratory irritant, and nasal irritant.

It's not -- it's probably widespread in terms of its release, but it's not something that's sampled at those stations.

And that again it would helpful for us to understand how these are looked at, how are these decisions made and in what ways we can be helpful in terms of being a sounding board for some of these questions.

And I also agree with John that it would be very useful to me if for example when dimethyl hydrazine comes to us -- no, dimethyl formamide comes to us, it would make a lot of sense to have 2-nitropropane come at exactly the same time, because they're both important by virtue of being incredibility potent toxins.

At least be talking about the same subject.

CHAIRMAN FROINES: This is very good.

DR. SEIBER: Where do we go from here? Do we as a panel and individual members when we receive the prioritization list in the mail and digest through this, are you open to us writing back and saying, by the way, these two compounds I think are really important for the following reasons, let's consider putting them somewhere in the process.

Is that what you want out of the panel?

MR. VENTURINI: Absolutely.

CHAIRMAN FROINES: I think that that's probably the best way to approach it is in a sense on an individual basis, but it may be a future meeting we can have it on the agenda and panel members can talk about what they have been thinking about.

So nobody feels obligated -- we don't want to do it necessarily as a group, I don't think.

DR. SEIBER: I think that's real exciting. I will take that charge, if that is something we should do. And really work with that because that's new -- you're getting right in the very basic starting point in the process.

MR. VENTURINI: I think the good news is this a dynamic list and we have flexibility to update it as frequently as he need to.

CHAIRMAN FROINES: I was asking a slightly different question.

I was saying that there are two ways to approach this.

One is you will give input and Paul will give input and he will say I'm not going to do carbon black no matter what you say, so he'll give input.

And we can do that on an individual basis or we can have a group of people who volunteer to serve as a subcommittee who would informally interact with ARB and OEHHA to work on these issues, that it's that kind of choice we have to make.

DR. SEIBER: We've already got two of us that do that as the leads and maybe that could be expanded.

DR. BLANC: One way to do both is in a sense in a interim or initial would be for panel members to send comments to you, John, that you could collect as an aggregate, send it on to them, and then you as chair would be also seeing what's coming from the troops and if you see that there are certain themes arising you could put on the agenda a focus discussion in light of comments that people are making.

CHAIRMAN FROINES: I'd be happy to get comments from people, and I would certainly send them on.

The other question would be are there people who

would like to join with Stan and Jim to serve on what is essentially a subcommittee?

Now there's a legal problem, isn't there? Is there?

FROM THE AUDIENCE: No more than four.

CHAIRMAN FROINES: No more than four.

If anybody wants to volunteer, I think they should talk to Jim and after the meeting and Jim can let me know, unless you want to do it right this minute.

DR. SEIBER: Bring it up right now. If you'd like to serve on that, let's see if we can do it.

MS. SHIROMA: In terms of your time, we are very -- we try to be very careful about how much of your time we take, realizing that everybody is very busy, so we try to make it as efficient at possible.

If you're interested, I'm trying to encourage you to join on, because we do provide materials ahead of time, do it by conference call and have the questions being focused.

DR. SEIBER: It's not that time consuming. If you're interested, anybody, consider doing it.

CHAIRMAN FROINES: Well --

DR. BLANC: I'll take it under advisement.

CHAIRMAN FROINES: I'm trying -- I'm being very very kind of hesitant. I don't want to force people to do

something.

DR. BLANC: I would like to see how it evolves.

CHAIRMAN FROINES: Let's leave it and if people want to become involve they can talk with me or you.

Now, the one thing we have to do before we break is George asked me that the panel make some motion to adopt to approve this document he's presented.

MS. SHIROMA: The air toxic --

CHAIRMAN FROINES: Does the panel want to take a look at it and have a brief discussion at the next meeting?

What is it that you think you need from us, basically?

You need the panel to make a formal stamp of approval or what?

DR. ALEXEEFF: Well, I think there are probably two issues.

One is the appendix A. The appendix A is the revision of our dioxin document. So we're suggesting that the method of quantifying the various conjoiners of dioxin be changed and that was something that we provided the information why we were suggesting it to be changed. I kind of feel that should be somehow formally adopted.

DR. BLANC: So moved.

CHAIRMAN FROINES: I don't think we can.

DR. ALEXEEFF: It has gone through the comment

period, and such. I mean it's up to the discretion of the panel.

The other substances, I don't know if we need to have a formal approval, but it would be good if there was some sort of statement of support this is the appropriate group of substances or the procedure -- actually it's the hierarchy that we've chosen that basically we have -- when there were choices to make between available numbers, we chose like the toxic contaminant numbers over the NCPA numbers, the ones that you had previously reviewed.

I think that is sort of the other issue, the other major issue that would be useful for support.

The other thing is if one could -- if we simply made some statement of support or approval of the existing potency values that we have there, then that would, except for changes or updates that we might have, when the guidelines come to you that would be one less issue to discuss. There will be other issues in the guidelines.

So that that's how it breaks down.

We need to have some decision on the toxic potency factor for dioxin and it would be great if we could have a statement of approval for use of those numbers now as opposed to later.

CHAIRMAN FROINES: I think we need a formal approval vote on that, frankly, since we are basically

approving some rather important values. I don't think this is something we can just, as much as I'd like to do what Paul is proposing --

DR. BLANC: How about this as middle ground? How about giving a tentative approval as a working document and then bearing in mind that we could come back to it.

CHAIRMAN FROINES: I don't know what the tentative approval serves.

DR. BLANC: Will that let --

DR. ALEXEEFF: I think that would certainly be to use these until we bring the actual guidelines document to you. So in that sense it allows us to just continue.

DR. BLANC: Using them as a working --

DR. ALEXEEFF: Use them and bring the actual guidelines to you at the end of the calendar year.

DR. FUCALORO: You feel you need this, you need a motion of this type?

DR. ALEXEEFF: I think so. It will just add stability to the current programs that are using these numbers and would like to know, yeah, these are numbers we should be using and they are using them.

DR. BLANC: How about, John, also if I amend that we approve it as a working document through December 31st of 1998, that would put an absolute time limit on it and that if we do nothing it will no longer be approved and we'd have

to revisit it by a certain period of time.

CHAIRMAN FROINES: My only concern of asking people for a vote today is that I think there's at least a number of -- a few people, if not more than that, who haven't really had a chance to look at the document in any detail and therefore they're giving approval for something that they cannot honestly say that they gave any thought to, and I worry about that as a procedure.

DR. FRIEDMAN: I agree with that. I didn't know we were going to have to do something formal today and I didn't study it. I really would like to have the question before me and have a chance to look it over with that question in mind. So I would not feel comfortable with our voting on something.

DR. WITSCHI: There's a problem to some extent. I'm not saying we should approve it, but the problem is this is a secondary document. And if you start looking at individual numbers, that's getting dicey, because we're second guessing other people, unless we do it in formal way.

I mean, we would be second guessing PA maybe and would second guess the numbers which have been arrived at very sophisticated, very drawn-out processes. And I don't think we can do this.

We have to somehow to find a way to approve the document with the full proviso that this is a secondary

source. And if it's a secondary source all we have to convince ourselves is that thing is done with the necessary care. And if we do not agree with something because we think it's blatantly false, then the thing to do here, remove this particular thing from there, from the document, or other than changing the number.

CHAIRMAN FROINES: I agree with you a hundred percent.

I'm asking a threshold question, which is, it seems to me if nobody has a chance to read them at all, then even to make that decision seems to me to be --

DR. WITSCHI: I agree with you. I just want to say how I read the document.

DR. KENNEDY: I agree with you completely that your initial comment was this was a wonderful reference source. It is. And I am naive enough that when you all send me stuff I read it.

I always feel if I go back and read it again, I am still not going to be qualified to make the sorts of judgments regarding the propriety and appropriateness of these calculations.

I am going to be able to say that these folks do good work and this is good work, I give a tacit approval.

If we all need the opportunity to simply read the document and be able to say that, give us a week or month or

whatever to do it and return it, so we can have this information as quickly as possible.

But that seems --

DR. WITSCHI: It would be a possibility if we look at this document, our interest that you really feel that maybe whoever did the risk assessment or came up with a potency for a particular compound we feel not comfortable for this or the other reason that we could opt for having it removed, this particular --

DR. BLANC: When is the next regularly scheduled meeting?

CHAIRMAN FROINES: February.

DR. BLANC: Can you live until February? It sounds as though there is no consensus emerging. You're going to have to live until February.

I'm going to remove my motion unless, Mr. Chair, or if you would work it out in the agenda for the next meeting so that there is sufficient time set aside for this without short changing what other business there is.

CHAIRMAN FROINES: I think at the next meeting we can do it in five minutes. I'm basically only concerned with --

DR. BLANC: That's fine.

CHAIRMAN FROINES: -- with people saying, with Gary, and my sense of some people haven't had a chance to

look at it and they should have that opportunity.

DR. BLANC: It sounds like it's not an emergency. You didn't want to go another year.

CHAIRMAN FROINES: No. I think that -- I don't think it's going to be a problem. I'm worried about it as a procedural issue, not a substantive issue.

DR. ALEXEEFF: Maybe we should also consider what the motion will be in light of what Dr. Witschi said. I think most of these are secondary --

DR. FUCALORO: You'd have two months.

DR. BYUS: Nobody is going to give you blanket approval for every single number in there, say we agree 100 percent with every single number. We can't do that, even though you might like it. As a secondary source it is, it's wonderful. It is an excellent piece of work. Be very valuable.

DR. ALEXEEFF: The law itself doesn't actually require approval, but it does require review and comment.

CHAIRMAN FROINES: That's what we're going to give you.

So we've gone longer than I thought.

I think we are still okay.

So I think we're finished.

DR. BLANC: Do you want a motion for adjournment?

CHAIRMAN FROINES: Motion for adjournment.

DR. BLANC: I move.

DR. FRIEDMAN: Second.

CHAIRMAN FROINES: And all in favor.

(Ayes.)

CHAIRMAN FROINES: Thank you very much.

(Thereupon the meeting was adjourned at 1:40 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 20th day of December 1997.

Janet H. Nicol
Certified Shorthand Reporter
License Number 9764