UNITED STATES OF AMERICA

CENTERS FOR DISEASE CONTROL

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NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

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ADVISORY BOARD ON RADIATION AND WORKER HEALTH

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98th MEETING

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TUESDAY
APRIL 29, 2014

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The meeting convened at 8:30 a.m., Eastern Daylight Time, in the Augusta Marriott at the Convention Center, 2-10th Street, Augusta, Georgia, James M. Melius, Chairman, presiding.

PRESENT:

JAMES M. MELIUS, Chairman
HENRY ANDERSON, Member*
JOSIE BEACH, Member
BRADLEY P. CLAWSON, Member
R. WILLIAM FIELD, Member*
DAVID KOTELCHUCK, Member
RICHARD LEMEN, Member*
WANDA I. MUNN, Member*

JOHN W. POSTON, SR., Member
DAVID B. RICHARDSON, Member
GENEVIEVE S. ROESSLER, Member
PHILLIP SCHOFIELD, Member
LORETTA R. VALERIO, Member
PAUL L. ZIEMER, Member
TED KATZ, Designated Federal Official

REGISTERED AND/OR PUBLIC COMMENT PARTICIPANTS

ADAMS, NANCY, NIOSH Contractor
ANDERSON, ALVIN, SRS
ANDERSON, DAVID,
ARMSTRONG, DAN, SRS
BARRIE, TERRIE*
BURGOS, ZAIDA, NIOSH
CHOAT, DONALD, SRS
CRAWFORD, FRANK, DOL
DAVIS, L.N.
DAWS, JULIE
FITZGERALD, JOE, SC&A
HARTSFIELD, DEKEELY, HHS
HINNEFELD, STU, DCAS
HOSHELL, GEORGE
FUNDERBURK, JIMMY, SRS
GILCHRIST, CLAUDE
GLOVER, SAM, DCAS
KELLER, KRISTI*
KINMAN, JOSH, DCAS
LEWIS, GREG, DOE
MAKHIJANI, ARJUN, SC&A
MCFEE, MATT, ORAU Team
MOORER, MARY
NETON, JIM, DCAS
RICE, JEFF
RINGEN, KNUT
ROWE, GORDON
RUTHERFORD, LAVON, DCAS
STIVER, JOHN, SC&A
STURCKEN, ED
TAULBEE, TIM, DCAS
WALZ, MARK*
WARREN, BOB
WORTHINGTON, PATRICIA, DOE

A G E N D A

P-R-O-C-E-E-D-I-N-G-S

8:32 a.m.

CHAIRMAN MELIUS: Good morning and welcome to, what number are we? Number 98, 98th meeting of the Advisory Board. And let me turn it over to Ted for housekeeping.

MR. KATZ: Yes. Welcome everyone in the room and on the line. And for people on the line B- for people in the room we have materials on the back table for all the presentations that will be made today. For people on the line, all of the materials that are being B- for presentation today are posted on the NIOSH website under the DCAS webpage, NIOSH section of it, I mean, Board section of it for today's date, so you can find all those materials and follow along. And the meeting is also webcast, just the presentations, mind you, not a live feed of the room, but the presentations are all

webcast in a Live Meeting session. That's also on the agenda for the meeting today, which is also posted on line with the presentations. So, if you're on line you can follow along with presentations that way on your computer, as well.

Okay. For roll call the Board Members, we only have one session today that has a conflicted Board Member, that's Savannah River Site. And Loretta has a conflict for that, Ms. Valerio, so for the rest of the Board Members you don't need to address your conflicts because they don't relate to today's sessions. So, let's just run down roll call alphabetically. And we have quite a few Board Members who should be on the line, so let's go alphabetically.

(Roll Call.)

MR. KATZ: Almost a full house. Welcome, everyone.

Let me just also talk about etiquette for the meeting for people on line. Please mute your phones so that your B- whatever is going on in your background doesn't interfere with everyone's audio. If you don't have a mute button on your phone press *6 to mute your phone, * and then 6 will mute it. And if you want to speak to the group, if that's the right occasion to do that, you press *6 again to take your phone off of mute. And please don't put your phone on hold at any point. Hang up and dial back in if you need to leave. And that should take care of things.

Oh, one last note. There's a public comment session that begins at 5:15 this evening. We'll begin with folks who are here in the room, and then we'll go to people on the line. For people who are here, there's a sign-in sheet directly outside the

room so you can sign up if you want to speak to the group at that point. Thank you, everyone.

CHAIRMAN MELIUS: Okay. Thank you, Ted, and we'll get started. And the first person to speak will be Stu Hinnefeld is going to give an update on the NIOSH Program.

MR. HINNEFELD: Good morning, everyone. I feel like I should have something clever to say, but after doing this every meeting I run out of clever things to say. My computer doesn't even want me to talk at all.

(Laughter.)

MR. KATZ: Let me remind you to please everyone speak directly into your mic so that folks on the phone can hear, as well. Thanks.

CHAIRMAN MELIUS: And anyone who

like to submit clever remarks for --

(Laughter.)

MR. HINNEFELD: I would welcome clever remarks, opening jokes, anything anyone wants to offer.

Okay, as is my habit, I've prepared an update slide to tell how we're doing, update the presentation. It looks much the same as ones you've seen. Start off with a little program news. Yes, I always wonder what's newsworthy to the Board and what's not, so I think of things that I think might be newsworthy. I might leave some things out, and I might put something in that no one is interested in.

One thing that is of great interest to me is the second bullet here, is the Dose Reconstruction Contract. We had a B- generally, our Dose Reconstruction Contract both times has been B- well, the

last couple of times has been a series of five one-year contracts, so you can make one award and then you have four options so you can renew it if you like what your contractor is doing.

The incumbent has been Oak Ridge Associated Universities and the team that they've teamed with since we started, and they have won the most recent re-award of the contract.

The contract was originally scheduled to expire in, let's see, April of 2013, and we went through a series of extensions working with our Procurement and Grants Office. That was also the time of the sequester if you'll recall, and so a number of things came together in association with that, and had our contractor spending at quite a low rate for about a year. It was essentially a double sequester rate. And

with this new award we are not B- we don't have relief from the sequester. We still are operating under sequester, and we have less money each year than we did before the government sequester, and we face that going forward. That's not a temporary thing.

However, because we have been operating at such a low spending rate as an artifact of the other contract, we have been spending at a much lower rate than we needed to. So, starting in April we have been able with ORAU to accelerate some of our site research, and we would hope the Work Groups will be able to see a more steady supply of products for now. We'll have to evaluate spending rates and next year's funding as we get toward the new fiscal year, but we believe we're going to be in better shape for the foreseeable future than we have been for the past year in terms of the amount of

money available to spend on our products for our Dose Reconstruction contract.

The other items I've got in here are sort of outreach and outreach-type activities. NIOSH participates in the Joint Outreach Task Group with DOE and DOL, and we meet a few times a year at sites around the country where there is interest from either one of the agencies or a local interest.

In February we went to Denver for a public meeting on the latest edition of Class, the latest Rocky Flats Class that was added. It became effective, I think, in January. And when there is a new SEC Class, DOL sponsors a public meeting. It's a large public meeting where they go out and explain the impact of this new SEC Class. So, we go along largely to answer questions because, inevitably, there are questions about our part of the process, so we go to that. We

did that in Denver.

And while we were in Denver we arranged largely through the efforts of the Department of Labor, I believe, we arranged for the three agencies to have a meeting with a group of program advocates who identified themselves, I'm not exactly sure how they were identified, and we had that meeting at the Denver District Office.

We got to address a number of B- or discuss a number of concerns that they presented to us in advance. Much of their questioning was for the Department of Labor. We did have a couple of items on the list, I think we provided some answers to satisfactorily, and I expect this will be probably part of the continuing dialogue. Periodically we might do this with the other agencies.

And, also, in the topic of

outreach we have a Joint Outreach meeting planned in June in New England. This is really a couple of sites that we expect this to be relevant to, Nuclear Metals and Controls, which I think is now run by Honeywell. And this kind of grew out of an initial effort that was spurred by Congressman Kennedy to kind of get word out to employees of Nuclear Metals and Controls because there is an SEC for Nuclear Metals and Controls, and the Congressman didn't feel like it was that well publicized, and there were a lot of workers who didn't know about it.

So, there was one session that was about a year ago up there just for Nuclear Metals and Controls. This is going to go back now more formally as a Joint Outreach Task Group meeting, and again have a public meeting for that site, and also for

the Connecticut Aircraft Nuclear Engine Laboratory in Connecticut, which is close enough that we can cover, we think, both in one trip, probably a couple of meetings, but one trip.

So, we're going out there in June. There are a couple of other proposed meetings out there, but I think those will go probably in the next fiscal year, and there's nothing firmed up on those visits yet. I think people are talking about going to Paducah, and there's some interest in going to WIPP on some of the agencies' parts. We don't get much business from B- that's the Waste Isolation Pilot Project for the people who don't know. We don't get a lot of interest in our part, we don't get a lot of claims from there, clearly.

And I don't know if you've been following in the papers, the Waste Isolation

Pilot Project had a bit of an event there back in February, and they're still struggling to recover from that, so I suspect they may not be terribly interested in having us out there until things settle down a little bit out there.

Let's see. Moving forward, I get into the standard part. This is our lead statistics. I don't think I'll read these to you. It's the same format we've used, all it changes is the numbers a little bit. If you have any questions, I'll try to answer. These are the overall claim information. These are those 1,224 cases, the active ones, which ones are we working on. You can see there are some 280 where the draft was with the claimants, and so we kind of feel like we think we're done with those.

And here is the summary of the outcomes of Probability of Causation, and

the total number of dose reconstructions that we've sent back where we had a final dose reconstruction and the number for greater than 50 percent, number less than 50 percent. That's slightly less than 30 percent, I believe, which is kind of where it's been trending for the past several reports I've made.

Submittals and production numbers, you can see here that the cases received from DOL is the palest line on there. I guess that might be a pale blue but I can't tell colors, so I don't know. And you can B- if you look here for the last year or two, there seems to be a slight downward movement in that line, a bit of a downward trend in the line of delivery. So, while we've been going pretty steadily at 200 a month for several years, it's kind of dropped a little below 200 a month, not a

lot, but a little bit below 200 a month for the past year or two. And the production number is a little more erratic as we either get a little bit behind the delivery rate, or catch back up to the delivery rate, but they kind of mirror each other. And we're maintaining pretty much what we consider a steady state set of cases. We have around 800 or 900 cases in-house that have to be done, and it's been that way for quite a while.

And here's our summary of the first 5,000 claims, status of the various claims. Anything that's in progress or with claimants, those are cases that were either sent back as reworks or reinstated within the past year. And the same is true with the first 10,000 cases. Anything that's either with the claimant or in process, or have been reinstated, you know, the one initial

is a reinstatement, I'm pretty sure, of the CLL case.

This is our tally of DOE's responsiveness to exposure issue requests. You can see there the numbers are pretty low, and particularly the greater than 60 day number is very low. That's where DOL strives to get the response back within 60 days and it's really moving well in that regard. The 232 outstanding cases, that's just a little over what we get in a month, so you would expect to have some cases, there are always going to be some cases that we don't have a response back. So, that's showing very good progress.

SEC Petition Summary Table, LaVon is going to speak about that a little bit later, so I won't talk much about that. Just this is the summary of the Classes that have

been submitted. And, also, a breakdown of how many were 83.13s versus how many were 83.14s; whereas, a while ago we were pretty much even. That was sort of at the end of our efforts to complete our site research. We went through the AWEs that we had for the first few years of the project we did, and researched some of the AWEs that didn't have a lot of claims. And then eventually a few years ago we went through trying to finish up our research that we could do at all those places. And in a number of those cases we found that we couldn't gather enough information to do dose reconstructions with sufficient accuracy, so there were quite a number of 83.14s, if you'll recall, I forget when that was, two or three years ago, we were bringing 83.14s quite often. We've kind of worked through that now. We feel like we've researched pretty much everywhere

where we have claims, so now the 83.13 process is again pulling ahead in terms of number of SEC Classes.

It shows it's 74 sites, I'm sorry. Yes, from 74 sites the total number of Classes, so they're B- as you know, we do multiple Classes from sites as we research different years, and there's still some petitions under HHS Administrative Review.

That process is strictly an HHS process, and we have no involvement with that. We send them the records, and then we don't do any B- we don't hear anything about it until they issue a report of their Administrative Review, so that occurs completely independent of DCAS. And, in fact, completely independent of NIOSH, it occurs at HHS. So, I don't have any particular insight into that process other than we've sent files.

I believe that might be it. I hope that's it, because I can't get my slides to move. Yes, that is the last slide.

CHAIRMAN MELIUS: Questions for Stu, Board Members? Board Members on the phone, do you have any questions for Stu?

MEMBER ANDERSON: I don't, no.

MEMBER FIELD: Nope.

CHAIRMAN MELIUS: Okay.

MEMBER MUNN: No.

CHAIRMAN MELIUS: Yes, Paul. Paul has a question here.

MEMBER ZIEMER: Stu, you mentioned that you're operating, in essence, as if the sequester is still in place. Is that what you expect to happen throughout the rest of this fiscal year then?

MR. HINNEFELD: Well, maybe I wasn't clear on that. For this fiscal year we're almost at operating B- from now on

we're almost operating as if there is no sequester because we've already saved this year's money. The amount of money we had to save this year because of the sequester, we've already saved it in the first six months of the year because our contractor was spending at such a low rate. That was an artifact of their previous contract.

Their contract year doesn't align directly with the fiscal year, so their contract year ended at the end of March, I guess. So, their new contract starts April 1st, but the fiscal year, of course, started in October, so from October through March, the first six months of the year, they were spending at essentially double the sequestered rate, cut twice as much of a cut as they normally would have needed to just for sequester. So it, essentially, saved the sequestered money already in the first six

months of the year, so we can be spending relatively close to the pre-sequestered amount. But next year's money will be sequestered, so if we spend at this level for the entire 12 months, we will fall of the cliff for the last half of next year, so we'll have to do some ramping down as we go in to have a smooth transition into the next year's amount of money, as opposed to just going at a particular rate and then falling off a cliff, and not having enough money to continue doing what you want to do. So, it's a funding and timing problem that we have to work out.

MEMBER ZIEMER: And if I could follow-up then, that clearly affects how you operate with your contractor. How does that affect how the Board's contractor operates? Is it the same way, or maybe Ted can speak to that.

MR. KATZ: Sure. So, the Board's contract, the Board was actually awarded their new contract for Board support, SC&A, close to the same time, just ahead of B-

MR. HINNEFELD: A little ahead.

MR. KATZ: B- Stu's group. Right. So, they're on a different point in the cycle in the first place, but the sequester has affected their budget, too. Their budget has also been reduced sort of proportionally with B-

MR. HINNEFELD: Yes, I think the difference is that SC&A didn't face B- their timing at the sequester wasn't quite the same and they didn't face that double reduction, the double cut that ORAU did in order to get all of the first sequester in in the last six months of Fiscal >13.

MR. KATZ: Yes, that's true. But, anyway, in short, I mean the one sort of

pinch is then that the last few months of their prior contract because there was a delay in awarding their contract, not as long as the NIOSH one, but that did pinch their ability to do work, as well. So, they're just coming out of that sort of similar cycle to what the NIOSH folks have experienced.

MEMBER ZIEMER: Well, it seems clear to me that we're operating in a different manner this year, even partially, a lot of the Work Groups are doing a great portion of their work by telephone conference, and that's not necessarily bad, but sometimes it's an impediment. But I'm just wondering as we move forward, it feels even very different to me in terms of the workloads are different. I don't know what this implies going into the future, but certainly impacts on the meetings such as

the one we have here. There's much less activity for us to deal with, and it's not so much a problem for me, but I think about those who traveled two whole days coming and going for a one-day meeting, and I'm wondering about the efficiencies of our frequency of meetings and how much we do in C-- as we move forward. That's maybe sort of rhetorical, but it seems to me we need to think about how this is going to impact on the Board's work.

CHAIRMAN MELIUS: Yes. No, that's a good point, Paul, and I think two things, back to sort of the contract issue. I think with this B- as much B- well, both the cuts and then also the sort of timing when money does become available, I think we need to continue to pay careful attention to coordinating what work gets done and prioritizing it so that we put the resources

into where they're most appropriately needed at a given point in time. I think we've talked about that before with the SECs, finishing up them, as well as then trying to catch up with some of the Site Profile Reviews that we haven't kept up with. And that's tricky, because it's hard to pick on the SECs to predict how much time and effort is involved, and we're coordinating different contracts, and so forth. So, we'll need to continue to do that, and it already has affected our work, and so forth.

I also think, we all know that particularly with the AWE SECs sort of being B- we're sort of caught up with them, or at least most of them now. So, there is less, you know, work on the part of Work Groups, and less time spent at Board meetings addressing those. And we have to sort of think, I agree, do we go to fewer meetings

per year, but at the same time when we have some outstanding SECs we don't want to delay them. And it's sort of not the most predictable set of circumstances.

Do we go to doing some of our Work Group meetings in conjunction with the Board meetings so that one B- I agree with you, there's many cases where an in-person meeting is much better than a phone call, even with the web-based presentations. I think certain kinds of issues you can deal with better in an in-person meeting. And, you know, are we more B- you know, will it be more efficient if we can do B- handle those that way, some of those that way?

And then, again, at some point I think we certainly will be having fewer Board meetings, just to be more efficient. And that time is probably coming hopefully within the next, you know, year. And we need

to think about that, and address that also.

I don't know if anybody else has comments, any other Board Members have comments on that?

I do believe at this meeting we will be doing B- setting up some new Work Groups, or Work Groups that we've delayed setting up because we just didn't have the resources to staff them. Deal with some of the Site Profile and other issues. And I think we'll sort of continue that in our Board calls and so forth, and probably try to get the workload for the Board to match up with resources we have available both at the NIOSH and the SC&A contracting. Yes, David.

MEMBER RICHARDSON: Just two comments. The first one is to second Paul's comment about the kind of issue of efficiency if there's a lot of travel time

versus kind of a shortage. And I think spacing out the meetings longer to have a fuller agenda makes a lot of sense to me.

The other one was going back to the B- what was described as the cause of some of the slowdown which was a contract issue, as I'm understanding it, with ORAU. There was a period of time where a contract wasn't in place, and there was what's being announced now as finally the contract. What's caused that?

MR. HINNEFELD: I can take a shot at explaining that. The ORAU B- ORAU's previous bundle of contracts, the five-year bundle was scheduled to expire in April of 2013. Now, in March of 2013 was when the sequester became effective for Fiscal >13. So, the entire amount of the sequester which was about 8 percent of the annual budget for our program had to be absorbed in the last

six months of the year. And as we were -- and the largest -- you know, the majority of the program money is the Dose Reconstruction contract. You know, the two big chunks are the Dose Reconstruction contract and the SC&A contract is another big chunk. These are pretty big, easily identifiable things where you can save money relatively easily. So, the sequester cut for 2013 came essentially all out of those two contracts, and it fell a little disproportionately on ORAU.

SC&A's reduction was held at the amount, I believe, of the sequester roughly, wasn't that right, Ted, about 8 percent reduction that they had to absorb. But they had until the end of the calendar year. Their contract didn't end until the end of the calendar year, so they had nine months to absorb their 8 percent cut.

MEMBER RICHARDSON: So, there's two things here. There's the sequester, and then there's also the renewal of the ORAU contract.

MR. HINNEFELD: Yes, and that's what I'm getting at. I'm getting to that. So, strictly talking about the ORAU contract then, ORAU bore the brunt of the sequester, so not only the 8 percent that would normally be attributed to their contract, but other spending items that were not easy to cut. We took that 8 percent, and they were smaller amounts, we took the 8 percent of those items and also took that cut out of the ORAU contract. And, in addition, they have some fixed costs that they have to pay for facilities before they even get to the program items.

So, anyway, they were spending -- their cut was on the order of 20 percent

spending rate. The cut to their spending rate was on the order of 20 percent, I think maybe even a little over that. So, that happened at the sequester at the extension of their contract, which corresponded with the sequester, so we had a six-month extension from April through the end of October where they had to spend at that greatly reduced amount.

We were expecting then an award would be made, and we could then adjust the amount of money, the spending rate back to just the normal sequestered amount. However, for reasons that aren't real clear to me, the contract award process didn't really get done, and there were a series of extensions beyond that. There were two two-month extensions, and a one-month extension.

MR. KATZ: Excuse me, Stu. Let me - some people probably came on the line

after we got started. For everyone on the telephone line, please mute your phone while you're listening to this. If you don't have a mute button, press * and then 6 to mute your phone, but we're hearing background noise. It's probably interfering for other people trying to listen by phone. Thank you. So, * and then 6 will mute your phone for everyone. Thanks.

MR. HINNEFELD: Okay. So, the series of extensions, these two-month and then one-month extensions, in each case to my continuing frustration, by the time it became clear that award wasn't going to be made and an extension was going to be necessary, there was insufficient time to revise the Statement of Work on the extension to get the spending rate back up to what it could have been. So, it remained at that more than double, you know, double,

we'll call it double, double cut through all the months of the extension up through March. Okay?

So, we've been spending at essentially double the sequestered rate for six months. And finally we made the award, knowing how much money we had, we could then bring them back up to the spending rate almost before the sequester because we've already saved the sequestered amount. So, that's why the award of the contract was key to getting the money back up.

Now, we're still operating under sequester, our money next year will be sequestered, probably it's a little over 9 percent, I believe, is the sequester for next year. So, we're going to have to kind of -- we can't stay at -- we're going to have to slide down as we go into next year, next fiscal year.

CHAIRMAN MELIUS: Now, you're totally confused?

MR. HINNEFELD: So, I think I probably made it worse.

MEMBER RICHARDSON: No, I got it.

CHAIRMAN MELIUS: Okay.

MEMBER RICHARDSON: Thanks, that was --

CHAIRMAN MELIUS: Any other questions? If not, thank you, Stu, and we'll go on to Department of Labor. Excuse me, Department of Energy. I changed the order here. Maybe we should mix up the agency, you know, like do a lottery. Why should NIOSH get to go first all the time? For those of you on the phone we're just getting technical -- getting the slides set up.

DR. WORTHINGTON: Good morning. As always, it's a pleasure to come before the Board and give some updates from Department

of Energy. I have joining me today Greg Lewis, who has primary responsibility for this program and the Former Worker Program.

We worked on behalf of the claimants to ensure that all of the available data for workers and facilities are available so that NIOSH and Department of Labor can actually do their work. And I want to spend just a little bit of time giving you an update on some things that we're doing.

The presentation today is pretty much consistent with what we've presented in the past, not a lot of new processes associated with what we're doing, but I want to share with you changes in things that we're doing to improve.

We certainly at Department of Energy were impacted by budget concerns at the beginning of the year, so we were very

aggressive at DOE in looking for ways to be more efficient and effective with the funds that we actually had available. So, Greg and his staff actually visited with a number of the sites in the field and worked with them on getting costs down; in particular, those sites in which we were having some trouble with regard to meeting deadlines and delivering information to NIOSH and Department of Labor.

We were very pleased that our colleague from NIOSH, that Stu gave some statistics to show that we had some significant improvements in providing information and a much smaller number of overdues, so we're working on that. And as I go through the presentation I'll give you some insights on what we're doing.

But, again, the key thing that we did at DOE was to target those sites that

appeared to have some concerns with regard to spending, look for ways to help them improve, and in some cases to help them develop some new processes for managing the records.

I'm not sure that -- okay, maybe it's a little bit slow today? I apologize for that.

One of the things is related to the EEOICPA contacts. Greg has a network of EEOICPA contacts, POCs out in the field and at those various sites they are the people that he'll go to with their concerns, or to move things along, or to help facilitate NIOSH visits at the sites. So, that's a very large network and there's regular meetings and interactions with them to kind of keep them going, and keep them pushing on getting the data.

I'm not sure, Stu, if the

computer might not need some -- let me go back here.

A little bit about the DOE responsibilities. They're sort of in two areas. One, the very first one I want to talk about is our Secured Electronic Records Transfer. Over the years, we'd had some difficulties with regard to privacy and security, as well as speed in getting information and materials to the other organizations, so Greg's office developed the Secured Electronic Record Transfer. We've tried it out and the feedback that we've heard from the other partners is that it's working very well, so we want to continue to do that, and look for ways to expand it maybe to some other programs for workers, as needed.

I think it's more my eyes than the computer. I apologize for that.

Individual records, certainly, we start with the individual records. That number is pretty consistent in terms of employment verification. Dose records for NIOSH, again pretty consistent, and then the Document Acquisition Request which includes work histories and exposures. And those things are important. It's not just in terms of whether you worked at the site, but what kinds of things you might have been exposed to.

At DOE over the years we've changed our contracting mechanism. At one time we had M&O contractors, single contractors that managed every aspect of Department of Energy work, and over time we've moved, especially to sites that have a lot of cleanup going on, we've moved to multiple contractors doing just certain pieces of work, so you can't go to a single

place for information. We've increased subcontractors to the point that at some sites we have tiers, first, second, third, fourth tiers of subcontractors that are working on delivering DOE mission. So, when you're looking for verification or other kinds of information it certainly becomes a little bit more difficult. So, we're looking for ways to interact with the sites and gather that information.

And while we can't change the systems that they used in the past, we certainly are working with them to look for better systems of records, and to find ways to utilize and search in the old documents to get the data that we're looking for.

In terms of the type of documents, we certainly have some that are large documents, very large, some that require some security reviews, but I think

that we're working towards improving.

The very last sentence is the one I want to focus on. We believe that the system has been successful, and we believe that because of the feedback that we've gotten from NIOSH, and from Department of Labor in that area.

I'm going to go back to the slide on outreach and talk about that, and build a little bit on the discussion that Stu had from NIOSH. One of the things that we found, as Stu mentioned, to be very helpful is for the agencies to come together and do outreach. So, you can have a great product, you can have a great service, but if people don't know about it they're not coming to you to utilize that, then you're not being effective. So, we've worked together in terms of outreach. We were very happy to work with these agencies and go out in one

place at one time to provide sort of a one-stop shopping for workers, whether they're current workers, or whether they're former workers.

I think at the last meeting, and maybe even the meeting before that, we mentioned that we had developed a video. The video was one in which we feature all the three agencies, and it's something that people can use. You can take that and take it back and share it with your constituents, with other organizations so they can hear about the things that are going on across the three organizations. Also, it's a good opportunity to see how government agencies are working together for the benefit of the workers.

So, the websites, we checked them again, the links on Friday, they are active, they're working, so you can go there and get

some insights or the joint video that we mentioned before.

A little bit about the Former Worker Medical Screening Program. We've mentioned that program before. We'll mention it again, because at some point the DOE workers do move from the DOE workforce out into retirement. And we've mentioned that there are a lot of unique operations and activities that go on at DOE, and we want to once they leave DOE, to give them an opportunity to come back and have a physical exam that's tailored to the hazards and operations that they've been exposed to when they were at Department of Energy.

We have this program. We have a number of personal investigators who are associated with it that are very expert in occupational medical. We hear from the workers out in the field once they retire,

and some when they're still at the agencies, that when they go to their regular physician, they're not familiar with the hazards that they may have been exposed to and, therefore, they don't know what kinds of things to target in their comprehensive exams. So, we're offering this, and we're working with the sites, we're working with the unions and other organizations to find a way to advertise, to do outreach so that people are aware of this. One is the Joint Task Force that we mentioned, that we have literature at that, but we also offer to people when they're retiring in their retirement package and other kinds of things that are made available to that.

And, again, the information is available here. The link that you see here, again, is working now, so you can go there and get additional information and share it

with people about the Former Worker Medical Screening Program.

We had a very interesting and important milestone in the program this year. Some months back we reached 100,000 screenings for former workers. We're very proud of that, and we want to continue to offer that service.

We have what we call the National Supplemental Screening Program and the Building Trades National Medical Screening Program. I want to talk about those just for a few minutes because what we have at some of the DOE sites, we have in the area Former Worker Medical Program PI facilities or information, and people can come within the areas where they live for the medical screening. But, also, people may move, they may retire and move to other locations, or they may not be near one of the areas where

we offer that, so you can call the numbers that are listed here, the 800 numbers, and they will find a clinic for you that's very close to where you live, and one in which individuals there, the medical staff, that they're very familiar with occupational medical, and they can give you the targeted exams that are featured under the Former Worker Program.

I'm sure you have a lot of questions since I had difficulties this morning with operating this computer, and we kind of went back and forth a little bit. But I'll be happy to answer any questions.

Again, the overall theme for today is that we're still focused on delivering the information to NIOSH and Department of Labor for DOE workers, because these are DOE workers, and we want to make sure that everything is available for them.

And so often we don't want to B- if we're having difficulty, we don't want to say no, we don't have the information. We don't want to leave any stones unturned. We want to continue to look for those records.

We're improving the process, we're working with the sites to keep the cost down so that we don't have to say no, or we don't have to have delays in the time in which we can deliver the data. So, are there questions?

CHAIRMAN MELIUS: Any Board Members with questions? Yes, David.

MEMBER RICHARDSON: One thing that's not been clear to me, but since we've been talking about budget issues is, does DOE have a specific budget for running the services for this program?

DR. WORTHINGTON: With regard to the EEOICPA Program, there's not a line item

in the budget to say that you will spend X associated with this program. What we've done over the years, especially over the last eight years or so when the Office of Health, Safety, and Security was created, we looked at the sort of trends in the program, you know, sort of trends in what was coming out of this Board in terms of the kinds of things that would be needed, and we tried to target out budget for EEOICPA to match those needs. And, certainly, it wasn't a perfect game, and so what we had to do in some cases was to make mid-course corrections during the course of the year if we found that funds were low. I think, again, we're doing a better job in doing that now. But, no, it's not a line item, but we do have a specific budget, and we did not take all of the cuts that some other programs took. We took some cuts, but some other programs had

to take more so that we could continue to deliver the records so that we didn't slow up the process for Labor or for NIOSH.

MEMBER RICHARDSON: Yes. Because, I mean, I guess there's several thoughts to this, but one of them is that you've done -- clearly done a tremendous -- a large amount of work. And if I was to ask how much has DOE spent on their side in terms of administration of this program, let's say last year, is that something that can be answered, or it's just wrapped into your overall HSS budget?

DR. WORTHINGTON: I can tell you the amount of money that we spent that was just under the umbrella of the EEOICPA Program. And Greg Lewis is here B-- Greg, I believe that was -- was it six point --

MR. LEWIS: About six.

DR. WORTHINGTON: About $6

million. And I want to address what you said about wrapped into other programs. The $6 million that I'm talking about that we spent, it was money that we provided to headquarters or to the programs in the field at this very site to provide records and to work with NIOSH to get information to do employment verifications.

In terms of looking at documents when they are generated, for example, by the Board's contractors or other things that go on in the EEOICPA Program, the security organization that looked at that and spent time either at the site or at headquarters, that was part of other funds that we had. So, there were a number of things that we did in terms of classification, other kinds of things, as well, that were separate budgets. So, I would say $6 million was the core, core money.

MEMBER RICHARDSON: And that's money that comes from the Department of Energy and it goes to current contractors at various sites?

DR. WORTHINGTON: At various sites for them to deliver the records, or to --

MEMBER RICHARDSON: For them to deliver the records.

DR. WORTHINGTON: -- interface with NIOSH and provide information. It includes some headquarters organizations like Legacy Management, because they're experts in finding old records, or they are the organization keeping those records. And they work with us, they're one of our contractors, as well.

MEMBER RICHARDSON: So, when you have a --

DR. WORTHINGTON: They do a lot of research.

MEMBER RICHARDSON: -- contractor that comes in and either takes over responsibility as the primary contractor at a site, for example, one of their responsibilities is to maintain the records for the current employees. But something else that they may inherit is responsibility for historical records. Is that right? And, yet, this is -- in addition to that, this is funds for responding in a timely way to individual records requests for employees who may or may not be their own employees.

DR. WORTHINGTON: Contractors at the various sites have responsibility for delivering the mission, which includes keeping records of exposures, of worker activities, of incidents and things like that. They're required to do that. At some point, however, records go to archives or to other facilities that actually store and

keep records. And if we within our program need to retrieve that, then our program will pay to go to those sites and retrieve them from National Archives or other areas and make them available to NIOSH or Department of Labor, you know, as needed.

MEMBER RICHARDSON: And just one last question. Something that you had brought up was the difficulty of claimants who have worked under multiple contractors or under contractors and subcontractors. And you pointed out the difficulty in the past of that, and efforts that DOE is making now to be able to improve retention of records for workers whose employment spans contractor/subcontractor relationships and so on. Do you have some examples of what's been done to improve that, and is there money being put to current contractors also for ways of improving --

DR. WORTHINGTON: I'll ask Greg to start walking up to the podium. He may have some specific examples of things that we've done to help the sites in terms of improving their ability, for example, to retrieve old records. If they could somehow or another package the records up, you know, things that they could use, tools they could use to make them searchable so then we could respond in a timely manner to requests for that. We've developed B- Greg, they want to get some examples of some of the things that we've done.

MR. LEWIS: Yes. So, the difficulty we have typically with the multiple contractors, you know, they are supposed to retain the records. So, typically, the records are there recently. Now, in past years or when you go way back that's not always the case for the subs, but

recently the records are there. And the difficulty is then with the multiple contractors and subcontractors, they keep the records in different databases and different systems, so we'll have to go to multiple locations. So, that's why it gets a little bit tricky.

In terms of the ways that we've improved that, like Pat said, mostly it's with taking existing collections or existing databases and making them more searchable and more sortable, so at Brookhaven we just went through a large-scale project to identify subcontractors, and construction workers, and both subcontractor workers and subcontractor companies, so we're going through boxes and boxes of records, and every time we saw a subcontractor company listed we'd, you know, mark it down it down in a little searchable small database, or

every time we saw a name of a subcontractor employee listed we'd mark that down.

Another example with the Sandia National Lab, we've struggled with their records in terms of being able to find things in a timely manner. And, you know, one of Stu's slides showed that we had relatively few claims going over the 60 days, and one of the reasons why we had had some claims going over in the past couple of years was because we had so much trouble finding records at Sandia.

Well, we went through a large-scale project a few years ago to digitize a huge collection of Sandia records. And when they were digitized versus being in microfilm or microfiche it was B- you know, we were B- just having them electronic made it a lot easier to find, but they still

weren't searchable or sortable by name. We still had to scan through, it was just quicker. Instead of putting in different reels and changing out the slides, we could just go through that electronically, so it helped, but it wasn't great. So, in this last year we went through a project where they added some B- it's not some much OCR, but they were able to go through different B- kind of to segment that electronic collection to say, you know, this is where certain years are, this is where certain workers, so they were much more able to take a worker, you know, who worked for such and such a contractor in these years and go in and strategically find those records. So, we were able to improve our response time. So, that actually really helped lower the number of claims that were outstanding. So, that's the type of things, usually it's indexing,

searchability, sortability, that kind of thing.

DR. WORTHINGTON: I want to comment that there are two things that we were trying to do. One is, and it may seem like we spent a lot of effort on old records that would have sort of a limited use in terms of the number of workers, but we wanted to make sure that every data point that was available for B- even if it was a few workers, that we were able to provide the best data that we could for that. So, we can't fix those old systems, that's what they used, but how do we mine the data that we do have, that we do find in those old systems? And so with the newer contracts that are coming on line, they certainly are much more sophisticated with systems and so forth, and so those things are fixing themselves. So, we are working with them,

looking at things they are doing, and offer suggestions in the new ones if we find them. But our struggle is with these old records, and trying to do what we can to mine that data.

CHAIRMAN MELIUS: Any other questions from Board Members? Okay, thank you, Pat and Greg.

DR. WORTHINGTON: Thank you.

CHAIRMAN MELIUS: Department of Labor now. Frank, Chris Crawford.

MR. CRAWFORD: Ted, should I begin?

MR. KATZ: Yes.

MR. CRAWFORD: Good morning. My name is Frank Crawford. I'm with Department of Labor, and I'm standing in for Jeff Kotsch who couldn't be here because he has a scheduling conflict.

I'm going to move fairly rapidly

through the slides. I'm sure that'll be okay with everyone. They are up on the Board site. The numbers, of course, only grow larger, but I think the salient numbers on this slide, we've had over 170,000 cases filed, and we've disbursed over $10.3 billion in total compensation to date.

Rounding these numbers, these are the Part B status and location of NIOSH referrals. About 42,000 cases were referred to NIOSH, 39,800 have been returned, 34,000 of those roughly with Dose Reconstructions, and the rest without. And there are by our count, which will differ slightly from NIOSH's, 1,964 cases at NIOSH as of, I believe, April 20th.

Here we have a graphic representation of the cases with Dose Reconstruction and Final Decisions. We have 27,000 cases with Dose Reconstructions and

Final Decisions, about 10,000 of those have PoCs higher than 50 percent, and about 18,000 have PoCs less than 50 percent, which is about a 65 percent to 35 percent denial to approval difference.

Another pie chart with Part B cases filed. I think it's self-explanatory. I think the other category includes cases that either have not been sent to NIOSH, or that have been rejected because there wasn't a B- for Part B cases it wasn't a cancer in the claim, for instance, or for other difficulties.

We have another look at the Part B cases with Final Decisions. We see that here approvals are running 51 percent, denials 49. I believe that's because this will include SEC cases. These are not just with Dose Reconstructions, in other words. As you see, that makes a large difference.

This is more of the same. I won't go through these numbers individually. The totals we see with accepted SEC DR cases and combined just over 30,000 accepted for 48,000 payees and $4.5 billion in compensation in the Part B Program.

And this gives us our top sites for Part B cases. Hanford leads the list, and I have not on the slides, but I have some numbers to attach to these sites. Hanford has filed about 15,500 cases so far; Savannah River, 15,300 cases; Rocky Flats, 6,800 cases; and finally, Los Alamos, 7,900 cases filed. Give you some idea of the magnitudes of these sites.

The next slide puts this in a different perspective. We see here that the AWE cases filed are declining steadily. That's to be expected. I think the AWE sites, most of them are closed long ago, and

they had a smaller worker population to begin with, and there have been no new workers added, so those cases have been filed and are now declining, and will probably at some point go to zero.

We are doing B- we're continuing to do outreach activities, as we see. I'm going to move on to the details here. The Joint Outreach Task Group has been working steadily with monthly conference calls and recent meetings have occurred in Farmington, New Mexico, Denver, Colorado twice, well, within two days, and Albuquerque, New Mexico. And we're having some future outreach events in early May at Pahrump, Nevada, and at the same time in Las Vegas, Nevada. That's May 6th and 7th.

And the sites to be discussed today for SEC consideration, we see the Savannah River with the cases claimed, that

I already mentioned those cases, but 15,300 filed to date. And we see Joslyn, an AWE example, is 130 cases filed to date, and Nuclear Metals with 56. So, the difference in numbers is astonishing. These were in many cases quite small plants, the AWEs. Again, I'll leave the details for those who want to go to the site.

The remaining slides have to do with eligibility, and also for Parts B and E, survivor definitions, and payments as scheduled in the Act, so that's general background information for possible future claimants that can go to the site, the ABRWH site at CDC-NIOSH to get that information. Is there any questions?

CHAIRMAN MELIUS: Any Board Members with questions for Department of Labor?

MEMBER MUNN: Yes, this is Wanda.

I have one question for Frank.

CHAIRMAN MELIUS: Go ahead.

MEMBER MUNN: Frank, in earlier presentations I had asked that you provide us with dollar amounts for the three or four largest sites that we deal with, and I noticed that was not included in today's presentation. Is there a problem with providing that?

MR. CRAWFORD: I will ask again about doing that. It's going to be proportional, Wanda, to the number of cases filed.

MEMBER MUNN: Yes, I understand, but given the eccentricities with the program we can't just simply multiple the number by 150,000 and get an accurate reading because of the medical costs involved and other things. And I realize, I can figure it out at the DOL sites'

individual records. But, frankly, I'm asking because I'm lazy and I'd like to see that as a kind of running piece of information that we have as time goes on, if it's at all possible to do without assuming too many sensibilities, it would be helpful.

MR. CRAWFORD: Wanda, I will put in that request and see if we can get that posted to the ABRWH site so that it will be available shortly.

MEMBER MUNN: Thank you. I'd appreciate that very much.

MR. CRAWFORD: You're welcome.

CHAIRMAN MELIUS: Any other questions from Board Members? If not, thank you very much.

Next up, man with the slides. Probably get a bigger computer.

(Laughter.)

MR. RUTHERFORD: All right, good

morning. I'm LaVon Rutherford, and I'm going to give the SEC update for NIOSH.

All right. We give this update at every Advisory Board meeting, we do -- I talk about the summary of what petitions we filed, numbers, and so on. We talk about petitions that are currently under the Board review, potential 83.14s. We provide all this information that gives the Advisory Board information for future Work Group meetings, planning future Advisory Board meetings, and so on.

Our SEC Summary Table, you can see we had 215 petitions. We haven't received a new petition in some time. We have no petitions that are in the qualification phase. Of those 215 petitions, 130 qualified. We have no petitions that are currently being evaluated at this time. We do have 12 petitions that are with the

Advisory Board for recommendation, and I'll get into that a little bit more on the next slide. And then you can see that 85 petitions did not qualify. Actually, not on the next slide, the following slide.

Currently, we have one petition that has -- the evaluation has been presented to the Advisory Board, and there has been no Board action at this time, and that's the Kansas City Plant. At this time, I believe the Kansas City Plant, the Board's contractor, and the Work Group are doing a number of reviews with that.

This next slide is actually -- Ted, the Designated Federal Official, Ted Katz, had asked me to go back and take a look at our past Petition Evaluations and ones that the Board has taken action on, and look back and see if there were any additional sites that still required at

least some action; meaning that the Board took action for a period that was evaluated, but there remains some period that future action still is required. So, I think this table actually cleans it up and gives you an idea of those sites that have a petition that a partial action was taken, and still have some remaining action.

You could see Fernald is 1984 to >89, still has a period. Grand Junction Operations, this one kind of fell off our table a little bit. We had added a Class up through 1974, and this one is actually a NIOSH action. The 1975 through 2006, we had committed to the Board to go back and do some further evaluation to determine if they -- if we had a Dose Reconstruction approach for that period.

Since that time, we have come up with a methodology, and we have been doing

Dose Reconstructions; however, we never presented that methodology to the Board, so we will put that back on our plan to present something to the Advisory Board on that methodology.

Hanford SEC 57, we've done a lot of work with that site. We've added a number of Classes; however, there still remains a period 1984 to 1990 that still needs resolution. Joslyn, which we'll be discussing today, 1948 to >52 period. Los Alamos National Lab is 1996 to 2005. That one has been a number of work. We've been working with the site to try to get the information to support their implementation of 10 CFR 835, and I'm sure the Work Groups will discuss that a little bit.

Nuclear Metals, Inc., that again will be discussed today. Rocky Flats Plant, the 1984 to 1989 period, that petition B-

continuing to evaluate. Just a little reminder, you know, when we qualify a petition, we qualify it for a designated period based on the basis that they provided to support qualification. If we determine there's an infeasibility during our evaluation and recommend a Class, we recommend the Class not to stop at a defined period just because the petition said initially qualified for that. We would recommend the Class based on the infeasibility for doing Dose Reconstruction; meaning that if we had lacked monitoring beyond 1989, we would recommend the Class beyond to the period where monitoring existed. I hope that makes sense.

Sandia National Lab, Albuquerque, again 1995 to 2011. We're working on that period, and that is in our court, NIOSH's court. Santa Susana, 1965; Savannah River

Site which Dr. Taulbee will give an update today for 1973 to 2007. Simonds Saw and Steel is a residual period, 1958 to 2006. And St. Louis Airport Storage Site, again this -- a lot of these early on were residual periods that were never really finalized. And this is a residual period with a little bit of remediation work in >72 and >73 for St. Louis Airport Storage Site. Again, this is a mixture of some NIOSH -- that NIOSH needs to update to the Board, and some of the things that the Board will have to take action on.

Potential 83.14s, I presented this probably at the last four or five, or maybe six Board meetings, and it hasn't changed much. The Sandia National Lab, Albuquerque, 1945 to 1948 period, this was the old LANL period was added into -- and, basically, what we've seen is these claims

have been absorbed into the SEC under the existing LANL SEC, so we haven't got a litmus case to move this one forward.

General Atomics is -- this is one where we've been wanting to modify this existing Class Definition. This is one of the old Class Definitions that was specifically for buildings, and it limited, it was probably very difficult for Department of Labor to actually administer. We've had B- we haven't had a chance to get a litmus claim to move this one forward, so there's really no claims that aren't being positively affected by it, but we do at some point want to get this one moved forward.

Dayton Project Monsanto, this was based on the site facility designation change. Again, when we get a litmus claim, we'll move this one forward, as well. And that's about it. Questions?

CHAIRMAN MELIUS: Okay, thank you, LaVon. You can rest up after all those slides. Don't go away, we may have questions.

You don't get off that easy. Board Members with questions? If not, I have one. Maybe it's more of a comment, but you can maybe update me.

Santa Susana, a long time ago that we reviewed that initial SEC there, but as I recall at the time there were a number of outstanding issues, including how the facility was designated. There were several parts of it, there were people that appeared to work in -- that appeared to be -- should have been part of the SEC, but because of where they were employed, which parts they were actually employed in, they were not eligible at the time. I remember it was very confusing, a number of problems there, and I

just -- if that part of it has been addressed at all in terms of the facility?

And then secondly, there's this follow-up we have to do even from the original. Yes?

MR. RUTHERFORD: Yes. I definitely don't think we have done anything on NIOSH's end for the actual facility designation portion of it, or workers who should be included, and shouldn't. And that would mostly be a Department of Labor issue. However, if there are actions that we could do, or information that we can provide the Department of Labor, we can definitely do that.

CHAIRMAN MELIUS: Yes, I think that goes back to Pete Turcic. I mean, it's quite a while ago. And I think we committed when we were out there, as I recall, of following up on that, again, to the extent

that we can in terms of looking at that site. So, if you can look into that a little bit more, I think someone needs to sort of update that whole site and what we're doing there.

MEMBER BEACH: Well, Jim, on that one, I think the Work Group will become active again. We got the coworker data.

CHAIRMAN MELIUS: Okay.

MEMBER BEACH: And I think we just need to schedule a Work Group meeting. Phil is the chair of that.

CHAIRMAN MELIUS: Okay.

MEMBER BEACH: So, that just came out.

(Simultaneous speaking.)

CHAIRMAN MELIUS: Okay, I knew we were waiting on some work from NIOSH.

DR. NETON: Yes, and that might come out when we discuss the specific Work

Groups later on in the meeting. But, yes, there's activity going, we cleared all the information on the hard drive that we received from them, and we're working out and sorting out some of the issues related to neutron exposures at this facility, we have NTA film, we also have neutron/photon ratios. We're trying to decide which is the best path forward.

CHAIRMAN MELIUS: Okay.

DR. NETON: And that should be coming up pretty soon.

CHAIRMAN MELIUS: Okay.

DR. NETON: We won't be discussing the covered facility issues, though, I don't think in the Work Group.

CHAIRMAN MELIUS: I think we just need to go back and see what we committed to doing and where that is. Again, it's not something we can change, but at least be

cognizant of it.

Any other Board Member with questions? Board Members on the phone? If not, okay. Now, LaVon, you're free. Got your 10 minutes of fame here.

DR. LEMEN: This is Dick Lemen, and I'm on the phone.

CHAIRMAN MELIUS: Oh, okay. Welcome, Dr. Lemen.

Now, I guess I get to introduce the -- so, another presentation from the two Jims.

I want to give a brief update. We've been -- the SEC, this is called the SEC Evaluation Work Group, been around a long time. Have been working on issues related to Sufficient Accuracy, and as part of dealing with Sufficient Accuracy we've been dealing with coworker model issues, and we have had a Work Group phone call a few

weeks ago, and continue to work on this. And some of the Savannah River issues have also sort of gotten folded into this because right now a lot of the Savannah River issues revolve around coworker models, and DCAS ORAU sort of used the Savannah River coworker models as sort of more general models for coworker models for some of the review efforts that are underway, so these two evaluations tend to get mixed up. The SEC and the Savannah River are sort of combined to some extent.

Anywhere, as I said, we had the meeting. Jim Neton, in a second, will update on one part of the meeting which is our efforts related to sort of Sufficient Accuracy issues. And then the second part was -- of our recent meeting was dealing with the one person-one sample OPOS issue. But one of the things that came out of that,

and this is the slide, and I'm not going to go through these all in detail, we've used these before. Sort of how are we dealing with Sufficient Accuracy, and Jim will be talking about it.

I think one of the issues that we came up with in terms of having to address if we were going to be looking at the stratification issue in terms of coworker models, was sort of how -- you know, what level of exposure is meaningful? And I'll let -- Jim in a second can describe the work that NIOSH has been doing there, and the reports that have been sent out there.

I think on the coworker model issues, we've sort of focused on the one person-one sample, and I'll get to that a little bit in a second, but I think there's some more general issues that we haven't dealt with. And we being the collective we

of both NIOSH and the Board in terms of how we're going to evaluate these coworker models.

And some of the problem, I think, when we go to think about that and sort of came in our last meeting is, we tend to think of some of these issues, and particularly when we're talking about the one person-one sample sort of how you approach individual dose reconstruction. But these take on -- I think other issues come up when one is using sort of the same approaches to try to do a coworker model; when we're taking, essentially, one person or one group's exposure and using it to predict that of other people. And at that point we get into a number of statistical issues, and I think the statistical issues that we're sort of wrestling with now, but we sort of have to get away from thinking

about two things. One is, that it's not individual dose reconstruction, and the only issue is not the issue of does this adequately cap the B- you know, basically, is it claimant-friendly? It's sort of really how accurate it is, and how do we B- how accurate do we want it to be? And how accurate do we want it to be in terms of compared to other alternatives that may be useful for approaching that particular Dose Reconstruction.

So, I think we have to look at how complete the data set is that's being used. And, obviously, the less complete the data that's being used, the greater the variability or variance in the data, and the more statistical problems that raises. How much data are involved in being modeled? Are we trying to just fill in, you know, for a year out of, you know, 10 years of exposure

at a site where we have lots of data, but maybe for six months or one year it's less complete, and that. Or is it just for a small number of the workers there, a small proportion of the workers? Is it for a very high percentage?

Also, I think as we've discovered in the past in looking at some of these other SEC issues is, can we really -- can we identify where the workers actually worked in the facility? I think that's been the downfall of a lot of the models that can be developed for Dose Reconstruction. If we can't identify a worker as being in a particular building, or doing a particular type work within the facility, then it's very hard to use that -- to either use a coworker model to estimate that worker's exposure, or to use that worker's exposure to estimate other worker's exposures. You

don't know what type of work you're actually estimating. And that's not sort of a black and white issue, a simple issue because it depends on the type of work that everyone was doing at the facility, how similar was that work, and so forth.

So, what I guess I refer to as sort of operational stability. Is the same process, the same type of work going on during all the time periods involved? And that certainly wasn't often the case at some of these DOE facilities. Was the, you know, the methods that were being used to evaluate exposure the same over a time period, and how they're applied. And I think as we know, that wasn't common. There were major changes in terms of how exposures were being evaluated.

There are issues of sample size. I think there's also the issue of sort of

what are the range of exposures involved? If we're dealing with fairly straightforward operation where exposures tended to be fairly stable over time, that sort of much simpler to model, and I think we have much more confidence in the outcome of that model. However, if there's a large range of exposures that we're trying to evaluate and are being modeled where people did a variety of different tasks, or there were major changes in the operation during the time period so that the potential range of exposures is greater, then also the ability of a coworker model to accurately reconstruct that person's, or that group's dose, their exposure is much more challenging to do.

An example of that, I think, was the coworker model for Fernald where we were trying to combine a group in one building

that had -- or some buildings that had essentially no exposure with people in other buildings that had significant exposures, and with less than complete information on where these people worked, so we could not place them even in those buildings. So, the model there, I think, raised a number of issues for the Board.

For Wanda's benefit, I also mention the robustness of the data, Wanda's favorite term, as being an issue, but I think it does come up in terms of how well -- how good is the data in terms of being modeled?

And then, finally, the issue which has come up, and we probably spent the most time on, but I'm not sure it's necessarily always the most important issue. That's the issue of stratification. Do we use one model for everybody, or do we try to

look and see are people because of the way that they were monitored, or the type of work that they did, should there be different models?

The most common way we've looked at that has been the issue of construction workers versus production workers, but it can also apply even within construction worker populations, and within production worker populations. And we've dealt with that mostly through this issue where the OPOS first came up, one person-one sample. But, again, there are other issues that come up in looking at stratification, and I think we've talked about them here before. The next slide is actually from some of our earlier discussions on this. And we still have to sort of figure out that issue, but it's, I think, in the context of other issues. So, we're moving forward on the

coworker model, trying to look at it more generally, I think, and sort of stepping back a little bit from the one person-one sample, try to look at that issue. At the same time look also in a more general way at the issue of sufficient accuracy.

So, let me turn it over to Jim Neton who's going to do a little explanation on where we are there. I think without slides. Correct? Yes, okay. Jim. Then we'll both take questions. Do you want to do it from there?

DR. NETON: I don't have any slides, but hopefully I can summarize what we've done. We've had a couple of productive, I think productive Work Group meetings on this issue. And really the last three slides that Dr. Melius presented, the coworker model general issues, and then culminating with the stratification issues,

I think summarize pretty well the basic problems that we're having with coworker models.

I would say this is one of the toughest issues at least that I think we've faced in this program. This is sort of a watershed problem. I mean, how we deal with this will have a big bearing on how we proceed with a lot of cases in the future.

Those last three slides, those general issues that were presented, I did at one point at one of these Working Group meetings commit that we would try -- NIOSH would try to summarize the issues and put forward our positions on these into an implementation guide, some sort of guidance, because we have a lot of technical documents out there in our program that tell you how to do things, but not exactly sort of a 10,000 foot view how you go about starting

to do these coworker models, or what are the principal elements. I have a very good draft on my computer of this but, unfortunately, every time we have a discussion, my thinking changes slightly on how to proceed. So, that's in the works. I did commit to having that out in the not too distant future for the Working Group to consider.

But moving on to the issue of stratification, it's a fairly significant issue we've dealt with. And this arose out of the fact, and Dr. Melius is correct, because Savannah River we developed a couple -- we had the capability, unlike many other places, to stratify the data into trades workers versus production workers and generate separate distributions. The obvious question is, how different do those distributions have to be when you would use one versus the other, what I call the

universal model, which includes all workers in a coworker model, or some subset, a stratification, if you will, of those workers.

NIOSH has proposed a couple of different tests, Peto-Prentice for certain situations, the Monte Carlo permutation test to evaluate when those differences are of such significance that you should use the other model. It became pretty obvious in the beginning, though, that those models B- those tests could not reveal very subtle differences. You had to have pretty large differences in the geometric means, geometric standard deviations in order to say they were statistically different, so the logic question arose well, what is a practically significant dose? How different do they have to be when it really makes a difference in the Probability of Causation

calculation? And up until that time, we didn't really know. No one had ever done that, so I had proposed a small study. And I discussed this briefly at the last Board meeting, as to looking at the claims in NOCTS. We have 40,000 claims in NOCTS, pull out the cases that fell between 45 and 49.99 percent, look at those and add 100 millirem dose to each of those cases in a maximizing approach where we would add the 100 millirem to the point where it made the biggest difference that we could think in the PC and rerun them.

We found 175 cases that met that criteria. We ran them 30 times at 10,000 iterations each, and I think you all have a copy of the report that was issued in February. I think Ted distributed it to you a couple of days ago, where we found that, interestingly, after we did that and added

the 100 millirem, not one of those cases changed of the 175 from non-compensable to compensable, which is kind of interesting in itself. And, in fact, the difference was pretty small; 100 millirem dose only added a median difference of .02 PC value, and a mean value of .06. So, it was a pretty small increase in the overall thing per 100 millirem incremental dose.

The question then is, what does that mean? And, you know, I thought about this. Well, it's interesting in itself, it may be very useful for making decisions on things like the residual periods where you have small doses and that sort of thing, but it wasn't clear where we proceed with this after -- you know, where do we start adding more doses looking at internal and such. And I sort of ended up in a new place, and I broached this at the last Working Group

meeting.

Really what we're talking about when we stratify is, if you remember, we have what I would call the universal model. It includes all workers who were monitored, and you generate a log-normal distribution, and we would select either the 50th percentile value with its distribution, or the 95th percentile depending on what exposure conditions we felt the workers had in their work environment. If a worker were thought to have been more heavily exposed, they would automatically get the 95th percentile of the coworker model, that exposure.

And this, of course, would apply to people like building trades who were working in controlled areas, that sort of thing. So, it occurred to me, though, that really that 95th percentile is used because

of the uncertainty in where we feel they fall in that continuum. And, in fact, if we stratified -- if we're able to have a stratified subset we would no longer use the 95th percentile in the Dose Reconstruction, we would use the geometric mean and its associated distribution.

So, then the question really is how different do those two strata have to be for the mean with its associated distribution to be less claimant -- or more claimant-favorable than applying the 95th percentile anyway of what I call the universal distribution? And we're working on a way to evaluate that.

Right now, it appears to us that the geometric mean with its full distribution, if you had the GSDs were the same for both populations, the geometric mean would have to -- assigning the full

distribution is sort of like assigning the 84th percentile as a constant. So, the geometric mean value would have to increase quite substantially in order for the 95th percentile, the coworker model not to be claimant-favorable.

In other words, in my opinion there would have to be very large shifts in the distributions of the stratification in order for the 95th percentile not to be claimant-favorable.

We're looking into that. I have proposed to develop a sketch-out, and experiment of how we would test this. I'm working on that. I don't have that complete yet, but hopefully by the next Board meeting we'll have done this and be able to report where that goes.

That in itself, though, just tells you if you can stratify, how to

evaluate the difference possibly, but really what Dr. Melius alluded to is, how can you be sure that that stratification, that stratified model really is appropriate? You know, that gets back to my first point about how do you evaluate that exposed subset? Where they monitored under the same conditions? Was it incident monitoring versus routine monitoring? How many samples you have? That's the kind of stuff that has to go into that analysis. And, again, I'm working on that first piece, as well.

I think that pretty much sums up where we are with this. Hopefully, I didn't confuse everyone. I'd be happy to answer any questions, if there are any.

CHAIRMAN MELIUS: I just want to -- before we take questions, I just want to sort of reiterate something that Jim said.

I mean, this is an important

issue for us because, as we have gone through up to date, we've sort of said well, we've done -- we say we may have done an SEC and sort of what's left, or we've not done an SEC because we thought that a coworker model would be able to be developed to do the Dose Reconstruction for those that didn't have complete records, or groups that didn't have complete records and so forth. And we really never sort of evaluated those very rigorously, and I think -- so, for lots of sites we have coworker models. Maybe less of an issue for models -- for sites for external exposure, but for internal exposures I think it is a significant issue because there tends to be less complete exposure sampling for those exposures. So, we're more likely to be able -- sort of trying to fill in gaps for workers that weren't completely monitored.

So, this is an important issue, and I think we have to be careful that we don't sort of go overboard in terms of the criterion, and so forth. I think we have to look very carefully and understand what that is. And it's a lot of difficult issues, and a lot of, I think, difficulty in terms of being able to do this. So, we'll be spending a fair amount of time on it, I think, at the next few meetings, both the Work Group, as well as the Board. And I think hopefully by the time we get to the Idaho Board meeting this summer we'll have more to present, and more to talk about. So, let me stop there, and if you have questions for either Jim, go ahead. Anybody on the -- Dave? Okay.

MEMBER RICHARDSON: I'm thinking about your what you call practically significant dose, and you -- I think it's a useful thought experiment. And it gets back

to one of the -- I think the third slide about sufficient accuracy, what accuracy is sufficient? And we've had this -- we've gone around with this discussion. Is it sufficient in an absolute sense or sufficient in a relative sense? And that becomes important as the, let's say the mean dose for the group of workers gets lower. Do you want to say it's, you know, known within two standard deviations, but if the whole range of dose in an absolute sense is very small, then maybe it is, nonetheless, sufficient.

And what you have proposed as a practically significant dose, I think is the term, was framing this in terms of the absolute magnitude of the dose, and then considering its impact on a binary decision making rule. Is it going to shift somebody from being compensable, or not?

And that looks useful. You went through a series of scenarios, and the starting point was positing one value, 100 millirem, which you said you chose out of some discussion. And you showed that when you ran these calculations adding 100 millirem causes a very small change in the distribution of the Probability of Causation for most claimants, and the tail of that distribution gets up to something like 0.3 percent change. So, there are some people where adding 100 millirem in the tails there, they might have a fraction of a percent increase in the Probability of Causation.

I was thinking about this in terms of most of the -- I believe the Probability of Causation under the IREP model is -- follows out under a linear model, so are we bound, or have you thought

of this, are we tied now to your starting point of 100 millirem, or once we have this histogram of the impact on the Probability of Causation of 100 millirem, can we not double it and say well, if we had added 200 millirem, that tail would be around 0.6, and if it was 300 millirem, we would be talking about a 1 percent change in the Probability of Causation for a group of claimants.

If that's true, then we have another sense of what that practically significant dose might be, that there's some people at 300 millirem where we're talking about a 1 percentage point change. And that does -- I don't know where my comfort threshold is, but I think what you've done is a useful starting point. And if that intuition that it all proceeds now on a linear scale because the IREP calculations, the probabilities are a linear function of

dose. That's true. You're saying no. I mean --

DR. NETON: It's the excess relative risk over one plus the excess relative risk.

MEMBER RICHARDSON: Yes.

DR. NETON: So, it's not linear. It's harder as you get higher.

MEMBER ANDERSON: And it might vary by the cancer too.

MEMBER RICHARDSON: It's going to vary by a lot of things, the cancer type, but you've taken a distribution of cancers, you've taken the ages, you've assumed an acute dose delivered at a time. Over this range, I guess that would be something I would be -- I'm not seeing that it's -- that that doesn't work. I mean, maybe I'm just missing something.

DR. NETON: I think you raise a

lot of good points. This is what I was struggling with when the results came out, is okay, it's small. And it was, I think, somewhat fortuitous that none of the 175 cases changed. I mean, it could have -- it is likely that four or five, you know, just for some reason none of them moved over 50 percent, but you can see, as you suggested or mentioned, the maximum which was .34. And if that happened on a case that was at 49.8, it would have been over 50 percent.

So, then you get into the question that you just raised, which is what -- at what point are we comfortable saying I'm going to accept a certain amount of false negatives, so to speak. I mean, if you allow the model to produce larger results but you're going to ignore that, where do you go?

The other problem with this is

it's a small dose, but remember it's only for one year.

MEMBER RICHARDSON: Right.

DR. NETON: A person typically has 10, 20-year work history. I think there's a distribution of work years in the document, so you start adding -- if it's 100 millirem difference for every year, I mean, then you get into huge, huge differences. And that's why I suggested the better way to maybe look at this is to look at the difference between using the 95th percentile of the distribution or assigning the full distribution of the stratified model, the stratified subset. Because really you're no longer -- if you stratify -- if you have what I call the universal coworker model that includes everybody, and I'm going to say you were potentially a more heavily exposed worker, I'm going to assign you the

95th percentile and be pretty confident, well, you're higher than 95 percent of the workers that were ever monitored. That's what I'm going to say. I'm assuming that.

Now, I've identified this subset of strata that has a different geometric mean and a different geometric standard deviation, maybe slightly larger. And I would say okay, I'm going to use that, but I would no longer at that point feel obligated to use the 95th percentile because now I have a distribution that's representative of that particular person's subset.

So, then I would assign -- I would use the geometric mean and the GSD, not the 95th percentile. Then one has to figure out which ends up being more claimant-favorable, the one that is the 95th percentile of the universal model, or assign the full distribution. And the trick is to

figure out what those differences are, and it's not real easy to do that. And I think we can get some -- get a handle on it if we look at some cases. We have a lot of cases in our database.

For instance, I think that if a preliminary calculation would indicate that for the -- if you had the same GSD, like say the universal model and the stratified model have the same geometric standard deviation, it would take something like the geometric mean would have to increase by a factor of six in order for the 95th percentile not to be more claimant-favorable. That's suggests there could be huge differences in the strata, but the 95th percentile masks that. It's more favorable to use that model.

But the big question then becomes is that strata that you've pulled out really a valid strata? I mean, I think that's sort

of where we're heading with this, is okay, now you're saying I have a stratum, but is that really representative -- is that little subset representative of what the workers were exposed to, or does it really give me an idea of what they were exposed to because maybe this strata is based on purely incident-driven samples, that sort of thing. So, it's slightly complex but I'm confident that, you know, what I just suggested, the 95th percentile comparing to the full distribution of the stratified subset is the test to do to see which one might be better used.

CHAIRMAN MELIUS: Dave?

MEMBER KOTELCHUCK: I'm really trying to understand conceptually your new suggestion. I would really appreciate getting your report several weeks in advance of the meeting so that -- because it really

will require some study, not just --

DR. NETON: Yes. I've committed to putting out -- first, before I even proceed, I'm going to put out a thought piece on this as to how we would proceed to do this analysis for the Working Group, at least. And then once we got that, I'd move forward. Yes, certainly, we'd get the report out, because it's not easy to get your head around the concept.

MEMBER KOTELCHUCK: No, it is not. One other --

CHAIRMAN MELIUS: We can circulate that to the full Board. I mean, I don't think it --

MEMBER KOTELCHUCK: I would appreciate that. The longer time we have to think about it, even if we're not on the Work Group.

The one other concern I had was

in reading the report that you did do on the practically significant dose, I had not understood that you were making the change of 100 millirem for one single year. And I accept your statement that if we had done it for every year it would create a really radical shift. Nevertheless, I would like to know or see that, although I realize there was an awful lot of work going into just doing 100 millirem, but to see what -- I'm thinking -- I thought about it in terms of if you're off by 100 millirem in an annual measurement, and the number of measurements matters. It's not the question of 20 years, but how many years that you measure, right, and put 100 millirems in for the number of years where you had measurements. It would be very helpful, or be very interesting, let's just say that.

CHAIRMAN MELIUS: I just think you

have to remember this is a limited data set to work from. I mean, it's not like the sample is that large, and you start putting in multiple years I think you end up with a little bit more complicated data, you know, set of results to understand --

MEMBER KOTELCHUCK: That's true. That's true.

CHAIRMAN MELIUS: So, it gets --

DR. NETON: Yes, it's complicated, but it would be interesting. I agree with you in some sense, and it wouldn't be that hard to do. I mean, now that we've got the files all set up --

MEMBER KOTELCHUCK: That's what I was thinking.

DR. NETON: It's going to be fairly straightforward.

MEMBER KOTELCHUCK: Yes, okay.

CHAIRMAN MELIUS: Well, the other

thing I -- the other context was, I think we have to remember is that a Dose Reconstructor makes lots of decisions that are more than 100 millirem decisions, I mean, they're many times more than that in terms of claimant-friendliness judgment and so forth along the way, so I don't think we should get sort of too hung up on just that. I mean, the exercise is -- it's not just, you know, stratification or this application that's going to be the only place that judgment is involved. And we could spend too much time focusing on the small one and, you know, not recognize it's in the context of a lot of other decisions that are made.

DR. NETON: One other thing I was going to mention is you have to keep in mind, too, that this was 175 cases out of 40,000 they only apply to. The other ones were below 45 percent PC, so a very small

percentage of the cases fall between 45 and 50 which surprised me a lot when we first pulled that number out. So, the other cases are well below 45, it would take some pretty substantial shifts to get them to be close to 50. You know, because a 5 percent shift in PC, now you're into the range of plausibility. Well, you add 100 millirem for every year of exposure, who knows? But it might be B- I think it's still possibly worth finishing that piece because, like I say, we've got all the files in place. It's easy to execute.

CHAIRMAN MELIUS: Any other Board Member question or comments? Yes, Brad.

MEMBER CLAWSON: It was B- I'm sure it'll be interesting reading when it comes out if we can follow with it, but I wanted to clarify something when you were talking about that you were looking at, I

guess, basically a coworker model, the person, where they worked and so forth like that. Now, is this still part of that, or were you trying to go away from that?

CHAIRMAN MELIUS: This is still part of that.

MEMBER CLAWSON: How B- you know, this all comes down to data and the information that you have. And we're trying to figure out significantly accurate, when you really are just taking a stab in the dark of what this person did. And it all comes back to the data that you have. And if it's garbage in B- I don't care how many papers you write on it, it's going to come out garbage out. It's a guess, you know. And you've talked to me so many times about can't prove positive or anything else like that. Well, you know, I agree in a lot of sense, and it's B- you know, I know we have

to use significant accuracy quite a bit in this program, but I really have my doubts of what's going to come out.

DR. NETON: Well, I just B- a couple of thoughts on that. One is, we really need to look at each case separately, and in many cases, you know B- remember we're trying to reconstruct doses for people who weren't monitored.

MEMBER CLAWSON: Right.

DR. NETON: And my opinion is there's a lot of cases where people weren't monitored because they had fairly low exposure potentials, not always, so you've got to be able to tease those types of situations out because, you know, if you're going to assume that people that weren't monitored had these large exposures that you can't reconstruct, then you have this sort of situation where people that were

monitored were heavily exposed, are getting X dose, and you can't reconstruct doses for people with no monitoring data because possibly they weren't exposed. I mean, you get some B- funny situations are created when you start thinking that way.

MEMBER CLAWSON: And I understand that, and you have totally the opposite, too. You have people that were highly exposed that weren't monitored.

DR. NETON: Well, I think that's true in certain situations but I don't know. We need to look at the data and see what it tells us.

CHAIRMAN MELIUS: Any other questions from Board Members?

MEMBER MUNN: Yes, Jim, this is Wanda. I feel I need to make a comment here, a very brief one, if I might.

First of all, thank you for

putting together this extremely good list of the major documents that we've created with our administrative construct during the course of this program. It's illuminating to have them all in one place again, and to look at them as we're doing right now.

MR. KATZ: Wanda, I'm sorry to interrupt, but can you try talking maybe more directly into your phone because it's hard to follow you.

MEMBER MUNN: Okay.

MR. KATZ: That's better.

MEMBER MUNN: Is this is any better?

MR. KATZ: Yes, it is. Thanks.

MEMBER MUNN: All right. The 100 millirem exercise was very worthwhile I think, perceived as being very instructive. It's the kind of thing that some of us have pointed out from time to time that what's

seen as major differences by some really are not major differences in the cold hard light of day. So, it's good to see, despite the smallness of the sample, it's good to see that this can be continuously demonstrable even with the constructs that we've set up ourselves.

Dr. Richardson's comments I think further demonstrate that the argument with uncertainty are irresolvable, they're not absolute and they can't be made so because of the numerous factors that we have to deal with here. But regardless of how the data from this program are going to be used politically in the future, I think it's good for those of us who work with it every day to remember that evidence of excess cancers are still not present in these populations. So, that's my only thought with regards to these things, but I certainly do appreciate

the efforts of both Dr. Melius and Dr. Neton in having put together this, what I consider a thought piece here. Thank you.

CHAIRMAN MELIUS: Thank you, Wanda. Any other Board Member comments or questions? If not we're due for a break, and we will be back here at 10:45. We have a SEC petition to discuss, and I believe the petitioner may be on the line, so we'll try to start right at 10:45. Thank you.

(Whereupon, the above-entitled matter went off the record at 10:27 a.m., and resumed at 10:51 a.m.)

CHAIRMAN MELIUS: Okay. We're reconvening now, the Board is, and we will first hear a presentation from Sam Glover on Nuclear Metals, Inc. SEC. And Sam's going to do it from that microphone.

DR. GLOVER: So this is a site that really has evolved over a long time.

Some of you guys -- it may even predate your being added to the Board. It started with MIT and the Hood Building back in the '40s. They consolidated operations at MIT into a barn, which was known as the Hood Building. And since they remodeled it and put stuff in the basement. And then eventually it went to Nuclear Metals, Inc. and they transferred those operations there. We have SECs from the early years, the '43 to '58. And then beginning at '58 at this facility up through 1979.

Beginning in 1980, we had substantially new data. We had a lot of data that came in, 20,000 bioassay samples, and we really -- and a bunch of air samples. We wanted to look at that. Thought it was -- we really need to make sure what kind of samples were available. Do we have thorium operation data? And so we wanted to

make sure what the -- and we hadn't had an opportune time really to take a look at it properly. And then we have done so now. So we'd like to discuss.

This is one of those sites like Bomber mentioned earlier. The covered -- the requested SEC was through 1983. That's when the petitioner ceased work at the facility. And in this case, we've extended through 1990 because the operations that we believe warrant an SEC continued through the end of the covered period.

So we have 1958, it moves to Concord. They provided the Atomic Energy Commission fabrication capabilities. And so that included uranium, thorium alloys. They did enriched uranium work up until 1974, and at that point they ceased doing enriched uranium work. They had in the mid -- the late 1970s they began a very large-scale

depleted uranium operation when they made munitions.

The covered period for this facility is an AWE from 1958 to 1990 and a residual period from '91 through March 1st, 2011.

Next slide, please. A few things, because it has been awhile since we discussed the original Class. We have a petition received on October 20th, 2011, proposed Class was from '70 to '83. So we've extended this on both sides, earlier as well as later.

Next slide, please. Okay. So we have some new tables here. So we had a proposed Class addition of workers from '58 through '79. This was based on the inability to reconstruct internal dose for thorium and enriched uranium. They did have bioassay for some of the uranium, but it was for natural compounds. It was not based on

activity-based. And there is no evidence of thorium-based bioassay or air monitoring data at the facility.

The Board agreed with this Class. It was added January 6th, 2013. At that time we reserved the period from '80 to '83 to evaluate those air samples and bioassay records and see what they contained. And so we've reviewed those and we are looking now at the time frame from January 1, 1980 through December 31st, 1990.

Next slide, please. Just very briefly, the typical types of sources we go through. We have the Site Profiles, our claims. Right now it is a fairly small claim base. There were maybe 800 to 900 workers as we get into the later time frames, into the '70s and '80s. There was a few hundred in the early years. So right now it is probably smaller than what one

would expect. Maybe that will increase as we get farther away from the 1970s when that -- that goes up quite a bit as those large projects.

We did conduct a number of interviews. We had a very large scale outreach meeting where we had at least 50 former workers going back to the beginning. And some of this is also -- we don't mention it here, but we actually went to MIT and the Hood Building. So there's a separate series of outreach meetings that we did for that. And some of those workers continued on, so those were all added.

Next slide, please. Again, Internet, Department of Energy locations. We did classified reviews down at a number of different facilities including Oak Ridge, OSTI, Hanford that all contained records related to this type of facility. The

Hagley Museum, the NRC, and also Massachusetts Department of Environmental Protection and the EPA.

Next slide, please. For during this period we have a small number of cases at this time. Twenty-six submitted, nineteen for those who worked during the proposed time frame, eighteen with a dose reconstruction. And you'll see that there's a large number of people with external and internal monitoring.

Next slide, please. Just very briefly; we sort of discussed this, we had operated the Hood facility until October 28th, 1958. Department of Labor established the beginning of the time frame very carefully based on contracts. They began to move operations and actually October 29th, 1958 the Department of Labor established very clearly the beginning of it as an AWE

facility. And the range of workers was anywhere from 60 to 650. I believe it may have even been up to 800 in some of those time frames based on records that we have from the monitoring.

So we have a map, I think, and on one of these we have original facility consisted of three buildings and it was added to over time, office space and research labs. Based on worker testimony and discussions -- we're looking at the reports, they sort of overlapped. Outside the cafeteria they would store material. So it wasn't that it was a clear-cut piece on where things were and where things weren't. And so, maybe the next slide I think we may still have a map.

So this shows some of the E Building and the different facilities. And there's some Butler Buildings, but there is

quite a bit of material storage in various places that you may not expect it.

Next slide, please. So a partial listing. I wanted to give you that flavor that we looked at the thorium ops in the beginning of the years. There's still classified things here, so I'd like to stay on script. And so, I'm only going to ask -- maybe be able to respond to certain questions, if you ask them.

The flavor, however, is that during the beginning of these operations, there's thorium ops, they're not discussed in the AEC Reports. They're not discussed in the other reports. That same flavor continues on as you get into the '70s and '80s and up to the '90s. We have the worker testimonies. We see those same things. We have the background. But you don't see them discussed in the reports.

And so, while we don't have a lot of detailed documents to give you in this '80 to '90 time frame, I have a very strong feeling and the beliefs and the discussions with the workers that those were still substantial, they were radiologically significant and that thorium work continued. But I don't have pounds to give you. I don't have a -- this is exactly what the work was.

So but we do have kind of a research-style operation pre-'72 that grew out of a research organization on how to machine and extrude uranium. They'd shoot the extruded uranium through walls. Just trying to figure out what to do in the early years. And so they were the go-to guys on -- if there was a problem with the phase at Hanford as things were expanding, they'd ask these guys.

And so then in the '70s you see the shift to the large-scale operation, depleted uranium shields and counterweights and penetrators. They began working a lot with the military on how to recycle this material, because if you produce it, you still have the waste associated with that and how to recover it.

I did say that the enriched uranium operation discontinued in 1974, and that seems pretty clear and it seems consistent with all the records that I've seen.

Next slide, please. So the post-'79 operations, they seem to have continued this shift of the production, getting away from some of their original roots, but they still have this powder technology, particularly with a variety of materials including thorium. So you've got those

large-scale depleted uranium ops. You do see they were doing UF4 processing up until '83 and the time they shifted it to the Carolina Metals Plant in South Carolina. They continued to do billet operations. Assembly, extrusion, copper removal, pickling. So they still have those kind of ops.

Next slide, please. I think we get into thorium operations next. They provided depleted uranium and natural uranium for the AVLIS project at Lawrence Livermore. They continued -- they did those basically extruded metal powders where you take powdered metal and make odd shapes, so you can compress them and -- so that included thorium operations.

And they maintained the license. This is kind of a thing that we really -- not only did they maintain the license, they

increased their license from 10,000 kilograms up to 25,000 kilograms of at least 90 percent thorium material. So they were dealing -- even though it's not well-documented, they had stuff on site. You don't increase your license up two-and-a-half times for no apparent reason.

So Health Physics Program. While we believe it got much better after they started large-scale ops, there's still things that we -- they still continue to have problems. In the beginning years they had a lot of problems. They had no trained health physics staff until 1981. Again, they started in '58 at the Hood Building. Mostly research in nature in the beginning. And they shifted to a more production, but there's still this back element of different research programs and special ops. They had in the mid-'60s a lot of uranium spills and

fires and contaminations, so there was -- the Inspection Reports show a lot of deficiencies. They still -- they got better. There's no doubt that they improve.

And as I said, they coincide on this next slide with the growth of the company into this production. The report access controls were reinforced. However, also note that the materials were stored broadly throughout the facility. They talk about increased air monitoring program. Currently we have found no thorium air monitoring samples for air monitoring that can be identified. That may have happened, but we can't associate them with the program.

They began an air and swipe sample analysis program. It was brought in house to reduce delays and to have more control. They certainly described and the

workers talked about improved radiation safety training, health physics coverage. They actually began coverage on all three work shifts instead of just at the end of the day. They still had, even in '80 to '84, the time frame we have documentation, 70 documented fires, smoke and other spill incidents in that time frame. We don't have anything after '84 to really evaluate.

Next slide, please. So sources of internal -- this is sort of our standard slide. We have research and production activities involving numerous radioactive materials. These amounts change up and down over time. Some of the activities and materials remain classified. Internal dose sources include uranium, which during this time frame was depleted and natural in many physical forms and also as the results of fires and explosions.

We have recycled uranium components. These materials were -- the munitions are known to be contaminated with actinides, so we will treat those as part of our typical recycled uranium components, the actinides that are part of that, and the technetium. As I mentioned, the enriched uranium was removed as a source term in 1974, so we don't have to worry about that in this time frame, but we do have uranium and thorium progeny and thorium oxides, powders and metal.

Next slide, please. So before 1980, to kind of give you this flavor, we had about a ton of thorium transferred from the Hood Building. We know they extruded thorium rods for the British and French companies in the '60s. We know they converted thorium rods to powder and extruded thorium powders and shapes. They

cast thorium into billets following machining, jacketing, extrusion, pickling and machining. And they worked with thorium further supported by -- was further supported by discussions at the worker outreach meetings.

Next slide, please. So given the limitations on records, we believe that a persistent and radiologically significant thorium source term continues during the operating history of NMI. So there's no monitoring records which exist from 1958 to 1979. This formed the basis for the infeasibility, or one of the bases that also enriched uranium through 1979.

Next slide. So continued on the availability of records. This is a closed facility. Some of the records are destroyed. We don't have access to everything. They were basically the --

their records had to be decontaminated and brought off site. These records may have been lost and we know that some were destroyed by the -- during cleanup.

Next slide, please. I mentioned the limits. There was originally 20,000 pounds in '74. They asked to go up to 25,000 kg of metal and oxide in '81. They specifically mention in the license about at least a 90 percent thorium minimum. So these aren't just a fraction, a trace of thorium. These are substantial thorium quantities. After the cleanup stops, NRC stated in their thing that even though they ceased DU munitions work, thorium and thorium oxide were continued. And that's as of 1999. So just using some -- our best understanding of how this continued, those works never really stopped. Now, 1990 is the end of the covered period, but residual

period continues after that. So we do have to deal with sources of dose reconstruction up until 1990.

Next slide. We know of two thorium-specific bioassays. They have a single urinalysis bioassay in 1983. It was less than -- the value was less than 0.2 dpm. It's unknown why it was taken, but it also gives you that -- there was some thorium source term. They did it for a reason. It's specifically related to thorium. We don't know why. Nobody could really tell us. For some reason they chose to do a single thorium bioassay. There's a single thorium-specific in vivo count. Again, we don't have a reason. But it also kind of gives you that feeling that there was a source term that was radiologically significant. They chose to do that for a reason.

Found no indication of any routine monitoring program involving air sampling or any other bioassay program to support the thorium operations at NMI.

Next slide, please. Thorium operations and quantities were never detailed during the known operation period for programs NIOSH knows used thorium. I don't know if this is based on compartmentalization of the history of the classified programs and just compartmentalization and that's continued forward, but they simply aren't discussed.

Next slide, please. This practice continued through the entire history of NMI. So based on this, NIOSH concluded that these programs were ongoing and significant based on interviews with employees, senior NMI management and maintenance. I believe the -- I don't know

if maintenance -- I think we had a word change that may have happened. Maybe we got a little help with the PowerPoint. It spelled something for me.

Actual increases of the thorium license limits. Probably -- I believe that's maintenance as management. And management and probably employees. But actual increases to the thorium license limits up 25,000 kilograms coupled with the silence in the past thorium programs. We believe that was just a continuance of their history.

So given the limitation on records NIOSH identified that a persistent and radiologically significant thorium source term continued January 1, 1980 through December 31st, 1990, which is the covered period.

Next slide, please. So since

this is an 83.13, we need to talk about the external briefly. Primarily processing of depleted/natural uranium and some thorium operations. So we have submersion to the contaminated air and exposure to contaminated surfaces. They have concentration of progeny during metal working and separation processes that enhance radiation. They did have some X-ray units and we believe those are probably still on site. This is a slide that continued through. They had industrial operation units that included some industrial units.

Next slide. However, I've got to mention they were heavily monitored for external. They were badged. So we look at the process records and the records of the personnel. They have a good monitoring program, putting badges on people beginning

in the late 1950's and '60s. Even clerical personnel were believed to be badged annually. And we've got good records through Landauer and we get a good response on our record requests.

Next slide, please. Internal dose monitoring programs. The bioassay program consisted of urinalysis samples and lung counts. And that should be the uranium. Air monitoring program for uranium consists of -- we had 34,400 results. A lot of those obviously are from this production period.

In order to process the -- looking for the thorium air samples and the thorium bioassay we actually produced a coworker study for uranium urinalysis as part of this. I think it was an opportune time to give a detailed look at the records. And so we did produce a uranium bioassay-

based coworker set. We have not a single sample from the air monitoring program that we could attribute to the thorium operations in this time frame.

As we said, the bioassay program evolved over time according to the AEC and NRC inspection reports. We have 44,000 legible urinalysis samples for the uranium operations conducted from 1980 to 1990 and we found a single thorium urinalysis sample during that -- in 1983.

Next slide, please. A lung count for uranium annually based on -- the 100 per year is starting in around 1980 and through the mid-'80s. It stops in like about '85-'86. We have a total of about 500 lung counts available for that period and we have a single thorium-specific lung count.

Next slide, please. I will not attempt to do this, but it does give you a

period of the -- or gives you a flavor for the coworker set. And basically it starts high and begins to drop down up to 1990, but this gives you an idea of the coworker urinalysis bioassay and how many employees were on the program.

So why the Class? We believe that workers were potentially exposed to thorium and thorium progeny who were not monitored, nor does a suitable dose reconstruction method exist. Decision was based on a lack of adequate biological monitoring, sufficient air monitoring information and/or sufficient process or radiological source term data to reconstruct dose with sufficient accuracy.

Next slide, please. Why everyone? Based on reports by the AEC, facility layout and worker interviews, the process areas were not isolated from the

non-process areas and no barriers to access were in place even though they described better access controls, they're self-described storage activities and we really can't identify who would be the population that it would be limited to.

NIOSH was unable to find any records on thorium operations that would allow it to identify specific employees or groups of employees that would limit the Class.

Next slide, please. What about employees not in the SEC? We will use any internal and external monitoring data that may become available for an individual claim. And as I said, the internal bioassay and external monitoring data is pretty substantial for NMI for uranium.

Does reconstruction for individual employees of Nuclear Metals

during the period January 1, 1980 through December 31st, 1990, but who do not qualify for inclusion in the SEC, may be performed using these data as appropriate.

NIOSH will estimate doses from medical X-rays using the employees' medical records and claimant-favorable medical dose reconstruction assumptions.

This is our standard health endangerment. We believe that there were -- well, not a -- I'll just read it properly. The evidence reviewed in this evaluation indicates that some workers in the Class may have accumulated chronic radiation exposures through intakes of radionuclides and direct exposure to radioactive materials. Consequently, NIOSH is specifying that health may have been endangered.

Next slide, please. Proposed Class. And we very carefully reviewed the

Board's typical change to it. I hope we get this right, Jim. All Atomic Weapons employees who worked at the facility owned by Nuclear Metals, Incorporated or subsequent owner in West Concord, Massachusetts during the period January 1, 1980 through December 31st, 1990 for a number of work days aggregating at least 250 work days, either solely under this Class or in combination with other work days will be included in this SEC.

Next slide. So our summary, reconstruction of dose is feasible for uranium internal all years. Thorium reconstruction is not feasible over the entire operational period. That we will reconstruct external gamma dose, beta dose and occupational medical X-rays during all years. Thank you very much.

CHAIRMAN MELIUS: Okay. Thank

you, Sam.

And, LaVon, good job there.

Any questions from Board Members?

MEMBER ZIEMER: Yes. I thought was curious that they had such an extensive uranium bioassay program and no thorium. And it occurred to me -- or let me ask a sort of hypothetical question. Had they had a thorium bioassay program, is there reason to think it would have somehow be kept separate for classification purposes, that the records would not be with the other records?

DR. GLOVER: Based on the senior health physics people we talked to, it was never done.

MEMBER ZIEMER: Never done? Okay. Thank you.

CHAIRMAN MELIUS: Did they ever give a reason for that, I guess to sort of

follow up to Paul's question?

DR. GLOVER: I think it's sort of the same thing we have at a national lab. It's you have the big production facility. Obviously conjecture on my part, but have that big production program, the uranium that grew and it's like they never really dealt with the enriched uranium. It was a smaller part of their operations, but very -- could be substantially significant to people doing that work.

CHAIRMAN MELIUS: Yes, Brad?

MEMBER CLAWSON: Can you tell us what the enrichment of the uranium was?

DR. GLOVER: In the early years they had highly-enriched uranium.

MEMBER CLAWSON: How --

DR. GLOVER: They had a flood. It was good stuff.

MEMBER CLAWSON: Okay.

MEMBER SCHOFIELD: Do you know if they produced any thoriated plates for rocket flaps and ships?

DR. GLOVER: Not to my knowledge.

CHAIRMAN MELIUS: Any Board Members on the phone like to ask questions? Dave?

MEMBER KOTELCHUCK: Since this is a public document, that last summary table, the grammar is a little off. Reconstruction not feasible. The answer is yes, not no. And that's exactly what you've shown. Reconstruction feasible. Often one uses a check, but if you would just get rid of that double negative, which --

DR. GLOVER: I agree.

MEMBER KOTELCHUCK: -- seems to --

DR. GLOVER: Absolutely. Absolutely I definitely agree that that --

MEMBER KOTELCHUCK: Okay.

DR. GLOVER: -- is a no, we cannot do it. No, we cannot do it. Yes, I agree.

CHAIRMAN MELIUS: I was surprised our other faculty members didn't notice that.

(Laughter.)

CHAIRMAN MELIUS: Make that correction. Okay. Well, thank you.

Is the petitioner on the line and wish to make any comments? Not required to, but you're welcome to if you're on the line.

Okay. Hearing none, do I hear any further comments or questions from Board Members, or a suggested action? Yes, Paul?

MEMBER ZIEMER: This is a question --

CHAIRMAN MELIUS: Okay.

MEMBER ZIEMER: -- maybe

procedurally. Did SC&A review this Petition Evaluation Report at all and -- because there is some dose reconstruction required for those who don't meet the SEC requirements? I couldn't recall if that had been assigned or not.

CHAIRMAN MELIUS: No, I think our normal procedure would be assign for follow, but I think NIOSH -- I think Sam mentioned a coworker model. I'm not sure if that's been fully developed yet or not, but they would. And we'd handle those as Site Profile issues for follow-up.

DR. GLOVER: The coworker model is a published document.

CHAIRMAN MELIUS: Oh, it is? Okay. Okay.

MEMBER BEACH: Yes, I was going to ask the same question about the coworker model. It was issued last year, so --

CHAIRMAN MELIUS: Okay.

MEMBER BEACH: Also, let me ask, Sam, the rest of the story. The covered period goes until 1990, but the residual period is until 2011. Was there cleanup done or do you not do dose reconstruction on anybody after 1990 because they're not covered? How does that work?

DR. GLOVER: It ceased to be an -- AWE ceased to do DOE-covered work at that point.

MEMBER BEACH: Sure.

DR. GLOVER: So that's when the covered period ceases. But then it does go into cleanup operations. And there we would use the residual period, a residual activity that was related to the AWE. They have ongoing site operations as well. So they maintain a uranium bioassay program for existing operations.

CHAIRMAN MELIUS: Okay. And, yes, so we'd have to take a look at that later also. The petition doesn't extend, if I understand right --

MEMBER BEACH: Right, I understand that.

CHAIRMAN MELIUS: -- up to that period.

Any other comments or questions?

MEMBER RICHARDSON: Just to get a handle on -- one way of reading the report was that there's a description of the workers saying that they didn't wear respirators, they worked with thorium powders and ground metals. And then you've got this curious fact that there's -- they hired an external consultant to do two thorium bioassays. Is that right? Or maybe just one?

And the discussion we had earlier

about when they choose to monitor somebody versus not monitor somebody. I mean, they clearly made an intention to choose this person, run the result with an external consultant doing the work and had a finding which is pretty low, right, for that bioassay.

DR. GLOVER: So we don't have any of the circumstances. You don't have -- if you're in an operational program like a modern DOE 10 CFR 835, you've got this comprehensive data network that looks at -- you've got an air monitoring program. You're looking at really evaluating. You're documenting why do I make these decisions? Those aren't available. We really don't have -- we have an absence of that that's over the entire operational period. And it's difficult to tease out that they were -- that, yes, they chose to monitor

this big bulk program, but these ancillary smaller ones -- we're just not clear why they chose not to. I hope that's --

CHAIRMAN MELIUS: Yes. No, that makes -- it's clear. There's just not enough data to sort of -- to have any confidence in terms of making a decision that way.

Okay. Any other comments or questions?

MEMBER VALERIO: I have a question.

CHAIRMAN MELIUS: Yes? Speak into the mic, please, because it's --

MEMBER VALERIO: Okay. On page 15 of the presentation, second to last bullet, it says that in 1980 through '84 there were 70 documented fires. Is there a reason that there was a spike during that time frame in incidents?

DR. GLOVER: I don't know if it was necessarily a spike. That's just better reporting. You're really just seeing a -- that's when they really started getting a better program on line. They were probably just undocumented before. And also that correlates to a much larger production time frame where they're really cranking out the -- sorry for the lack of a good term, a scientific term, but they were producing all the ammunition that was shot in Iraq, and all those depleted uranium bullets and shells. They were producing over a million rounds a month. So there was a lot of uranium metal on site. And so, that's just probably just a capacity factor, and also better reporting, at least related to fires.

CHAIRMAN MELIUS: Okay. Any other questions for Sam?

MEMBER MUNN: Yes, this is Wanda.

I have just one little question really. Just a matter of curiosity, in the one thorium bioassay that was done and the in vivo lung count, the single events that we had, were there indications from either of those that that particular worker that was covered by that in each case, that singular incident, had a significant exposure? Were they positive results or not?

DR. GLOVER: For the uranium -- or for the thorium bioassay we know that that was a less-than value, less than 0.2.

MEMBER MUNN: Okay.

DR. GLOVER: We don't know when that exposure may have occurred. For the -- I believe we know a -- the -- we know a thorium lung count was done. I'm not sure if I recall if there was a result that we have. I know it was --

MEMBER MUNN: All right. It's

not pressing and obviously it's not a --

DR. GLOVER: Yes. So that was done by an external contractor. They externally brought a person in to do those, but unfortunately I can't recall.

MEMBER MUNN: All right. Thanks, Sam.

DR. GLOVER: Yes.

CHAIRMAN MELIUS: Okay. Other questions?

If not, do I have a suggested action, a motion from the Board?

MEMBER BEACH: I'll go ahead and make the motion that we accept NIOSH's proposal for an SEC for that time period.

MEMBER ANDERSON: And I'll second it. This is Andy.

CHAIRMAN MELIUS: That was quick, Andy.

MEMBER ANDERSON: Oh, yes.

(Laughter.)

MEMBER ANDERSON: Got to let you know I'm still here.

CHAIRMAN MELIUS: Yes.

MEMBER ANDERSON: Hanging in.

(Laughter.)

MEMBER ANDERSON: Little tough to hear some of these on the phone, though.

CHAIRMAN MELIUS: Yes, we're trying to get everyone louder and closer to the microphones. Thank you.

We have a motion and a second. Any further discussion?

If not, then, Ted, you want to do the roll call?

MR. KATZ: We'll start with you, Andy.

MEMBER ANDERSON: Yes.

MR. KATZ: Yes. Ms. Beach?

MEMBER BEACH: Yes.

MR. KATZ: Mr. Clawson?

MEMBER CLAWSON: Yes.

MR. KATZ: Dr. Field?

MEMBER FIELD: Yes.

MR. KATZ: And I believe Mr. Griffon is absent. Dr. Kotelchuck?

MEMBER KOTELCHUCK: Yes.

MR. KATZ: Dr. Lemen?

MEMBER LEMEN: Yes.

MR. KATZ: Dr. Lockey is absent. Dr. Melius?

CHAIRMAN MELIUS: Yes.

MR. KATZ: Ms. Munn?

MEMBER MUNN: Yes.

MR. KATZ: Dr. Poston?

MEMBER POSTON: Yes.

MR. KATZ: Dr. Richardson?

MEMBER RICHARDSON: Yes.

MR. KATZ: Dr. Roessler?

MEMBER ROESSLER: Yes.

MR. KATZ: Mr. Schofield?

MEMBER SCHOFIELD: Yes.

MR. KATZ: Ms. Valerio?

MEMBER VALERIO: Yes.

MR. KATZ: Dr. Ziemer?

MEMBER ZIEMER: Yes.

MR. KATZ: It's a clean sweep. Motion passes.

MEMBER MUNN: One question. Again, this is an 83.13, right?

CHAIRMAN MELIUS: Correct.

MEMBER MUNN: Just like what we have on our agenda. Okay.

CHAIRMAN MELIUS: Yes, it's 13.

Okay. It just so happens there's a letter that's been prepared, which I will just -- yes, make a prediction, wild prediction and as to the outcome and that made such a wild prediction that the other letter you can ignore, because it turns out

we won't need it, but this one we do.

So I have to read it in the record.

"The Advisory Board on Radiation and Worker Health. The Board has evaluated Special Exposure Cohort, SEC Petition 00195 concerning workers' at a facility owned by Nuclear Metals, Inc., or a subsequent owner in West Concord, Massachusetts under the statutory requirements established by the Energy Employment Occupational Illness Compensation Program Act of 2000 incorporating in 42 CFR 83.13.

"Board respectfully recommends that SEC status be accorded to all Atomic Weapons Employees who worked at the facility owned by Nuclear Metals, Inc. (or a subsequent owner) in West Concord, Massachusetts during the period from January 1st, 1980 through December 31st, 1990 for a number of work days aggregating at least 250

work days occurring either solely under this employment or in combination with work days within the parameters established for one or more other Classes of employees included in the Special Exposure Cohort.

"This recommendation is based on the following factors: Individuals employed at this facility in West Concord, Massachusetts during the time period in question worked on research and production for materials used in the production of nuclear weapons.

"The National Institute of Occupational Safety and Health, NIOSH's review of available monitoring data, as well as available process source term information for this facility found that NIOSH lacked sufficient information necessary to complete individual dose reconstructions with sufficient accuracy for internal

radiological exposures to thorium and thorium progeny to which these workers may have been subjected during the time period in question. The Board concurs with this determination.

"Three. NIOSH determined that health may have been endangered for employees at this facility during the time period in question. Board also concurs with this determination.

"Based on these considerations and the discussion at the April 29th, 2014 Board meeting held in Augusta, Georgia, the Board recommends that this Class be added to the SEC.

"Enclosed is the documentation from the Board meeting where the SEC Class was discussed. The documentation includes copies of the petition, the NIOSH review thereof, and related materials. If any of

these items are unavailable at this time, they will follow shortly."

Pretty straightforward. Comments or -- yes, and just -- this does differ a little bit from the SEC Petition Evaluation Report. Just -- we added the subsequent owner issue, which had come up before. And DeKeely Hartsfield had looked into it and thought it still applied, so we'll include it in the Class definition.

Okay. We're at a break time now. We -- find my agenda. So 11:30. You want to talk a little bit about the -- do the scheduling things for a couple minutes while we have people on the Board?

Yes, why don't we go -- we'll go for another say 15 minutes and then do some of our Board items. Then we actually have an hour-and-a-half set aside this afternoon for a Board work session. So we have enough

time there. Let's -- at least in case people need to check their calendars or whatever.

MR. KATZ: So scheduling meetings weighs out now. The next teleconference that we need to schedule falls around the week of December 15th, or January 5th, depending on whether you want it sort of slightly early or slightly late. But so we can start with either of those as to whether they work with your schedules. The week of 12/15 is really the last practical week in December for having a teleconference.

MEMBER ANDERSON: Ted, that isn't good for me.

MR. KATZ: Is not good? Is that what you said, Andy?

MEMBER ANDERSON: It's not. January 5th is good for me, though.

MR. KATZ: How about others? The

week of January 5th?

MEMBER MUNN: What about the preceding week in December rather than going to January?

MR. KATZ: I'm sorry, Wanda. Say that again, please?

MEMBER MUNN: I said what about the preceding week in December rather than going to January?

MR. KATZ: Well, there is just a lot of people on leave that week. It's pretty hard to --

MEMBER MUNN: Ah, okay.

MR. KATZ: -- unlikely that we'll get a quorum.

MEMBER MUNN: All right.

CHAIRMAN MELIUS: Why don't we do January 6th?

MR. KATZ: How's that? That's Tuesday, I'm guessing.

CHAIRMAN MELIUS: Yes, Tuesday.

MEMBER MUNN: It is.

MR. KATZ: How's that for everybody? January 6th?

MEMBER MUNN: Fine.

MR. KATZ: That's for a teleconference. That would be normally 11:00 a.m. Eastern Time.

CHAIRMAN MELIUS: Okay. So the people on the West Coast get to sleep.

MR. KATZ: Yes.

MEMBER MUNN: How nice. Thank you.

(Laughter.)

MR. KATZ: Okay. January 6th it is then, 11:00 a.m. Thank you.

And then the next Board meeting falls around February -- the week of -- now there's a holiday on the front end of this, which is why I have just the latter part of

the week. Either the week of -- well, there's February 11th through 13th, 18th through 20th, or 23rd through 27th, those time frames. I don't know, we could start with the first one and work our way out, if that doesn't work.

CHAIRMAN MELIUS: Yes, I was thinking, given our earlier discussions, I mean, we're trying to forecast the future here in terms of actions -- is that we start to stretch out the Board meetings. And so let's -- rather than looking at February, let's look at March and see if that doesn't maybe make it more efficient in terms of -- well, we'd have a day-and-a-half meeting rather than the day meeting, or something, so we're making better use of Board Members' time but without getting too far off in terms of possible SEC action or something that needs to be more timely.

MEMBER ROESSLER: There's an NCRP meeting in March. I'm looking it up --

CHAIRMAN MELIUS: Okay.

MEMBER ROESSLER: -- to see when that is.

MEMBER MUNN: Or perhaps the last week in February. That's still -- that's almost two months away from the phone call.

CHAIRMAN MELIUS: We'll look at that. We can come back to this later on and -- yes --

MEMBER ROESSLER: Yes, it's slow.

CHAIRMAN MELIUS: -- and I know -- and do that so that we can address that. But I'm just thinking that that would be a way of sort of starting to adjust our schedule without doing something too radical or too -- we're not always -- we're not very good at predicting anyway on some of these. We'll do that, but --

MEMBER LEMEN: This is Dick Lemen.

CHAIRMAN MELIUS: By the way, can you go through, Ted, the other Board Member Board meetings that we have coming up?

MEMBER BEACH: I was just wondering if we couldn't start that with November's meeting, stretch it out, because we have one in November.

CHAIRMAN MELIUS: We have one in November and we have one July twenty -- the end of July.

MEMBER LEMEN: Can people speak up a little bit? It's hard to hear on the phone. Hello?

MR. KATZ: Yes, we hear you, Dick. Thanks. I didn't have the mic near me. Sorry.

CHAIRMAN MELIUS: The 29th is Idaho Falls.

MR. KATZ: Right, 29th and 30th we've blocked off probably at this rate we'd --

MEMBER MUNN: Well, but November is still quite a stretch from July.

MR. KATZ: Okay. And then following that we have a teleconference scheduled September 17th.

MEMBER MUNN: Yes.

MR. KATZ: That's 11:00 a.m. And then the subsequent meeting in November is currently November 6 and 7.

MEMBER ANDERSON: Do we have a location on that one?

MR. KATZ: No, we do not.

CHAIRMAN MELIUS: No, we do not. And then generally we'd be -- I mean, that's a four-month stretch there.

MR. KATZ: Yes.

CHAIRMAN MELIUS: So we're --

basically would be -- and if we did March, we'd basically be on three meetings a year, something like that.

MR. KATZ: Right.

MEMBER ANDERSON: Yes, do we want to push the July one later?

CHAIRMAN MELIUS: It's a little hard to, I think.

MEMBER MUNN: No, we've already established the date.

MR. KATZ: And August is a more difficult month to schedule in general, too.

MEMBER ANDERSON: Because I've got a conflict there.

MEMBER LEMEN: Did you say that the November meeting was on the 6th and 7th?

MEMBER MUNN: Correct.

MR. KATZ: That's correct. That's correct, Dick.

MEMBER LEMEN: And do you --

didn't we say at one time we were going to try and not schedule traveling on Friday afternoon?

MR. KATZ: We do the best we can.

MEMBER LEMEN: Okay.

MR. KATZ: But --

MEMBER SCHOFIELD: Hopefully we will -- maybe we could go out there to California at that time in November.

MR. KATZ: Phil is just suggesting we think about California for November.

MEMBER KOTELCHUCK: I was going to say that if we want to be a little more efficient, I do not wish -- or let me be positive. It would be very good to go to places where there are large airports and therefore lots of planes flying in and out. I do not wish to avoid small towns where we all have to connect, but I think it would be

efficient and save money and time to think a little bit about moving toward larger cities or larger airports, really.

MEMBER MUNN: I think we're 60 years too late. We should have --

(Laughter.)

MEMBER MUNN: We should have talked to other folks about that a long time ago.

MEMBER KOTELCHUCK: Yes, well, better late than never.

MEMBER MUNN: Yes.

CHAIRMAN MELIUS: No, no. I think what she's referring to is the siting of the DOE facilities.

MEMBER KOTELCHUCK: Yes, well, that's true.

CHAIRMAN MELIUS: They didn't put those in New York. Even though it was called the Manhattan Project, it wasn't in

Manhattan.

MEMBER CLAWSON: Is he saying he doesn't want to come to Idaho?

MEMBER KOTELCHUCK: No, I certainly will exempt all arrangements that we have made, but just for the future there are -- for example -- well, that may not -- we may be able to look at larger towns where there are -- which are accessible to workers at the plant. Doesn't have to be --

CHAIRMAN MELIUS: Yes, but I think our experience, Dave, has been that we've got to be at the site. People aren't going to travel an hour-and-a-half or two hours to come and -- even though we think it's close, it's -- for them, they -- I mean, even I think which side of Denver we're on makes a difference in terms of where people live. So being north of Cincinnati rather than out by the airport

makes a difference for the people working at Fernald because most of them lived in the eye of the facility.

So, I think that we felt it more appropriate to err on the -- maybe a little more difficulty in terms of traveling and to --

MEMBER KOTELCHUCK: I accept the reality, yes.

CHAIRMAN MELIUS: Now if we --

MEMBER MUNN: And but this gives -- the Manhattan Project is now giving Manhattan dwellers an opportunity to see America --

(Laughter.)

MEMBER KOTELCHUCK: Right. All right.

MEMBER MUNN: -- where the other half lives.

MEMBER SCHOFIELD: We have a

number of facilities out there in California. We could -- there's Berkeley, Livermore, Santa Susana. And we don't have to worry about Idaho snow.

CHAIRMAN MELIUS: No, the LA area we -- does deserve a visit. We haven't been there in quite a while, so -- and do that. So that's on the list. And then we had talked even for this meeting, though I think we decided we weren't ready in terms of the San Francisco/Oakland area. But we'll keep that in mind.

MEMBER LEMEN: Did you see the meeting on July the 29th is a conference call or an in-person meeting?

CHAIRMAN MELIUS: That's in person in Idaho Falls.

MEMBER LEMEN: Okay. Thanks.

CHAIRMAN MELIUS: Yes, and we have testimony from Brad that the snow has

melted.

MEMBER LEMEN: We have what?

CHAIRMAN MELIUS: Excuse me. Will have. Future tense.

(Laughter.)

MEMBER LEMEN: I'm sorry, I --

CHAIRMAN MELIUS: Yes.

MEMBER MUNN: Good.

CHAIRMAN MELIUS: Andy just misses the fish. That's --

MEMBER ANDERSON: Yes, right.

(Laughter.)

CHAIRMAN MELIUS: Why don't we check? We can do -- yes, we'll do -- I think there's an agreement that March -- and we'll stretch it out. Then we can do it by email and deal with that.

And given that, why don't we -- we'll take a lunch break now. Come back sharp 1:30. We have another SEC-related

issue here to discuss. And then we'll go on. We have an hour-and-a-half. When we come back, remind you to, if you haven't already, take a look at the public comments. We need to go over those. Think about your Work Groups and take a look at both the NIOSH and the SC&A schedules for reporting and so forth.

And particularly if there's something missing that you expected to see on there and isn't reported, grab a -- I don't know who takes responsibility for NIOSH? LaVon. We'll blame it on LaVon and ask him. And then John Stiver for the SC&A. But we'll -- because we'll go through our Work Groups. So take a break. We'll reconvene at 1:30. Thank you.

(Whereupon, the above-entitled matter went off the record at 11:42 a.m. and resumed at 1:30 p.m.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

1:34 p.m.

MR. KATZ: Let me just check on the line to see, do I have my Board Members back who are on the phone with us?

MEMBER FIELD: Bill Field.

MR. KATZ: Great.

MEMBER LEMEN: Dick Lemen.

MR. KATZ: Great.

MEMBER MUNN: Wanda Munn.

MR. KATZ: Bill, Dick, Wanda. How about Andy? Are you one?

MR. KATZ: Okay. Well, I think we could proceed anyway.

CHAIRMAN MELIUS: And a reminder,

please mute your phones. It makes the line better.

And we will start this afternoon. Our first item is the Joslyn SEC petition. And Sam Glover will be presenting again. And on the computer presenting the slides --

DR. GLOVER: My able-bodied assistant.

CHAIRMAN MELIUS: -- LaVon Rutherford.

MR. RUTHERFORD: Thank you.

DR. GLOVER: Paul, you want to have me talk first, and if you'll --

So we had a Work Group meeting last week and discussed several projects that we prepared in response to the SEC that was added. It's just now coming due with Congress. I think it's in its final stages here and will become official I think within -- near the end of the month, I

believe.

So we're going to discuss just part of what we went through, which is the use of surrogate data, which I believe is what the Board was concerned with at our last meeting when we described the time frame after the SEC, which the SEC now runs through July 31st, 1948. And we have said that we can do dose reconstruction beginning August 1, 1948 through 1952.

So next slide.

MEMBER MUNN: The mic is not picking Sam up very well.

DR. GLOVER: Okay. Is that better?

MEMBER MUNN: Much better. Thank you.

DR. GLOVER: Okay. I had to get close and personal here.

MEMBER MUNN: Okay. Thanks.

DR. GLOVER: So Joslyn is listed as an Atomic Weapons Employer and the period is from March 1943 to 1952. It has been, as I said, added to the Special Exposure Cohort beginning March 1943 through July 31st, 1948. So this is very focused. We're not going to discuss anything before the August 1948 time frame. It's already in the SEC. And this discussion is solely focused on the use, the justification of the use of TBD-6000 as surrogate data for the determination of intakes of uranium during that period, again August 1, 1948 through December 1952.

Next slide, please. So we used the Board's criteria, which are very similar to the DCAS criteria. So we -- because this is obviously a presentation to the Advisory Board, we're going to go down the elements that were in the draft document by the Board.

From a hierarchy of data standpoint, there is a report specifically written on this that was provided to the Working Group and the Advisory Board last week. There is no individual monitoring data collected at Joslyn. However, there were several -- and again, only beginning in August 1, 1948 forward there is some air monitoring data that was collected on a limited machining operations in 1951, and then a much more comprehensive data set that was collected in January of 1952. Both of those were collected by the Health and Safety Laboratory of the Atomic Energy Commission.

The 1952 data was extensive enough that it monitored most of the -- actually all of the operations that were conducted at Joslyn. And so all of the machining, the rollings, all those different

operations were conducted and they developed time weighted averages for those exposures. And so it was a very large data collection effort and an in-depth analysis.

Next slide, please. So NIOSH determined; and the HASL measurements are very well described and we discussed those many times, that the data from this 1951 and '52 measurement meet the analytical and methodological requirements for dose reconstruction. We understand how they collected the data. We understand how they do time weighted averages. The concern is that we decided that we have a snapshot and we're going to back-extrapolate to beginning August 1, 1948 that we feel it was more claimant-favorable and more appropriate to use the surrogate data from TBD-6000, which is claimant-favorable, rather than using just -- and saying this data from the --

facility-specific data should be used on its own right. So we're saying that we would prefer and it was justified to use the TBD-6000, specifically the operator category of the rolling machining operator. So not using the sub-categories of the clerks or the -- we're going to treat everybody as if they rolled or machined uranium and that -- to provide a claimant-favorable but realistic dose reconstruction approach to internal dose at Joslyn. Now, there weren't any controls. The facility was -- there's many different operations and many different parts of the facility. And we feel this is an appropriate approach.

Next slide, please. So the exclusivity constraints. So while we have HASL-collected data in '51 and particularly 1952, NIOSH has utilized TBD-6000 to better describe the full range of conditions. So

those were -- and assumptions that may have been observed beyond the single time weighted average study in 1952 to describe this entire period back to August of 1948.

TBD-6000 provides a peer-reviewed surrogate data set for thousands of measurements conducted by HASL beginning in 1948. And they actually go all the way back to the original Simonds Saw and Steel data in the very first un-coded uranium rolling that -- since the highest upper end point. And I made sure to properly correct my error in the White Paper, which it is Harris and Kingsley as the appropriate reference. And I used a -- as Paul nods his head.

Next slide, please. So the exclusivity continued. Comparison of the rolling operator data shows the use of TBD-6000 is clearly claimant-favorable except for one operation. The nine-inch rolling

mill was a bad actor. Smoke, steam. And so when you compare the arithmetic mean of the distribution, you still have -- you're underestimating.

You use the TBD-6000 geometric mean or the arithmetic mean and compare the time weighted average. You're not necessarily claimant-favorable for that one particular operation. However, if you look at the full distribution where we applied geometric mean and a GSD of five, all of the data is covered. Every data point that was collected at Joslyn is covered by that.

The other substantial fact is that Joslyn did not use the nine-inch mill with any frequency after the August 1, 1948 date. The changed what they did. And so, based on the operations, the testimony of workers, the details, they rolled on a different mill. They had a different

purpose for what they were doing. So the nine-inch mill, while it was conducted in that 1952 study, really was not a significant source of contamination at the site.

Next slide, please. So the site or process similarities. TBD-6000 provides comparison data across a number of facilities that were doing exactly the same type of work that Joslyn performed, sheeting and rolling of uranium with no protective coatings.

Review of the site data from '51 and '52 show that the site's data compares very well to TBD-6000 and the use of the full distribution -- this is not just a single data point. We have a GSD of five associated to that geometric mean. When you look at that full distribution, that provides a realistic exposure assessment for

operations at Joslyn back to August 1, 1948.

Next slide, please. We know of no operational changes to the equipment or ventilation after August 1948. We do recognize that the nine-inch rolling mill did not get used, but there wasn't any changes to the operations, no engineering control differences. We concluded that the data obtained by HASL in the '51 and '52 studies could represent the exposure conditions in TBD-6000 as early as August 1, 1948. I should say could be represented by the exposure conditions in TBD-6000 as early as August 1, 1948 based on the following facts:

Beginning with August 1948, Joslyn was operated with AEC Oversight; previously it was operated under Hanford or MED-style operations, to provide increased certainty that the air monitoring data

collected was similar to other facilities collected by HASL.

Operations were reduced to become better defined and specific after August 1, 1948.

Operation specifics, documentation, and worker testimony provide evidence that the operations are similar in nature and scope to those described in TBD-6000.

Next slide, please. Beginning in August 1948 reduction in production levels to smaller rolling operations further supports specific -- in support of specific research projects were less likely to require simultaneous rollings. One of the things we were concerned about in the previous slide, or previous period is that they have three rolling mills that are next to one another and they were rolling

simultaneously, which obviously convolutes the -- what is the concentration that someone may be exposed to? At this point in time they were very concerned about the temperature that the material was being rolled to and they were very specific that it was done on a single mill. So they had protection requirements in its speed, the heat, the temperature. They wanted to make sure that this stuff wasn't expanding, which was causing the shutdown of the Hanford reactors. And so they had very specific requirements and that involved a single mill within that group. And mentioned here, it's the 18-inch mill.

So this removed the highest source of exposure, this nine-inch rolling mill, at Joslyn during many of these days of operations and provides some additional evidence that supports these multiple mills

were not used.

Next slide, please. Temporal considerations. Obviously we gave a lot of thought into the changes over time when determining the feasibility of dose reconstruction and the comparability of the surrogate data. Joslyn used only electrically-heated furnaces to pre-heat the billets. You guys are very familiar with Bethlehem Steel and the lead coating of billets and then later the salt coating of billets. This was only done in gas-fired furnaces similar to the original Simonds Saw and Steel. So they would use uncoated furnaces, which is just the worst oxidation. But TBD-6000 accommodates that. They include those measurements in their data.

So NIOSH confirmed that TBD-6000 data set extends to cover the Simonds Saw and Steel initial studies with rolling

furnaces which heated uranium in raw furnaces, uncoated. And also that's the highest data set we've really seen as far as the actual -- the measurements we discussed for Bethlehem Steel many years ago. And this extends the applicability of TBD-6000 back to 1948. Helps us confirm that.

Next slide, please. Plausibility. The full distribution of intakes from the rolling operator and machine operator category is used at Joslyn with a geometric mean, a GSD of five.

Now the site data, if you look at the 1952 measurements, suggests that the rolling mill operations were bounding. But the limitations in the data set would have used both categories. The machining operator, if you go to TBD-6000, there's a higher intake based on the history of operations. And so, if they only machined

at Joslyn, then the internal dose would be based on machining. The entire residual period is based on machining operations, because you can't flip back and forth. But if they only rolled, if they did both, you would still use machining. But if we know they only rolled uranium, then that's where a person would be -- and we use the TBD-6000 rolling mill operator data.

The data is based on facilities from the same time period for the same types of operations conducted at Joslyn and whose full distribution provides a claimant-favorable and realistic approach for determining intakes of uranium at Joslyn from August 1, 1948 through December 31st, 1952.

Next slide, please. So in conclusion, NIOSH carefully reviewed the operations conducted at Joslyn and data

availability during the period August 1948 through December 1952. They felt the use of surrogate data for uranium intakes from the rolling and machining operator categories from TBD-6000 was evaluated against the Advisory Board's criteria for the use of surrogate data by NIOSH and we believe that the use of this data was found to be justified, that it provided a scientifically valid, claimant-favorable, and plausible dose from the intakes of uranium at Joslyn during this period.

And I'm sure you'll have questions. But perhaps Paul would like to discuss where we stand before -- or whatever you feel is most appropriate.

CHAIRMAN MELIUS: Fine. Yes, whatever.

MEMBER ZIEMER: Yes, the TBD-6000 Work Group met on April 23rd, just last

week. That Work Group -- I chair the Work Group and the other Members are Josie Beach, John Poston and Wanda Munn. And we reviewed this evaluation that NIOSH did of the surrogate data criteria. And also that has been reviewed by SC&A. I don't know if -- John Stiver or perhaps John Mauro on the phone can speak to that if they wish, but SC&A has agreed that the criteria have been met.

The Work Group also agrees that the criteria have been met and that the TBD-6000 data set serves as an appropriate surrogate for Joslyn.

Now, what that means in essence is that the period beginning August of -- what year is it?

DR. GLOVER: 1948.

MEMBER ZIEMER: -- '48 and onward that dose can be reconstructed. Now actual

details on the dose reconstruction calculation methodology is presented in two White Papers, which I believe have been distributed to the Board. They're on the website as well. So you have those. That's the methodology. SC&A still wishes to go through details on that methodology to make sure that calculationally there aren't any issues, but everyone has agreed that the dose can be reconstructed.

So in essence we are recommending that the period beginning August '48 and onward not be part of the SEC. So in essence we would -- the recommendation then would be to approve the use of surrogate data for that period and to deny the SEC for that period onward. I'm not sure that's a motion at this point, but it's a recommendation from the Work Group, if I've stated it correctly.

CHAIRMAN MELIUS: I think you have.

First, let's do questions from Board Members, if you have any.

MEMBER CLAWSON: I do.

CHAIRMAN MELIUS: Yes, Brad?

MEMBER CLAWSON: I'm just seeing 6000 used for a lot more sites coming up, and it seems like it's getting broader to me of what we're using this a little bit for.

What is -- I guess getting back to what 6000 was originally designed for, the basis for it was to cover un-monitored workers but basically doing the same job, correct, Paul, or --

MEMBER ZIEMER: Well, in a sense that's correct. What has to be done is to assure that it is representative of -- for example, that's what -- the five criteria in the surrogate data criteria are a means of

assuring that it's appropriate to use the TBD-6000 data as a substitute or surrogate. If those criteria can't be met, then it wouldn't be appropriate. So that's -- the whole intent of TBD-6000 is to do pretty much what you described, though. I mean, if there are plenty of data available, those take -- those are what you use first. We have limited data here and they've used that to at least show that where we have data it fits in with the TBD-6000 data set.

MEMBER CLAWSON: Yes, and the reason why I brought this up is because my original thought was that it was set up for like Bethlehem Steel, the facilities that basically did the same process. And I've just seen it pop up in a couple of other areas that I was just questioning. I'll have to check those five points now. Thanks.

CHAIRMAN MELIUS: Yes, I mean, I would just add that this -- seemed to me this was one of the sites that it was set up for and have use -- and we have the ability to anchor it to some extent with some of the data that's -- the monitoring that is available, but this extends it and essentially provides a more complete and probably more appropriate set of data for covering this entire time period that's involved and the types of work that were done at the site.

MEMBER LEMEN: Hi, this is Dick Lemen.

CHAIRMAN MELIUS: Yes?

MEMBER LEMEN: Can you hear me? I just have two comments. The first comment is I think this is an inappropriate use of 6000. And secondly, I'm still against using surrogate data, so I will vote no against

this. But that's my comments.

CHAIRMAN MELIUS: Okay. Thank you. Any other Board Members with questions?

Okay. I believe we have a petitioner who may be on the line. I don't know whether the petitioner would like to say anything at this point.

MS. KELLER: Yes.

CHAIRMAN MELIUS: So go ahead.

MS. KELLER: This is Kristi Keller for [identifying information redacted]. Can you hear me?

CHAIRMAN MELIUS: Yes. Yes, we can.

MS. KELLER: We the petitioner feel strongly that the SEC should be extended to 1952 to include the entire time Joslyn was an AWE site. To stop at 1948 leaves us out. [Identifying

information redacted] began his employment there on July 12, 1949 and retired from there December 31, 1972. He had colon and bladder cancer, which put him at 44.57 percent. He also had a skin cancer, however, this was not accepted because he was treated for it by a naturopathic doctor, not a medical doctor.

There was no monitoring at the Joslyn Site. While surrogate data from another site may have similarities, each place, condition and employee is unique. With all due respect, use of surrogate data can be likened to a surgeon diagnosing a heart patient with the patient's neighbor's medical test results.

To declare SECs the entire time Joslyn was an AWE site will be fair to all employees of that period and eliminate unknowns and uncertainties.

CHAIRMAN MELIUS: Okay. Thank you. So we have a -- I believe any further questions. If not, I think we have a recommendation from the Work Group. I don't know if that's a formal recommendation. How that --

MEMBER ZIEMER: Well, I believe that it could constitute a motion.

CHAIRMAN MELIUS: Okay.

MEMBER ZIEMER: The recommendation of the Work Group is that we accept NIOSH's position that the TBD-6000 can be used as surrogate data for that time period beginning in August of '48 and onward.

CHAIRMAN MELIUS: Okay.

MEMBER ZIEMER: And therefore that dose can be reconstructed.

CHAIRMAN MELIUS: Okay. So we have a motion.

So any further discussion or deliberation on this issue?

If not, then I'll ask Ted to do the roll call.

MR. KATZ: So, Dr. Anderson?

Are you on the line, Dr. Anderson? Okay. Ms. Beach?

MEMBER BEACH: Yes.

MR. KATZ: Mr. Clawson?

MEMBER CLAWSON: No.

MR. KATZ: Dr. Field?

MEMBER FIELD: Yes.

MR. KATZ: Mr. Griffon is absent. I'll collect his vote.

Dr. Kotelchuck?

MEMBER KOTELCHUCK: Yes.

MR. KATZ: Dr. Lemen?

MEMBER LEMEN: No.

MR. KATZ: Dr. Lockey is absent. I'll collect his vote.

Dr. Melius?

CHAIRMAN MELIUS: Yes.

MR. KATZ: Ms. Munn?

MEMBER MUNN: Yes.

MR. KATZ: Dr. Poston?

MEMBER POSTON: Yes.

MR. KATZ: Dr. Richardson?

MEMBER RICHARDSON: Yes.

MR. KATZ: Dr. Roessler?

MEMBER ROESSLER: Yes.

MR. KATZ: Mr. Schofield?

MEMBER SCHOFIELD: Yes.

MR. KATZ: Ms. Valerio?

MEMBER VALERIO: Yes.

MR. KATZ: And, Dr. Ziemer?

MEMBER ZIEMER: Yes.

MR. KATZ: Okay. So we have some votes to collect, but the motion passes. We have more than a majority.

CHAIRMAN MELIUS: Okay. Thank

you. And thank you, Sam, and your able assistant to help us out there. Do that.

We just happen to have a letter prepared, so I will quickly read the letter into the record.

"The Advisory Board on Radiation Worker Health. The Board has evaluated Special Exposure Cohort Petition 00200 concerning the workers of the Joslyn Manufacturing Supply Company in Fort Wayne, Indiana under the statutory requirements established by the Energy Employees Occupational Illness Compensation Program Act of 2000 incorporated into 42 CFR 83.13.

"The National Institute for Occupational Safety and Health (NIOSH) has recommended that individual dose reconstructions are feasible for all Atomic Weapons Employees who worked for Joslyn Manufacturing Supply Company, the covered

facility in Fort Wayne, Indiana, from August 1st, 1948 through December 31st, 1952. NIOSH found that it has access to adequate exposure monitoring and other information necessary to do individual dose reconstructions with sufficient accuracy for members of this group and therefore a Class covering this group should not be added to the SEC. The Board concurs with this determination.

"Based on these considerations and the discussion at the April 29th, 2014 Board meeting held in Augusta, Georgia, the Board recommends that this Class not be added to the SEC.

"Enclosed is documentation from the Board meetings where this Class of employees was discussed. Documentation includes copies of the petition, the NIOSH review thereof, and related materials. If

any of these materials are unavailable at this time, they will follow shortly."

Okay. So now we have on our agenda a Board work session, and we'll go there. And then starting at 4:15 we will do the Savannah River Site. We will probably have a break in-between.

We have LaVon and John Stiver here ready when we have questions, which we invariably do, about our -- where reports are, where things stand on sites.

But before we get to that, I think we have public comments from the last meeting that we had. And I will briefly go through those. I'll just indicate most of them have to do with the Kansas City Site and most of them were essentially referred for further review as part of our Board review of that SEC, so and the ongoing work there. Do that. We have a couple of other

sites mentioned.

But comment No. 1 is from someone related to the Joslyn Site, and that was one we had voted on to add a -- part of the covered period to the SEC there. So thanking the Board for that.

We then have a whole series of -- well, let me go through -- so, comments 2 through 10 related to the petitioners regarding the Kansas City Site. I think they're all pretty straightforward responded to.

We then had a couple comments here, 11 through 14, that dealt with particular claims. Some of those were -- appeared to be Subtitle E claims not related to this program, but from people related to the Kansas City Site. Do that.

We then have a number of comments again related to working conditions at the

Kansas City Site and to the questionnaires involved in some of the dose reconstruction. But I think all of these relate back really to the bottom of the third page to comment 40, all to the -- really refer to the SEC for follow up. Do that.

Then we have comments numbered 41 to 45 in our report that relate to General Steel Industries. Again these are referred to the NIOSH and to the Work Group for follow up. And then there was one question referring to a Freedom of Information request and why that had not been honored. And I believe they essentially -- the ones that were available were sent -- there were some quality issues with some of the -- the nature of some of the records that -- in terms of legibility and so forth, apparently. But that has been followed up on.

And then we have a final set of comments again related to the Kansas City Plant and again related to the SEC follow-up.

So I think these are all pretty straightforward. I don't know if anybody has any specific comments on them. Obviously had a lot of participation in Kansas City. I believe we will hear the Work Group and NIOSH and SC&A or -- is it next week we're going? Yes. Yes, coming up. So good.

So if not, do we need a motion on these, or they're just -- no? Okay. So these are all set in terms of follow up.

Do you have your Work Group list or do I pull it up on --

Okay. As usual, I will go through these and alphabetical order, and starting with Brookhaven. You have

anything?

MEMBER BEACH: I do not have any report for Brookhaven at this time. We're at the Site Profile issues.

CHAIRMAN MELIUS: Okay. Fernald?

MEMBER CLAWSON: We had a Work Group meeting. Right now NIOSH is looking into the information that was brought up by Lou Doll and we're waiting for them to be able to come back and tell us their findings.

CHAIRMAN MELIUS: Okay. Yes, I think we had talked about this at the Board call last time, but [identifying information redacted] had sent a letter to the Board regarding concerns about some of the later time period and whether or not that should be included in the SEC. So the Work Group is following up. Had a meeting with NIOSH and following up on that. Very good.

Hanford. Sam, do you want to give a brief update on --

DR. GLOVER: So with Hanford we have been of course slowed down by the DOE funding situation. We have two operations that we're looking at there, both PNNL as well as the Hanford 1983 through 1990. There's a number of issues that SC&A has raised. We're looking at -- we're going through each of those, making sure -- because we have substantial new data that we collected as part of this. Making sure what we can answer with existing data and what's going to require on-site. So we're trying to weight those and move forward. But that's where we are right now.

CHAIRMAN MELIUS: Okay.

DR. GLOVER: Just going through those.

CHAIRMAN MELIUS: Great. Arjun,

anything to add or no?

Okay. Good. And I will -- I did receive an inquiry over the weekend from the petitioner and I will pass that on.

Phil, Idaho?

MEMBER SCHOFIELD: We just had a Work Group meeting. We closed out a number of issues, but we have also got a lot of issues that are still outstanding where we are trying to arrange for site interviews with some of the personnel from there. Right now we're looking at the June 23rd, as this -- as soon as we can get it set up.

CHAIRMAN MELIUS: Good. And we -- yes, now that the Work Group meeting -- we're -- progress. And we're hoping that with doing some of the interviews and so forth we'll also generate some more idea on what information would be helpful to hear from at the Board meeting

the end of July in Idaho Falls also, and on that.

Okay. Paul, Lawrence Berkeley.

MEMBER ZIEMER: Well, Lawrence Berkeley was scheduled to meet and then we had to postpone waiting for completion of reviews of some additional documents. So we'll be rescheduling shortly on that.

CHAIRMAN MELIUS: Okay. And let me go back to Idaho. I had a question that I forgot to ask, but I noticed in the DCAS report that the coworker model is -- still have -- has an indefinite date of completion. And I think we had asked at the Work Group meeting if that could be pinned down a bit in terms of trying to -- seems to be a key item that's missing in terms of doing our review.

MR. HINNEFELD: Well, unfortunately I can't -- haven't been able

to identify a date going forward yet.

CHAIRMAN MELIUS: Okay.

MR. HINNEFELD: But it's one of the activities on the list. We are trying to maintain momentum on INL move those items forward. I just don't have a report today.

CHAIRMAN MELIUS: Okay. If you could get -- when you get that, could you communicate to the Work Group anyway, so we can --

MR. HINNEFELD: Yes.

CHAIRMAN MELIUS: I think it's -- and if I don't hear from them, I'll let you know, Stu.

Okay. Good. Kansas City?

MEMBER BEACH: Yes, as you mentioned, Kansas City has a site visit and interviews scheduled for next week, a full week, Monday through Thursday. We have several interviews scheduled and I think 110

boxes of documents to go through. And quite a large group going. So most of the Work Group will be there.

CHAIRMAN MELIUS: Good. You're still on. Mound.

MEMBER BEACH: Oh, okay. Wait, let me finish Kansas City. And we do have a Work Group meeting scheduled in Cincinnati, a face-to-face for June 10th.

CHAIRMAN MELIUS: Okay.

MEMBER BEACH: And then on to Mound. I have no current report for Mound, although I did see that there's I think four or five new revived TBDs and we're going to get on the list with the rest of them to review.

CHAIRMAN MELIUS: Okay. Nevada?

MEMBER CLAWSON: I can't really report anything on it. We've got the updated matrix and we're just getting -- we

just need to -- NIOSH just gave us their response to where the matrix is at. And we just need to set up a Work Group.

CHAIRMAN MELIUS: So you'll be planning on doing that, at least a Work Group call?

MEMBER CLAWSON: Yes.

CHAIRMAN MELIUS: Yes. Again, I think we have additional resources available. And it's a big site and I'm not sure how much is involved in doing the further review, but we ought to think about getting that one moving, a little bit anyway, somewhat.

X-10, Oakridge. Gen?

MEMBER ROESSLER: The information I have on that comes from SC&A's status report on their Work Group activities. And in that report it says that they have found that NIOSH hopes to be ready to amend the ER

at the summer 2014 Board meeting. So I assume that means that they'll be reporting in Idaho Falls. And Tim's here and LaVon's going to --

MR. RUTHERFORD: I'll jump in on a couple of things. One, it's now -- since the actual Petition Evaluation and the Class that was recommended covered the entire petitioning period, what would happen if we did determine there was an infeasibility, we would do an 83.14 to address the infeasibility. However, we are working to continue our evaluation as we committed. And due to some site constraints on getting data -- and we just received a -- or we just found a large caché of air monitoring data, we will not be ready for the July Board meeting. I think we're working for the follow-on Board meeting to that; correct me if I'm wrong, Jim, to actually have that

completely evaluated by then.

MEMBER ROESSLER: But give me the date again. I was --

MR. RUTHERFORD: I don't know what the follow-on -- I can't remember the follow-on Board meeting after July.

CHAIRMAN MELIUS: November.

MR. RUTHERFORD: November. November.

MEMBER ROESSLER: So we're aiming at November?

MR. RUTHERFORD: Yes.

MEMBER ROESSLER: Okay.

CHAIRMAN MELIUS: So a large cache of data? Good excuse.

MR. RUTHERFORD: Of air sampling data. What happened was --

(Laughter.)

MR. RUTHERFORD: No, what happened was -- honestly was kind of --

oh --

MEMBER ROESSLER: I was trying to spell "cache" and --

MR. RUTHERFORD: Sorry.

(Laughter.)

MR. RUTHERFORD: I didn't know what I said. There you go. I was going to explain how we got the data.

CHAIRMAN MELIUS: Tell us. Good story?

MR. RUTHERFORD: Actually, true story, we stumbled upon the data at OSTI.

CHAIRMAN MELIUS: Okay. Very good. Okay.

Pantex?

MEMBER CLAWSON: We got the SEC pushed in last year. We haven't done much with the Site Profile yet. That's another we need to start working on. Go from there. That's about it.

CHAIRMAN MELIUS: Pinellas?

MEMBER SCHOFIELD: Same story. We're still stuck on the issue of the tritium that's -- and some of the swipe data they're still hoping to look at. And there's on interview they still want to do with one of the health physics people.

CHAIRMAN MELIUS: Okay.

MEMBER SCHOFIELD: Otherwise no progress has been made.

CHAIRMAN MELIUS: "They" is NIOSH?

MEMBER SCHOFIELD: Yes, NIOSH.

CHAIRMAN MELIUS: Okay. Portsmouth, Paducah, K-25?

MEMBER SCHOFIELD: Paducah is completed. Portsmouth and K-25 we still have a neutron issue we need to get settled.

CHAIRMAN MELIUS: Okay.

MEMBER SCHOFIELD: Otherwise,

we're just about done with them.

CHAIRMAN MELIUS: Rocky. Mark isn't here, but I think there is activity going on, so --

MR. RUTHERFORD: Yes, we've been working to address roughly five issues. There was an issue with follow-on tritium issues. We have just about completed our follow-on report for that. It's in internal review now. Would expect it to be complete at the end of the month.

We have an issue with neptunium from 1984 through 1988 that we had committed to continue to evaluate. We have a hold up at Los Alamos National Lab getting the data search completed there. Otherwise, we've completed most of our interviews associated with that and our follow-on report. That hold up at LANL is going to push that report out until probably August of this year.

A third issue that we have is the data falsification that was brought up by the petitioner. We've interviewed a number of people over the last few months. SC&A has been involved with that. Mr. Lipsky who was involved in the FBI raid has given us additional names. We've been interviewing those individuals. We've also gotten a number of documents through the individuals. Our complete review of all this information and interviews, our report will not be complete until August as well.

A fourth issue was associated with magnesium thorium alloy. That was the issue of possibly it coming from Dow. And the only -- we've completed everything with that except for looking at the design documents at Sandia National Lab. We do not anticipate getting that data search complete until June due to funding with that site as

well.

And then the final was a health surveillance report by the petitioner who had provided some issues associated with that health surveillance document. We have a draft report and response to that that will be provided at the end of this month as well.

CHAIRMAN MELIUS: Okay. Good. If anybody has questions on these, please.

Sandia? Dr. Lemen?

Dr. Lemen, are you on the line?

MEMBER LEMEN: I'm there. I'm there.

CHAIRMAN MELIUS: Okay.

MEMBER LEMEN: I'm just -- can't get my mute off.

CHAIRMAN MELIUS: That's why I asked again.

MEMBER LEMEN: I don't have

anything new to report. Do you, Sam?

Sam still there?

CHAIRMAN MELIUS: Yes, Sam's here. He's on crutches. You got to give him a couple minutes to get to the --

MEMBER LEMEN: All right. Well --

CHAIRMAN MELIUS: He's here. He's at the mic now.

MEMBER LEMEN: All right.

DR. GLOVER: I apologize for not sending you an update. You're right, Dr. Lemen, we don't really have any changes to report. Just to reiterate, essentially some of the massive progress you saw with the late returns. Basically, we needed to leave the site alone so they could catch up with their work. They could either fund us to come on site or they could catch up on their responses for dose reconstruction. As you

say, they did a nice job. They've caught up. And now we're hoping with some funding that's come with Greg that we can start getting back on site to finish up the '95 to 2011 time frame. And that's the focuses.

There are some thorium operations there that are not described in the TBD. And so we do have some work that we need to do. They have some thorium bioassay, but we need to make sure who was covered in the monitoring. So we do have a number of areas that we're going to target.

CHAIRMAN MELIUS: Okay.

MEMBER LEMEN: And do you have any idea of future a site visit, or is that up in the air?

DR. GLOVER: The funding was just identified as coming up, so we've been in kind of a holding pattern. So it's probably either later summer or early fall, I would

imagine, in order to get everything set up now.

MEMBER LEMEN: Okay.

DR. GLOVER: But I would say that's a couple months out. It's not imminent.

MEMBER LEMEN: Okay. Thank you. That's all I have.

CHAIRMAN MELIUS: Okay. Thanks. Greg, do you have anything to add or -- no? Okay. Good.

Phil, Santa Susana? We actually --

MEMBER SCHOFIELD: OTIB-80 has been put out. It's the coworker data. And right now that's still sitting in DOE, is my understanding. So the general public could not see that at this time.

The other thing is I would like to propose that we have a site visit there

and interview some of the health physics people because of the nature of the winds and stuff in that fishbowl, in that caldera.

CHAIRMAN MELIUS: Jim, you --

DR. NETON: I have a little more information I might be able to add on Santa Susana. We did do issue the external dosimetry coworker model. That was based on a re-coding, or a coding of the hard drive that we actually received from Santa Susana. That was a fairly large effort that was underway for quite some months. And that's complete now.

We have -- what we're looking at right now though is the external coworker model resulted in the possibility of using the neutron track film as a coworker -- as an approach to coworker for neutrons. But we also have -- in the external dosimetry TBD we talk about using neutron/photon

ratios. So we have to figure out which of those two is the most viable option to proceed forward. And that's what SENES ORAU is working on right now. They're trying to figure out whether the NTA film or the N/P ratio is the best approach. And once we nail that down, we should be read to meet and discuss paths forward.

CHAIRMAN MELIUS: Okay. Good. Thanks. David, Science?

MEMBER RICHARDSON: I don't have a lot of progress to report. In July of 2013 NIOSH had -- we had been working the issue of DDREF in a large document that NIOSH had produced. NIOSH had solicited seven reviews and as of July had gotten five of them back. There were two more that were expected very shortly. I believe at least those five, and maybe all seven, were provided to ORAU SENES. SENES had been the

lead organization on drafting the document. And there's been a delay in preparing the response to that.

CHAIRMAN MELIUS: Okay. So the --

DR. NETON: I can update this a little bit. We did receive eventually six of the seven reviews. We never received the last review. They were all passed on to SENES. Unfortunately the lead author of the document passed away not too long ago. He was the one responsible -- responding to the comments. And SENES is working to address the issues as best they can and maybe find someone else to help address the comments. But that was unfortunate, his passing.

CHAIRMAN MELIUS: Yes. What I was about to ask, is there another issue that the Science Work Group should take up?

MEMBER RICHARDSON: Yes, so this

was -- I mean, this has gone on for quite a bit, and first, I'm very sorry to hear that. We had started with -- we had enumerated a list of topics to work on and thought that this would be -- this is one where there was more -- we were further ahead than --

CHAIRMAN MELIUS: Right. Yes.

MEMBER RICHARDSON: -- some of them. So, yes, I think the thing for us to do is to shift gears a bit.

CHAIRMAN MELIUS: Yes. And I think there's -- again, since the budget situation is a little bit better and so forth, that maybe -- I don't want to stretch NIOSH too thin, but I think they ought to be able to start on at least one of the other priority issues. Yes. Good.

SEC, I think we've already talked about. I think we will be planning meetings of the SEC Issues Work Group between now and

the end of July. And I'm actually thinking of an in-person meeting, so if we can fit one in there.

While I've got this opportunity, there is something I actually discovered that -- I won't say it fell between the cracks, but I think it would be worthwhile looking at. It's been sort of deferred. And there's a second document, another document on some of the coworker models at Savannah River. I think it's an ORAU Report, 0055 I believe it is, that covers some other coworker models. And I'd like to -- if it's okay with the other Members of the Work Group that we task SC&A with doing a review on that. We had held off on that a little bit because we were sort of focused on the one person/one sample issue. And SC&A -- this is a Savannah River document. SC&A had not reviewed it pending sort of

outcome of that, but I think it would be helpful at least to look at that in terms of general issues. We don't need a detailed review on the one person/one sample part of it. But I'm afraid we're going to be in a position of holding up both our work, plus some possible resolutions, some of the Savannah River issues, doing that.

MEMBER BEACH: Jim?

CHAIRMAN MELIUS: Yes?

MEMBER BEACH: Just curious, is that a good fit for the new OTIB-84, the uranium coworker model that just came out last year that we were talking about earlier, or does that not fit into this?

CHAIRMAN MELIUS: It fits into the general model. It's a little bit -- at least from looking at it. I mean, I discovered it in Tim's slides on my -- reading them on the airplane on the way

down. And then I had Internet access, so I was reading the report there. And then I emailed back and forth. So I think it compliments some of the other coworker models.

MEMBER BEACH: So 84 does?

CHAIRMAN MELIUS: Yes.

MEMBER BEACH: I just read about it in the Nuclear Metals.

CHAIRMAN MELIUS: Yes. Is that the --

DR. NETON: I hope I'm not mistaken, but SC&A may have reviewed OTIB-55. Have they not? No? Americium/curium?

Maybe I dreamt that then. Sorry.

CHAIRMAN MELIUS: Yes, yes. No, no. It was confusing the way it was -- and I spent a fair amount of time going through your -- the DCAS website trying to figure out this whole -- what had gone on. And

then finally emailed Joe and Arjun about it.

Is that clearer now, Jim?

DR. NETON: Yes.

CHAIRMAN MELIUS: Yes, okay. Because as I said, I was confused on trying to understand that.

Okay. Dave Kotelchuck?

MEMBER KOTELCHUCK: Yes. Okay. Dose Reconstruction. As you remember from earlier meetings, we had to postpone our February meeting because of lack of quorum. And so, what we did to make up for that was to have a special two-day meeting, two-day telephone conference call on April 1st and 2nd. And we finished the very last one of nine that had been -- set nine that's been hanging around. And we're trying very hard to plow our way through sets 10 through 13. We combined the sets and we're focusing first on the larger facilities.

So right now we have completed the Savannah River Site, Rocky Flats, Los Alamos, FMPC, Portsmouth, Paducah. We have one left over from Hanford. We have four left over from Oak Ridge. But still we have a total of, I have to say, as you might have seen on the table that was put out -- in sets 10 through 13 there are a total of 82 that we still have to finish from smaller sites. And we have planned -- I would have liked that we might have had a meeting earlier, but with summer and vacation coming on, we couldn't schedule anything for June. So we have a July 7th conference call.

And we've tried to plow ahead with that. We haven't asked for further work on the blind dose reconstructions, six of which have been completed. And we're going to push very hard to get 10 through 13 done so that we can -- in July and in the

fall so that we can write a report up soon.

CHAIRMAN MELIUS: Okay. Good. Questions for Dave?

Okay. Good. Procedure Reviews? Wanda?

MEMBER MUNN: Yes, the Subcommittee met last -- earlier this month on April 16th. We are continuing to deal with a broad range of findings from a broad range of documents. We're anticipating a brief paper on localized skin exposures in concert with one of the overarching issues that we have on our list.

One of the discussions that we had this last time had to do with a concern that had been raised by our contractor about one of the new distribution options that have been a part of version 5.7 of IREP. A little discussion there.

We are looking at several PERs.

PER-31 and the Y-12 TBD revision algorithm question there that's being worked. And PER-30 we were able to close. That was the Savannah River TBD. We had our last item on that closed out this time, as did PER-14. The construction trade worker PER is now wrapped up.

We're anticipating a very brief report on some wording changes that might occur, or might not occur in IG-001, one of the very early administrative documents.

We are looking at the findings report from OTIB-83. That's a distribution module of insoluble plutonium criteria for ease of selection in determining that.

We have just about completed the last of the PER-20. That's the Blockson findings that we had. Just about done now. I think we have one outstanding.

OTIB-34, internal dosimetry

coworker for X-10, I believe, still is anticipating some findings to be discussed at our next meeting. And we have still on our agenda PER-38. That's the Hooker TBD revision. Those are just about done as well.

One of the large outstanding questions is the Mound OTIB-54, fission and activation product assignment for internal beta and gamma analyses.

MR. KATZ: Wanda, I'm sorry, this is Ted. You're often trailing off as you talk and it's making it very hard to follow.

MEMBER MUNN: Okay. I was speaking to OTIB-54, fission and activation product assignment for internal beta and gamma analyses. There are several technical issues that are at issue here and we're in the process now of arranging a technical conference call next month I think on the

12th to see if can resolve those off line so that we can have something ready for us when we come to our next meeting.

We are looking at OTIB-34 that I think I mentioned before, the internal dosimetry for coworker data for X-10 that has some wording issues as well as the finding itself that we're going to be talking about next time.

If you've looked at SC&A's report, you've seen our sort of wrap-up that tells you that we have now addressed very close to 700; I think the -- that's actually in the 600s, individual findings. We've closed right at 80 percent of those. The 20 percent that we have left is easily identifiable for you in our Board Survey Document.

And also I think you probably will have some information from SC&A a

little later here about their upcoming PERs that we'll be expecting to see very shortly, I think one on Linde, one on Aliquippa Forge, and dosimetry to organ, the new ICD-9.

We're scheduled for our next meeting to be in -- I'm sorry, I'm looking it up. Didn't have it in front of me.

MR. KATZ: Well, Wanda, it's Ted. But we're actually needing to reschedule that, so that's okay. You don't need to look it up.

MEMBER MUNN: Okay. I was going to say that we were due in June, but it looks as though we're going to have to move that to July because of the accessibility of some of our Subcommittee Members.

So that's a pretty broad stroke of where we are right now, where we expect to be.

CHAIRMAN MELIUS: Okay. Thank you. Any questions for Wanda? We do have some SC&A review issues on some procedures we'll get to in a little bit, but --

MEMBER MUNN: Yes, I certainly do hope. I specifically did not mention those simply because it was my understanding that SC&A was going to address those, especially with respect to Work Groups that we hope are being constituted, things of that sort.

CHAIRMAN MELIUS: Okay. Thank you.

Paul, TBD-6000?

MEMBER ZIEMER: TBD-6000 is scheduled to meet again in June. I believe it's June the 6th.

Sixteenth. Okay. Close enough.

(Laughter.)

The focus there will be on Simonds Saw and Steel. We have a number of

findings that we're still dealing with. I believe NIOSH has completed their reports on the last couple of findings. SC&A has them right now and they've promised to have their reviews complete for that June meeting. So I think we'll be at a point where -- there were seven findings on Simonds Saw and Steel and I believe we'll be in position to complete our dealing with those, hopefully.

CHAIRMAN MELIUS: Good. Henry, I don't know if you're on the line for --

MEMBER ANDERSON: Yes, I am. I'm here.

CHAIRMAN MELIUS: Okay.

MEMBER ANDERSON: I have nothing to report. We sort of put on hold -- we have still a few open issues, but they're not critical. They're related not to SECs.

CHAIRMAN MELIUS: Okay. And, Dr. Lemen, Weldon Springs?

Dick, are you --

MEMBER LEMEN: I have nothing to report on Weldon Springs.

CHAIRMAN MELIUS: Okay.

MEMBER LEMEN: Did you hear me?

CHAIRMAN MELIUS: Yes, we did. Okay.

MEMBER BEACH: Jim, I have Worker Outreach, the last one.

CHAIRMAN MELIUS: Yes, I was just getting to it. Go ahead.

MEMBER BEACH: Were you going to do it?

CHAIRMAN MELIUS: No, go ahead.

MEMBER BEACH: Oh, okay. So Worker Outreach. We haven't met since last year, however, we've been working on the LANL report evaluation. NIOSH completed it last -- in January this year and SC&A just completed their final draft and sent it over

to Nancy. The Work Group should have it in their hand. Well, half of the Work Group should have it in a week or two. And then we will go from there. Whether we schedule a face-to-face meeting or a telephone conference call, we'll decide at that point.

CHAIRMAN MELIUS: And what about doing it as a presentation at the Idaho meeting?

MEMBER BEACH: Yes, I guess we did talk about that.

CHAIRMAN MELIUS: Yes.

MEMBER BEACH: Yes, we can do that, certainly.

CHAIRMAN MELIUS: Well, I don't think we talked about it before this, but we

MEMBER BEACH: We actually --

CHAIRMAN MELIUS: -- thought about this.

CHAIRMAN MELIUS: -- briefly

talked about it. So, yes.

CHAIRMAN MELIUS: Yes, yes, we thought about that, but I think that -- because I think we're also at a juncture with Worker Outreach. We've sort of done these bigger reviews.

MEMBER BEACH: Yes, we did talk about -- we did a Rocky review, we've done a LANL review now, and we probably need to correlate the two. What did we learn and where are we going from here?

CHAIRMAN MELIUS: Yes. Yes.

MEMBER BEACH: So, yes, I do think we talked about that and it's probably a good idea.

CHAIRMAN MELIUS: Yes, we did. Yes.

MEMBER BEACH: Okay.

CHAIRMAN MELIUS: Good. Okay. Did I miss any other Work Groups?

Good. We also have some -- well, we have tasking issues to do and we also have some Work Group formation issues to do. There are a number of potential Work Groups that have mainly Site Profile Reviews that have sort of been in limbo as we've sort of dealt with some of the resource issues and enough time available and resources available for doing reviews or responding to reviews.

Like that includes -- like Ames we had talked about at one point of doing a Work Group. More recently I think PPG came up as an issue out of the Procedures Work Group, but one that may be better -- more appropriately handled through forming a new Work Group for that. We have a completed Site Profile Review from SC&A on that. And I think the NIOSH work is sort of static on that, so the timing is good.

And I think actually going through something that was put together in terms of the Procedures Work Group. I think Y-12 we had sort of -- I don't know what happened to the -- I think we had a Work Group a long time ago and it disappeared, whatever.

MEMBER MUNN: Yes, you did have a -- yes.

CHAIRMAN MELIUS: Yes.

MEMBER MUNN: We did.

CHAIRMAN MELIUS: It's so long ago it's not even listed anymore, Wanda. That's --

MEMBER MUNN: Well, we were there.

CHAIRMAN MELIUS: Yes. So that may be.

So what I would do -- and we need to -- I talked to Stu and Ted earlier. We

sort of need to -- I don't want to get too many new Work Groups and then find that we're lagging in terms of ability to handle them in terms of staffing and so forth, but we will assign -- so if people that would -- are interested in being on Work Groups -- if you can -- from the Board, let me know. We'll also reach out to those that aren't on the -- couldn't make it today. Jim Lockey and so forth who may have interest also. And then sometime between now and our Board call, I will at least get some of the Work Groups started, depending on how we see the resource information.

So the list of -- I think the priority should probably be to start with the PPG, Pacific Proving Grounds, and then we'll look at Ames and Y-12 as those. And I somehow have a feeling that there's another Work Group in there that I've forgotten that

we had talked about and then sort of dropped along the way. So I'll look back through my emails and so forth.

So if everyone who's interested -- if you're interested in a particular Work Group, particular site, let me know. Obviously, if you're conflicted on a site, don't express interest in that, and we'll do there.

The other document that goes along with this is one that I mentioned when Wanda was presenting. We have a document from SC&A that Ted's distributed to everybody that has a listing of some -- these are TBDs that have been revised, but haven't been reviewed by SC&A. Many of them are site-specific ones. And then there's a list -- another list of TIB reports and procedures that have also not been reviewed. Again, most of those are site-specific ones.

And I think part of the issue is where is it best to handle those? Where do those need to go? Should those -- some of those are ongoing Work Groups. Some of those are Work Groups that aren't as active right now.

And, John, do you want to say anything to that? I think you put together the list.

MR. STIVER: Yes, this is John Stiver from SC&A. And, yes, I did put together the list just over the last few days.

CHAIRMAN MELIUS: Yes.

MR. STIVER: Before we get into that, there are a couple of things I kind of wanted to touch base on about to sort of follow on, maybe expand a little bit on the Fernald situation.

One thing that we have started looking at is the Site Profile issues that

have kind of been on the back burner for a number of years while we were addressing SEC. And earlier in April Mark Rolfes from DCAS had sent us responses to our issues matrix that we put together back in October. And we had about 33, I believe, outstanding findings that date all the way back to 2006, and then also things that developed and were shifted from SEC to the Site Profile side during all the -- I think there were a total of 16 Work Group discussions.

So we got some responses from DCAS, and actually we were able to close out in our last meeting, the teleconference meeting -- we were able to close out six of those which related to basically air sampling concerns regarding the thorium DWE model, which basically was kind of the basis for the SEC Class last summer. And so those were essentially off the books. So we're

now in a position where we're ready to respond to the Site Profile issues.

And a lot of DCAS' responses were based on the TBD revisions that were produced this year from February up even into April. And there's still one outstanding TBD, the internal dose TBD that we have not provided yet. So once we get those and we've reviewed those, we'll be able to provide our responses and be ready for another Work Group meeting at some point.

The other thing I wanted to say was kind of regarding to the Uranium Refining AWE. We still have -- we submitted our report for Hooker back in March of 2013 and none of those findings have yet been addressed in the Work Group environment. And there are also several Site Profiles, as you I believe had alluded to earlier, NUMAC,

WR Grace, and General Atomics, that would make sense to put in under the AWE Work Group.

And the only other thing was that -- well, actually that kind of segues into the document list. In a sense, I broke this up. This was a three-page document. I believe it was all distributed to everybody

The first two pages relate to TBD revisions. These are also basically going --

MR. KATZ: John, can you talk -- you may need to raise the mic because you're tall --

MR. STIVER: Oh, okay. I'm sorry. Is this better?

MR. KATZ: That's much better. Thank you.

MR. STIVER: Okay. As Dr. Melius said, most of these are related to --

actually, all of them are related to ongoing Site Profile and SEC Work Groups that are in existence.

The first one is Technical Basis Document-30. This is the Exposure Matrix for the Adrian facility and Bridgeport Brass Company and Havens Laboratory. And this is the second revision. We've already looked at Revision 011. And some of you may remember, I believe even under the very first contract there were three kind of mini-Site Profile Reviews that we did for some of these AWE facilities, and Bridgeport was one of them. And we had resolved all of the issues based on Revision 1 that we had. And then Revision 2 came out. And at this point we're really not quite sure what all was done in Revision 2. It may be one of those situations where we just need to do a quick look at it.

I took a look at it last night, and I believe Revision 2 basically addresses changes in the site description category. So I don't know that that really has much of an impact on any technical issues regarding dose reconstruction.

And the author was Mutty Sharfi. And I don't know if maybe DCAS -- somebody from DCAS could share with us what was actually done. We might be able to just strike this one from the record right off the bat. I don't know.

Do you know anything about that?

MR. HINNEFELD: No, this is Stu, and we're not prepared today to say. I don't really know.

MR. STIVER: This is John again. Typically what we do is, when we see something like this, we'll do kind of a quick pre-review, take maybe a day or so,

look it over, decide whether it warrants a full review or not. And I guess that's where this one kind of stays at this point.

Next on the list is Fernald. As I mentioned, there are new TBDs released this year. Brad and Ted have already given us the go ahead to start looking at those and produce our responses to the Site Profile responses from NIOSH.

Next on the list was the gaseous diffusion plants, and there's a new TBD on occupational medical dose that came out March of last year. And this was after the last Work Group meeting. And so this document has not been looked at in the Work Group environment or neither have we had a chance to look at it. So that's another one that we would recommend as a pre-review.

CHAIRMAN MELIUS: I mean, frankly it's hard to see that as much of a priority.

MR. STIVER: Yeah, I mean, it's one of those things. It's medical dose. It's not going to really probably amount to much.

CHAIRMAN MELIUS: Yeah, I mean, again, I think we're in a time of limited -- some care about our resources, so keeping some prioritization is helpful.

MR. STIVER: Sure.

Mound. Josie had mentioned that there are new TBDs for all but external. And these revisions have not been discussed in the TBD, although they were released prior to the last meeting, which I believe was in November of 2013.

Pantex. There were three new TBDs released for Pantex: occupational medical dose, environmental dose and internal dose. These date basically from January to March of this year. And once

again, the last meeting was in of June of 2013, prior to the TBD revisions. And so there's been no chance for the Work Group to discuss it or for us to look at that.

And kind of in line with that, Clarksville-Medina, as you recall, was kind of subsumed under the SEC for Pantex. And we had reviewed Technical Basis-39, Rev 2, for the Clarksville-Medina and had seven outstanding findings on that.

Now, the fact that this new revision came up probably has more to do with -- you know, kind of addressed the SEC issues. And so a lot of those findings may not even be moot at this point. So we would probably like to get a response from NIOSH, or at least we could work offline on that and we could look at it ourselves. So I don't see that being a big problem.

TBD-6000, Appendix C, for Dow

Chemical was released April of this year. Appendix R for Alcoa, Aluminum Company of America, was released in March. Neither of these have currently been placed into TBD-6000 Work Group at this point.

As far as the Uranium Refining AWEs, there's only one new document there for DuPont Deepwater. And I know some of you remember that we had several findings in abeyance waiting on this revision. So this revision is now available. And so we'd be in a position to look at those findings the next Work Group meeting.

Finally, as far as TBDs go, we have Weldon Spring. All sections revised and updated in 2013. And this is a situation where the Work Group has kind of been dormant for a while after the SEC was voted on in Denver in 2012. Nothing really has happened since then, but I guess this

might be an opportunity for the Work Group to take another look at what's going on on the Site Profile side of the house.

Finally, TIBs and Reports and Procedures. There are seven new ones. All but two fall into existing Work Groups. That would be the Santa Susana internal coworker data that we talked about a little bit earlier, the model for that.

Another is OTIB-64. This is something that came up in the April DRSE meeting and was discussed there. And this, the coworker external dosimetry data for Y-12. And this is a situation, once again, where there isn't a Work Group established. Possibly this could be subsumed into PRSC or possibly under the Dose Reconstruction Subcommittee, unless the Board wishes to go ahead and reestablish the Y-12 Group.

Four others relate to Savannah

River and Santa Susana, as I mentioned before. This is OTIB-80 and OTIB-81. OTIB-84 was -- excuse me, that would have been RPRT-62, which is the Response for Dosimeters to Aged Fission Products in Tank Farm Environment at Savannah River. So the Savannah River Site TBDs obviously would be tasked, if they were to be tasked, under that existing Work Group.

And OTIB-84, Nuclear Metals, which was discussed earlier today, we have not obviously had a chance to look at that. And so that's something that is probably an open agenda item for a future date.

And let's see, the only one that really was not site-specific is RPRT-63, which is ICRP 116, External Dose Conversion Factors. And this was produced back in November of 2013. And this is something that would be, at least in SC&A's view, something

that the PRSC might want to take a closer look at as a pre-review where we could just take a quick look and come back with a response.

CHAIRMAN MELIUS: What is that model?

MR. HINNEFELD: ICRP 116 is a publication of new external dose conversion factors as a function of organ.

CHAIRMAN MELIUS: Okay.

MR. HINNEFELD: It expands on the previous list. The previous list is the one that we incorporate into our dose conversion converting badge dose into organ dose.

CHAIRMAN MELIUS: Okay. Is it a significant change, or -- I mean, I --

MR. HINNEFELD: It could, in areas, be very significant. It provides for the first time gender-specific DCFs and it adds previously -- organs that previously

did not have a DCF. And so we would use a nearby substitute.

CHAIRMAN MELIUS: Right.

MR. HINNEFELD: It could conceivably be very significant.

CHAIRMAN MELIUS: So we should look at it?

MR. HINNEFELD: Likely.

CHAIRMAN MELIUS: Yeah. Okay. We won't change it.

MR. STIVER: So really that's the extent of our list at this time.

CHAIRMAN MELIUS: Thank you, John. Yeah, my suggestion, I mean, is that since many of the Board Members are just seeing this report, much of this is really, I think, up to the individual Work Group chairs to sort of look at and see where do these -- I don't know where some of these fit into the issues, for example, at

Savannah River. We're going to be talking about that more later, but seems to me there's lots of issues with Savannah River and I want to keep some prioritization on what we can handle and what's important for that.

Some of these other sites, let's get maybe the Work Groups formed, if they're not formed, or get on their table. But at the same time, I want to keep in mind some of the resources issues also.

MR. STIVER: Oh, absolutely.

CHAIRMAN MELIUS: So let's handle that. And we'll get that out to the Work Group chairs that aren't here. Does that makes sense to everybody on that?

And I think we should go ahead and task the ICRP 116, if I remember right.

Okay. Wanda, is that okay with you?

MEMBER MUNN: Yes, that's okay with me.

DR. NETON: I would just suggest that ICRP 116 was really just a review of the document and how it compares to what we're currently doing. There was no decisions made in that document. It was just a flat-out comparison of the new values versus what we have, what we've been using.

CHAIRMAN MELIUS: So is it used or --

DR. NETON: No, not used at all.

CHAIRMAN MELIUS: Oh, okay.

DR. NETON: It's just a preliminary comparison to see what we might be doing.

CHAIRMAN MELIUS: And so are you going to -- what's your next step? I'm just trying to understand this. I'm sorry.

DR. NETON: Well, we're going to

have to revise documents in accordance with the review. But we're not doing that just yet. There's still some preliminary steps we have to take before we would implement ICRP 116.

CHAIRMAN MELIUS: Oh, okay.

DR. NETON: There are some different distributions that we'll be enacting that currently aren't there, and so there will be some upgrades made to the software that generates the distributions, at least the DCF distributions.

CHAIRMAN MELIUS: So you're recommending we wait on that? You're overruling the head of the program here.

DR. NETON: Well, I'm just --

CHAIRMAN MELIUS: No, I'm kidding. I'm kidding. What's the right timing on this, I don't know, but --

MR. HINNEFELD: Well, Jim's point

is correct in that we've not embarked on changing anything. So nothing in ICRP 116, yet, is changing anything that we're doing. It's a comparison, like they said, a report of what the new report is compared to the old one, the old ICRP list. And so it's sort of to inform us about what are we facing when we go to implement 116, what exactly is the issue that we're facing? So that's kind of what it set the stage for. But we're not doing anything today with ICRP 116 DCFs.

CHAIRMAN MELIUS: Okay. So you would then do that piecemeal or as a whole update?

MR. HINNEFELD: We would hope to do it all at one time.

CHAIRMAN MELIUS: Okay.

MR. HINNEFELD: So that would be a fairly long implementation, or a fairly

complicated implementation.

CHAIRMAN MELIUS: Yes, Jim?

DR. NETON: Well, that's exactly right. I mean, I think if we're going to do it, we would implement what made sense. Preliminary analysis showed that some organs will go down, some will go up. It's not across the board change, so it wouldn't be claimant-favorable to everybody, just maybe a few cases. The most significant change that I can remember now is a prostate gland with a DCF where we've been using a surrogate.

CHAIRMAN MELIUS: Right.

DR. NETON: Prostate doses will likely go way down. But we've not implemented it yet. We will do it one shot. There are some preliminary changes we need to make though to get these distributions put into the software. These distributions

tend to be fairly complex in shape. They're not amenable to some of the more simple distributions we've used, like triangular or even a Weibull distribution.

So, again, there's nothing to be gained other than to say, yes, this is how ICRP 116 compares to ICRP 74, which is what we're using.

CHAIRMAN MELIUS: John, you had a --

MEMBER POSTON: I'm trying to understand the conversation. Were you talking about forming a Work Group for this?

CHAIRMAN MELIUS: No. No, this would be part of the Procedures Work Group. And I guess I to some extent misunderstood what the document was, thinking that it was the implementation, which made sense for the Procedures --

MEMBER POSTON: Well, it's likely

that the error bars on the two sets of calculations are within each other. So the fact that there are additional organs is important to consider.

But in another way of looking at it, it's like changing the horse in the middle of the stream. I mean, are we going to start this operation all over again and spend the next ten years spending federal money to reevaluate all the doses?

CHAIRMAN MELIUS: Yeah. No, the precedent has been, if it's favorable to the claimant, to go back. If it's not favorable, not to go back. Is that a fair statement? And does it get better dose reconstruction? I mean, I think it needs careful review. I don't want to try to --

MEMBER POSTON: Well, I just have trouble when people talk about precise science. We're not doing precise science,

and don't anybody believe that if you hear it. So what I'm saying is the dose conversion factors are calculated values based on a series of assumptions. And I suspect the calculated values -- the error bars on those two sets of data overlap each other so that there's not much need to change. But that's one man's opinion.

CHAIRMAN MELIUS: Yes. Well, but I also think that's a consideration that ought to be taken into account in implementing that. And to the extent that it's decided to implement, the Board would have input in that, but it's not predetermined. And I don't think DCAS has determined what they're going to do yet. And so my sense is that now is not the time to review it. Let's give some time to think about it and so forth. And, again, not to criticize John Stiver for bringing it up. I

think it's --

MEMBER POSTON: I think it's appropriate that we know the result.

CHAIRMAN MELIUS: Yeah.

MEMBER BEACH: Jim, I have a question.

CHAIRMAN MELIUS: Yes, Josie?

MEMBER BEACH: So I understand we need time to look at this list. I guess I'm wondering how will we prioritize these. I know I'm waiting for Site Profile Reviews for Mound, so I would jump in and say let's get those done. But are we going to just put it -- I mean, who's going to decide what's important?

CHAIRMAN MELIUS: What I suggest we do is that before we do these assignments we talk at our next Board call.

MEMBER BEACH: Okay.

CHAIRMAN MELIUS: Given the

amount of potential work involved. I think that's the only way fair of doing it. And we need input from DCAS and everyone involved. Is that satisfactory?

MEMBER MUNN: Yeah, that would certainly be helpful for me to have more feedback from more resources.

CHAIRMAN MELIUS: Yes. Good. Okay. Any other Board business?

(No response.)

CHAIRMAN MELIUS: Okay. Then I think we have an extended break and come back at 4:15.

Yeah, why don't we come back at 4 o'clock, given the number of slides that Tim has. Unless I can get LaVon to do a revision, the five-slide version. Okay. So we'll reconvene at 4 o'clock.

(Whereupon, the above-entitled matter went off the record at 3:06 p.m. and

resumed at 4:04 p.m.)

CHAIRMAN MELIUS: Okay. Welcome, everybody. We're going to get started on the Savannah River portion of our Board meeting today and start off. I believe Tim Taulbee is going to make a presentation on behalf of NIOSH. Tim?

DR. TAULBEE: Thank you, Dr. Melius. Can everybody hear me okay, or should I make some adjustments? Get closer?

CHAIRMAN MELIUS: Yeah, you need to be very close to this mic.

DR. TAULBEE: Okay. Is this better?

CHAIRMAN MELIUS: Yes, that's much better.

DR. TAULBEE: Okay.

MEMBER MUNN: You sound fine on the phone, Tim.

DR. TAULBEE: Okay. Great.

Thank you. I'll try and keep this close to the mic.

Thank you, everybody, for allowing me this opportunity to talk to you and give you a status update on the Savannah River Special Exposure Cohort Petition Evaluation. I want to thank some of my colleagues who have helped put this together for me. This would be Mike Mahathy, the lead from the ORAU Team. Matt Arno, Liz Brackett and Nancy Chalmers have helped us all with some of the data here that I'm going to be presenting to you today.

So a little bit of an overview of what I plan on talking about. There are some key issues that are in front of the Work Group that we are still trying to address and close out. These are thorium from October 1972 to 2007, neptunium from 1972 to 1989, and then construction trades

workers. Particularly what we're looking at is subcontractors monitoring data and how complete those records are. So these are the three key areas that I plan on addressing today.

So to start with the thorium, just to recap a little bit, back in December of 2012 I gave a presentation before the Board on ER Addendum No. 3. And we talked about the thorium and the monitoring data that we were proposing at the time. So I want to recap some of this to you so that when I talk about the status, you'll get a more cohesive-type of understanding.

If you look at the unencapsulated thorium inventory on site, and so this would be the thorium that's not in the basins or encapsulated fuel. This is the particular diagram from 1955 through 2010. And you'll see that by 1972 most of the thorium was

offsite. It went from 120,000 kilograms down to what looks like on this graph down to about zero. Well, it's not zero.

If you look at the particular first tick here, this particular point here would be 5,000 kilograms. And if you blow up that particular portion five times, effectively, or look at one-fifth of it, that's what you get for the inset graph here. This is from zero to 1,000. And you can see that there is some thorium inventory on the site, although it does drop very low in the late 1980s.

And to put this into context, earlier today my colleague Dr. Glover was talking about NMI and he was looking at 25,000 kilograms. So 25,000 would be here, around this first tick right here, across there. And you can see we're looking at one-one hundredth of the thorium inventory

compared to NMI in this modern time period.

So where was the thorium? Predominantly it was in 773-A. And here you can see the actual inventories. And it's looking around 100 kilograms-type of scenario. So, again, we're looking at about one-one hundredth compared to some of the other sites. Other areas where there was thorium work. And you see even lower quantities of four kilograms or five kilograms. And this really isn't much mass of thorium. If you take 100 kilograms, you could fill it in five two-liter bottles and set it on a table. So you're really looking at a very small inventory, physical inventory of this thorium. The bulk of it, as you see here from this particular graph, is encapsulated out in the basin. So that's where the 6,000 kilograms-type of materials are.

So what did Savannah River do with this thorium? What were they using it for? It was used as a surrogate in multiple research efforts. Thorium is a very good stand-in for plutonium, and so this is what they were using it for. It was safer. It had lower specific activity. They didn't have to effectively massively contaminate glove boxes. They could do the work with the thorium. Then they could clean it up and do other testing. They used it for plutonium heat sources. They used it for waste vitrification studies.

1977 to 1980 there was the Alternate Fuel Cycle Technology Program and the Thorium Fuel Cycle Technology Program. This past August, SC&A and NIOSH conducted some interviews of workers who participated in these programs. And one of the things from the workers, they talked about using

small quantities, where they would check it out from a central inventory source lab there in 773-A, go to their labs and use gram quantities or tens of grams-type of quantities. So these were all very small research-oriented activities that were being done. And so this is the work that was going on. So it's small, research scale-type of activities that were going on with this relatively small quantity of thorium.

So what do we have for monitoring data? Well, there's no specific thorium bioassay that we could find identified in people's records. But what we do have is what's called an alternate, or what I'm calling an alternate bioassay methodology.

A large number of workers in 773-A were monitored for americium, curium and californium. This is one of the main activities that was going on in that

particular lab. A review of the methodology indicated that the thorium would come through in this analysis. So a worker would leave a urine sample and the plutonium, the uranium and the neptunium would be stripped out and you were left with americium, curium and californium. So what effectively we had was a gross alpha urinalysis for these particular three radionuclides.

Well, the thorium would come through as well, as well as einsteinium and berkelium. The site didn't consider the thorium to be a major hazard because the exposures were very low when they were looking at background-type of levels. So they never made an effort to extract it. So effectively what we have is a gross alpha urinalysis method for thorium amongst these workers.

Well, who was monitored using

this particular methodology? And from here we look at the bioassay control procedures. Who was supposed to be monitored by americium, curium and californium? And for that, I'd look at this particular column here. It's very difficult to read, I apologize. But if you go down this particular column, the first people that you see is 221-F. These are people in the sample aisles, pulling samples as these targets were being dissolved. And from 772-F, which was the analytical laboratory for the site.

Going farther down on this particular column, you'll see another number two here -- two samples per year, by the way -- for 773-A. And the people here in this particular group, this would be Category V, were analytical chemistry, high-level caves, building services, radiation control and

maintenance personnel in 773-A. These are the people that would be exposed to thorium doing this low-level research that I was discussing. They work in the analytical chemistry division. Some of them worked in the high-level caves working on the Elk River fuel. And so these people were actually monitored with this other alternate bioassay method.

The next group down there is the selected clerical and supervisory personnel. And you'll see they're monitored once per year instead of twice per year. So the monitoring frequency is based upon the potential magnitude of the exposure, which is indicative of a reasonable radiation control program.

There's another group here that I've highlighted that wasn't monitored, and this would be the reactor engineering group.

The reason that they wouldn't have been monitored, the reactors at Savannah River, in order to do the fuel core loadings, there was a lot of neutronics calculations that had to be done. These workers weren't people that worked with thorium directly. They weren't doing any of the dissolving studies. That was analytical chemistry. So you wouldn't expect these particular workers to be exposed, and so they weren't monitored as well.

One other thing I wanted to point out here is this is routine monitoring, and you'll notice here it says excluding construction division. Okay? So this is the routine monitoring people.

MR. KATZ: Excuse me. There's someone on the phone who hasn't muted their phone, or maybe you just don't realize that. Everyone on the phone should mute their

phone at this point. And if you don't have a mute button, press * and then six to mute your phone, and that way you won't be interrupting the meeting. Thank you.

DR. TAULBEE: Thanks, Ted. And so now how were construction division employees then monitored? When you look at this same procedure, you'll see the routine urine samples for mixed fission products, one sample per year, or when terminating. Tritium was done based upon the area that you were working in, if you were working in the tritium facilities or the reactors. Plutonium, one sample every three years and when terminating. And other radionuclides as specified by area health physics in construction job plans. So there wasn't any routine monitoring for americium/curium/californium for construction trades workers.

(Technical difficulties.)

(Whereupon, the above-entitled matter went off the record at 4:13 p.m. and resumed at 4:17 p.m.)

MR. KATZ: Okay. It looks like we're back to the presentation now. So if everybody can mute their phones, that would be great. Thank you.

DR. TAULBEE: Okay. How far do you want me to repeat, or just continue on?

CHAIRMAN MELIUS: Just continue.

DR. TAULBEE: Okay. All right. Well, if we look at how construction trades workers were monitored for these other radionuclides, it was specified in the Area Health Physics Construction Job Plan. So there wasn't any routine monitoring of construction trades workers for this particular exotic radionuclide of americium, curium, californium or thorium. It would be

specified in their job plans.

So what we proposed for dose reconstruction from the 1972 to 1989 time period was to use this americium-curium-californium-thorium bioassay result to reconstruct the thorium doses. And the methodology we have proposed to do this is, for a particular cancer, NIOSH will use which of the four radionuclides that results in the highest dose to that organ of interest. Since we can't distinguish this gross alpha analysis between the four radionuclides, we would pick the one that gave the highest dose.

So one of the things we wanted to do was compare construction trades workers and non-construction trades workers. And so we did this comparison, this bioassay comparison. And so first we took all of the urine bioassay samples and we stratified

them amongst construction trades and non-construction trades. And a third group fell out, and this was called the unknowns, effectively. So these were people that we couldn't place into one group or the other.

And so here's a table of the urine bioassay that we have for this exotic radionuclide, americium-curium-californium-thorium. And I'll focus on one particular year just to give an example here. And if you look at the 1978 -- and I'll start over for construction trades workers -- there are 66 bioassay samples for construction trades worker to this americium, curium, californium and thorium distributed amongst 49 particular workers. The one person-one statistic grouping would be an individual worker associated with this particular bioassay.

Non-construction trades workers,

there's 232 distributed amongst 171 workers. And you can see the difference between the non-constructions and the non-construction trades plus unknowns is eight. And so in this particular case, for this year, there were unknowns that we couldn't identify as one or the other.

This is the two coworker models that we came out with, one using just construction trades workers, one using non-construction trades workers, and actually all monitored workers as well. And the all monitored workers and non-construction trades tended to overlap. You'll see construction trades workers here are slightly higher.

One of the things I want to point out here is the dotted lines surrounding this particular bioassay, this coworker model. These lines up in here, this is the

uncertainty that we have associated with this coworker model. And so this would be the 95th percentile. And what you can see is that there's very large uncertainty associated with this coworker model.

And this is what Dr. Neton was talking about earlier today. If you use the 95th percentile here, where his thoughts are, that you are encompassing the unmonitored workers who this would be applied to.

The other take-home point that I want everybody to at least notice is back in the 1960s, if you look at the data, it's much higher. In fact, about an order of magnitude compared to when you get into the '70s and '80s as far as the exposures that were experienced by this workforce.

So in looking at construction trades workers and the monitoring in this

time period of '72 to '89, we have 1,600 bioassay samples that we've identified as construction trades workers for this particular radionuclide set. For non-construction trades workers, there's 7,573. There's 422 that we haven't been able to place in one group or the other.

If you recall, construction trades workers were not routinely monitored. They were monitored based upon their job plans. And so one of the things that we found about this is that the construction job plans were apparently indicating some monitoring for americium-curium-californium depending upon their work. Otherwise, we wouldn't have 1,600 samples for this particular workforce. And this is distributed amongst almost 900 construction trades workers. So that's the 1972 to 1989 time period.

Next I want to focus on the 1990 to 2007 time period. And originally what we proposed in December of 2012 was to use the whole body counts to bound the thorium exposures. And although bounding, the assignment of the whole body count missed dose would result in some significant doses higher than what this coworker model actually was predicting for the earlier time period, which don't really seem possible given the radiological controls that were in place at the time, nor the work being conducted.

This falls back on those interviews that we conducted with the researchers who were conducting some of these small-level research.

And just given the quantities, the low-source inventory that they were working with and the controls that they were

using, of using a fume hood and using small samples, it just didn't seem like these 80-rem-type of doses were really feasible or plausible.

And so what we've changed to is a proposal to use the air sample concentration of 2e to the minus 13th as a maximum potential exposure. And this is based upon ten percent of the plutonium DAC. This is what the alpha activity in the air was controlled to in 773-A.

So kind of a summary of the thorium here that I want to go through. Remember, it's a very low unencapsulated inventory. We're looking at one-one hundredth, one-one thousandth-type of levels compared to what we heard Sam talk about earlier at NMI. Minimal use in certain defined locations. Mostly 773-A.

Knowledge of the process. This

morning you heard where we were recommending an SEC where we weren't sure how the thorium was being used. Here we know. We've interviewed workers that were working with it. We know it was used as a surrogate in different time periods.

And in addition, we have this alternate bioassay method from 1972 to 1989, which is effectively a gross alpha, that includes thorium. The doses are reasonable.

1990 to 2007 we have a Compliant Radiological Control Program. The air is controlled to less than 2e to the minus 13. Radiological controls in place at the time were procedures, routine monitoring, daily, weekly, of the workplace, survey data. Air monitoring data is available in electronic format.

So currently what we're addressing with the Work Group and with SC&A

is this use of the ten percent derived air concentration. I will report back to the Work Group on this outlining our entire methodology from this modern time period. I went through it in a presentation-style back in February with the Work Group, but we're going to formalize that and put it into a report.

Next we're also comparing the bioassay of workers known to have worked with thorium. We're going to take their americium-curium-californium, calculate their dose and compare that to the coworker model as if they weren't monitored.

SC&A identified some high variability amongst some of the positive results of the americium-curium-californium. And this is another area that we're following up on. And of, for example, 26 particular workers, 21 of them actually had

DTPA associated with it. So this explains the high variability that we were seeing. And that's a chelation agent designed to get it out of the body faster. So the other five we are following up on, and we'll be issuing a report on this.

And the final thing that we're working on is developing a thoron exposure model. We are going to be using the exhaust from Tank 15, which is one of the waste tanks containing thorium, as a bounding scenario. Savannah River Site actually has a lot of air sample data which has 6-hour and 24-hour count data. And so we could use that to actually show what the thoron concentrations are in the buildings and then compare that to that particular tank. So that's our update for thorium.

Next I want to shift gears here and go to neptunium exposures at the

Savannah River Site. The overall goal of neptunium at SRS was different than most of the other sites. The goal was produce plutonium-238 for use in heat sources for space projects: Galileo, Cassini, et cetera.

Production actually started in 1961 and ran through July of 1984. And the main processes were manufacturing neptunium-aluminum targets, irradiating these targets in the reactors and then the chemical separation of the plutonium-238 from the neptunium.

The photograph shown here in this particular slide is a female glove box worker working with neptunium on the neptunium billet line in 1978.

So to go through the basic flow of neptunium here on the Savannah River Site, if you start within that neptunium nitrate in the 221-H canyon frames -- and

the reason that I'm starting there is time period evaluation is 1972. This has been going on for ten years prior to the time period that we're actually showing here.

The neptunium nitrate from the frames is sent to the HB line where it's converted to neptunium oxide. The neptunium oxide is then loaded or sent to 235-F where it's loaded into aluminum billets. The aluminum billets are then sent to 321-M where the billets are extruded into target tubes. The target tubes are sent to each of the reactors for irradiation. After they're irradiated, the tubes are cooled and then sent back to the canyons where they're dissolved in the frames and the whole cycle starts again.

So this is the whole loop that's going on with neptunium at the Savannah River Site.

One thing that I want to focus

here on, if you look at the main areas of potential exposure, you're looking at the HB line during the conversion of neptunium nitrate to neptunium oxide. The loading of neptunium oxide is a powder into the aluminum billets. This is the two main areas where neptunium is unencapsulated. Technically, leaving 235-F, all of the neptunium was encapsulated when it came over here to 232-M.

During the extrusion process it occasionally became unencapsulated. Things didn't go quite right, or during one of the tests something failed, and the neptunium would then be sent back. So the two main areas of potential exposure are the HB line, 235-F. There is some potential for exposure here in 321-M. By the time it left 321-M, it went to the reactors. It was encapsulated.

So let me focus on the HB line with the conversion of neptunium nitrate to neptunium oxide. The SRS Work Group actually toured this particular facility in 2010. There are two sources this neptunium nitrate coming in from the site. I discussed the frames one earlier. That makes up 75 percent roughly.

(Technical difficulties.)

(Whereupon, the above-entitled matter went off the record at 4:29 p.m. and resumed at 4:32 p.m.)

MR. KATZ: Hello, can you hear us here at the conference?

MEMBER MUNN: Yes, we can hear you.

MR. KATZ: Okay. We're back in business again. Thank you.

MEMBER MUNN: Yes, thank you for bringing us back. Are we still on Live

Meeting?

MR. KATZ: Yes, we're still online. If we can all mute our phones so we can get going, that would be great.

MEMBER MUNN: All right. Thank you.

MR. KATZ: Thank you.

DR. TAULBEE: Okay. So picking up where I was, about 23 percent of the neptunium coming into the processing stream came from the HM process and about 74 percent came from the frames. And that was the dissolving of the Mark-53 neptunium targets.

So, as I mentioned, the neptunium oxide was sent to 235-F. And so this is a diagram, a crude diagram of the first floor of 235-F. And the room that I want to focus here on is legend number five here. This is the neptunium billet line. There's actually

two sides to this line. The lower side here is the actual operations or production side. The back side is what's called the maintenance side. About 85 to 90 percent of the work is on this side of the line and about 10 to 15 percent on the back side of the line.

This other area over here is what's the Plutonium Fuel Fabrication Facility, or PuFF. And then down here is PEF, the Plutonium Experimental Facility. Over here at Number 14 is the men's change room. And Number 18 here is the women's change room. So this is all the hot side of the building and in order to get there you had to go through the change rooms in order to dress out into those facilities.

This is the actual neptunium billet glove box line. These are workers. 1980 is when this photo was taken. And you

can see that there's six workers there, or four workers actually. And two of them look like supervisors that are just not hands in the gloves, they're more watching the work that's going on. And so this is on the production side.

This is the maintenance side. This is the back side of that particular glove box line. And what you'll notice here from this 1976 photo is these are the aluminum billets that are sitting here on the floor. Many of you might think of billets, thinking of Fernald, where you've got big large heavy uranium or thorium-type of billets. These are aluminum, aluminum and neptunium combined. So they're actually fairly light. You can actually pick them up type of scenario.

So some of the observations of this 235 glove box line is it's relatively

small. We're looking at tens of workers, not hundreds. This is that particular line. You couldn't fit 100 people into that particular room. It's a regulated radiation area. Supervisors are wearing lab coats and shoe covers. Operators are wearing regulated clothing and they all had on neutron dosimeters.

One of the things I showed the Work Group was their shadow shields, because of high gamma dose rates associated with this glove box. The billets are bagged. You saw them sitting there on the floor to go out to 321-M or to go to storage, for eventually going to 321-M.

There is routine air monitoring. This top line here is the production side and it's Room 107-A. And so there's daily monitoring. There's two other areas in there that were monitored on a weekly basis.

The back side is the maintenance line. This is 107-D. Again, daily air sampling data.

I mentioned these billets are hot as far as radioactivity. If you look at some of these dose rates, at three inches you're looking at 700 millirem per hour photons and 10 millirem per hour neutrons. So these things are actually rather radioactive. They fixed alpha contamination and they were surveying to make sure there was less than 3,000 dpm from a fixed alpha contamination standpoint.

You also notice that this is August of 1980, so over this time period you're looking at the production of around seven to ten billets-type of time frame. Sometimes you'll see production of these billets up to 15 per month-type of scenario.

So the billets coming out of 235-F are bagged. They're sent to 321-M. At

321-M, they're received. The billets are surveyed, they're helium leak checked, they're outgassed, they're preheated and then they're extruded into the long thin tubes. And then the tubes are surveyed before going to the reactors.

How do we know these billets are surveyed? Here's an example of the radiation survey log sheets associated with the neptunium billets. Four neptunium billets from 235-F, 700 millirem per hour at three inches, 8 millirem per hour at three inches, corresponding to those previous measurements I showed you. By the way, this is 1972. Those other ones are 1980.

These are the dose rates at 18 inches. Less than ten dpm alpha and less than ten counts per minute beta-gamma smearable on the billets. So it's fixed alpha contamination, but you've also got

where they're checking for the loose contamination.

Number 3 billet was surveyed on the end, 1,500 dpm alpha, less than 10 dpm alpha smearable. So these are contained coming out of 235-F.

This is the actual extrusion press in 321-M. This particular picture is showing uranium work at the time, which was its dominant use, but there were times when they extruded neptunium billets and plutonium billets.

This is a billet being forced into the extrusion die and then coming out the other end. You have this long thin tube where the neptunium is encased within that tube. It's being sandwiched between aluminum.

The tubes are then surveyed again. This particular example is 12

neptunium tubes shipped to 105-P reactor, less than ten dpm alpha, less than ten counts per minute beta-gamma on the exterior surfaces.

So if everything went right in the particular process of the extrusion, there was no alpha loose activity such that workers could be exposed to. If things went wrong, they saw alpha activity and they would send it back to the particular place. Typically, the tubes were sent back to the canyons to be dissolved, whereas the billets, if they failed a leak check, they would be sent back to 235-F.

So the personal monitoring dosimeters are required to be worn in the regulated areas. These high dose rates, people were wearing these dosimeters around there. In fact, many of the incident reports that we typically read are involving

internal contamination where something went wrong. There's incident reports of overexposure from external, of people being around too many of these billets at a time and exceeding a monthly type of a limit.

Interviews with workers indicated that there was a workforce swap-out where people would be coming up on their annual limit as far as external radiation and they were taken out of the area and sent to a colder area and other workers brought in to finish out the production lines.

This has been confirmed also within NOCTS. If you look people's claimant files, you'll see that they indicated that in their CATIs, interviews of being limited in the workplace. This is one of the examples, one of the places this happened where they were then taken out of the work area.

The bioassay associated with this -- and this is something that's unique and different in that the neptunium analysis, '71 to '76 time frame, neptunium analysis are performed on samples from personnel designated by area health physics when plutonium analysis are positive.

So 1961 to 1970 time frame, we have a lot of neptunium bioassay. 1970 through 1989, we actually don't have a lot of neptunium bioassay. We have some. And then it picks up again in the post-1990 time period. And the reason was is they were triggering off of the plutonium contamination associated with the neptunium, not neptunium directly. This changed for one Work Group, in 1978, where neptunium urinalysis was reinstated for the people in 235-F.

So why were they triggering off

of the plutonium? Why weren't they just doing the neptunium analysis? Well, to give an example here, this is plutonium contamination and neptunium oxide. And this is weight percent. And so let me just pick March 1974 here of 0.18 weight percent of plutonium in this particular batch of neptunium oxide going to 235-F. So the neptunium is 99.82 percent pure. It's 0.18 percent plutonium contaminated. Why is the plutonium contamination important? Due to specific activity.

Plutonium-238 has a specific activity of 17.1 curies per gram. Neptunium's specific activity is 0.00069 curies per gram. So that means at 99.9 percent pure neptunium you have a 25-to-1 ratio of plutonium alphas to neptunium alphas. So if you have a sample, a smear sample or a glove box sample that's 26 dpm,

25 of them are plutonium-238, one is neptunium. So from a bioassay standpoint, this was actually a more sensitive method to find an intake of neptunium.

Plutonium was the main hazard here, and that's what they were controlling and monitoring based upon. That requires ultrapure neptunium to dominate the exposure. You're looking at, to get a 1-to-1 ratio, 99.995 percent pure neptunium in order to get to this 1-to-1 alpha ratio.

So who was being monitored for the plutonium? Well, in this particular case, 221 HB line, JB line, FB line and 235-F. So the people who were working with the neptunium in 1971 -- that's this Rev 5 of this procedure -- were being monitored for plutonium.

And the interesting part is down here at the bottom of this particular

procedure. And it reads, "Neptunium analysis is performed when requested by area health physics. Neptunium has never been detected without at least an equal amount of plutonium." They had ten years of operating experience to come and draw this particular conclusion. And so this is why they had their monitoring method for neptunium in this manner.

So, the bioassay control. Again, the monitoring is prescribed by work area. The monitoring frequency is based upon the potential magnitude of the exposure. Post-1978, the neptunium urine bioassay was re-instituted for the highest exposure area, that 235-F area.

So the neptunium monitoring data that we have in this time period, we have 333 neptunium urine bioassay results. The area frequency is clearly based upon the

exposure potential in this time period. And you can see that we have 178 of these coming from 235-F. Next is the HB line, then the 321-M. 773 and 772 are actually mostly dominated by '88 and '89 time periods.

This is what the box plot of all of the neptunium bioassay results from 1961 through 2007 looks like. So each of these boxes is the inner 50th percentile of the data that we have, and the error bars go out to encompass the 95th percentile of the data.

What we have here in this red line is our coworker model. This is how we've modeled the neptunium exposures over time. You'll see in 1970 it jumps up, and the reason is we changed from using urine bioassay to using whole body count information. And so it has a higher detection limit. And so therefore the

coworker model estimates that we assign jump up in this particular case.

Next slide. I skipped a slide here. I apologize. This slide.

When it comes to neptunium dose reconstruction, there's at least four methods that I can come up with of how we could estimate these doses.

One, we could use the 333 samples. This is the limited bioassay.

Number two, we could use the neptunium-plutonium ratio. Use the plutonium bioassay and ratio off of that contamination that I showed you earlier in order to get a more accurate number. Because the plutonium usually results in two to ten times greater alpha activity. If I was doing an epi study, this is how I would do it. I would use the plutonium bioassay methodology.

Another way would be to interpolate between the urine bioassay points of 1969 and 1990.

And then, finally, to use whole body count data, which is what we proposed to use because it's claimant-favorable.

All right. This is what I wanted to show you there. That line that I drew right there would be an interpolation between the two end data points. And you can see that the data that we do have isn't inconsistent with doing an interpolation here.

So why do we choose to use the whole body count? Well, at the time we were doing the coworker model we didn't have complete information on the plutonium to neptunium ratio. Back in November to December of last year, we captured this information. Unfortunately, due to

receiving data or getting the data, we didn't get it until last month, but that is something that we do now have in-house.

We also confirmed that the workers in the neptunium areas were required to have whole body counts. Shift workers were required to have two whole body counts per year. Day employees, supervisors, et cetera, one per year. And in addition, the neptunium doses calculated using the whole body count are claimant-favorable upper bounds, but they're not unreasonably high to be insufficiently accurate.

And the reason that I saw that is, if you look at the 50-year equivalent doses here, you'll see that dose to the urinary bladder is about 352 millirem. Dose to the liver is about four rem. Dose to the bone surface is 268. That's the high one. But if you divide that up over 50 years,

you're looking at about 5 rem per year. I recognize that early years are heavily weighted. And so you might be looking at 10 or 15 rem in those first years-type of scenario. So these doses are not extreme when you compare some of the plutonium missed doses that we routinely assign under this program.

So some of the things we're currently looking at to follow up with questions the Work Group has posed to SC&A and the Work Group is comparing workers with neptunium urinalysis and whole body counts to the coworker model. Also calculating the neptunium dose using the plutonium contamination data and comparing that to the coworker model.

And then, finally, researching the potential for construction trades worker exposures during new construction of the

Plutonium Fuel Fabrication Facility. The diagram that I showed earlier shows the PuFF facility completed. It actually wasn't completed until 1978. From 1973 to 1978, there was new construction going on within that same building where the neptunium billets were being made.

Now, photographs that we have looked at so far seem to indicate that it was a clean area at that time. We know it had never been used before, but there is some concern as to whether the contamination would travel from one end of the building to the other. The ventilation systems appear to have been isolated. But we want to pull this thread and follow this up and make sure that construction trades workers in that part of the building during that construction were actually in a cold area and not had a potential for this exposure.

A little bit of data here on the first bullet that I said we were working on. We've got 34 workers we've identified in NOCTS that have neptunium urinalysis and whole body count data. And so we went through and calculated what their dose would be based upon just their urinalysis, just whole body count, and then assigning, based upon their time period, what their coworker dose would be.

And for Worker A, you're looking at lung cancer. He has 24 neptunium urinalyses, 9 whole body counts. We'd be assigning 374 millirem if you just used his urinalysis data, three rem for using the whole body counts, and then seven rem based on the coworker model. So this is why we feel that the whole body count data is bounding for development of the coworker model.

So let me wrap up here with the subcontractor records review. When we conducted interviews with SC&A, one of the comments that came out was that in earlier years subcontractors were treated differently from a radiological records standpoint than other employees, in particular construction workers. If you were DuPont construction, then you had an individual personnel file. If you were a subcontractor employee, they would keep all your records into one file.

A follow-up interview indicated that the individual who noted this to us felt that all those records had been transferred over and either individual personnel files have been made or they've been put into electronic format. And so he didn't feel like this was a major issue from that standpoint. What we realized is

we've never checked this. We haven't verified as to whether these records actually made it into individual personnel files or not. And so this is something that we're following up on right now, is to go out and identify some of these subcontractor workers.

It's proving a little more difficult because when you pull up a construction trades worker, then you have to try and figure out whether they were a DuPont construction trades worker or a subcontractor construction trades worker, because we see both of them. And we have a lot of monitoring data for construction trades workers. Were they all just DuPont construction? We don't know that answer yet. And so this is something we're going to follow up on.

And with that, I'll be happy to

answer any questions. Thank you.

CHAIRMAN MELIUS: Okay. Board Members with questions?

(No response.)

CHAIRMAN MELIUS: All quiet.

MEMBER RICHARDSON: I have a couple of questions.

CHAIRMAN MELIUS: Yes, you go ahead, David. Yes.

MEMBER RICHARDSON: You've described a lot about, starting with the thorium, with the process and the location, sometimes in terms of buildings and rooms in which the activities took place.

(Technical difficulties.)

(Whereupon, the above-entitled matter went off the record at 4:50 p.m. and resumed at 4:52 p.m.)

DR. TAULBEE: Okay. Can everybody hear us again?

MEMBER MUNN: We're back. Thank you. Someone's doing that with their mute button, I think. I just don't know who's so connected that they could do that.

MEMBER RICHARDSON: So I had a couple of questions about the thorium issue. And the first of them, I was a little bit confused about, on the one hand, it's really useful and detailed information about characterizing the potential number of workers that are involved and their activity. But are you proposing, are you suggesting that for estimating or bounding thorium doses this can be done for this small number of workers? Or how is the information that you've described about the building and room related to the difficulty that we know we have of placing workers into those locations?

DR. TAULBEE: Okay. With regards

to the thorium at Savannah River in this time period, there's two indicators as far as us being able to monitor or develop their thorium dose. One would be their badge identifying them in 773-A. The other is the bioassay actually indicates which area this came from. We're particularly looking at the americium-curium-californium bioassay results. And so from that standpoint, that's a secondary identifier of people working in those divisions of analytical chemistry, or the high-level caves, or the building services, or rad control, or the maintenance personnel in 773-A.

MEMBER RICHARDSON: So we've had the discussion before, though, about hinging kind of dose reconstruction using the information about location that comes from, when available, dosimetry information about location, and it's typically administrative

location where they're issued or picked up their badge, and actually placing a person into a room for a period of time.

But the idea here is not that this becomes the basis for estimating thorium doses for everybody, but it's trying to identify those people based on the fact that they were badged and/or bioassay-monitored placing them into that building.

DR. TAULBEE: That's correct. That's how we developed the coworker model. Now, if we have other indication that somebody worked in the building and didn't leave a sample from that standpoint, then we would use this coworker model. And as Dr. Neton was mentioning earlier today, we're looking or investigating using that 95th percentile. And so if you look at that coworker model that we developed here -- and I'll see if I can't get there quickly --

what we would be assigning then would be along that particular blue line. And you can see all these other monitored workers in this time period are all significantly below that type of a level of exposure.

MEMBER RICHARDSON: So can I ask you, since you've got this figure up -- and this relates to another one of my questions -- something that caused me to pause, I guess, was the blue line appears to have the same width as we move from 1972 to 1987, if my eyes are relatively good.

DR. TAULBEE: Yes.

MEMBER RICHARDSON: And yet the information over that period goes from 379 measurements, if I'm understanding the table previously, in 1987, to nearly 2,000 measurements in the early '70s.

DR. TAULBEE: Yes.

MEMBER RICHARDSON: So, again, my

naïve statistical intuition would tell me that the confidence interval around the points in 1987 should be many times larger than the confidence interval around -- I'm sorry, from the late '80s should be much wider than around the 1970s because there's much more information there.

DR. TAULBEE: This has to do with how we calculate an intake based upon bioassay. So you plug in the bioassay data into IMBA and basically what you're doing is trying to come up with an intake, a chronic intake, that best fits the data. Okay. That's what's being displayed here. It's not that each of these individual data points has an error bar associated with it. It's on the intake model itself that we calculated from the bioassay data.

So it's a regression that is done, and Jim can go into way more detail

than I can, about how we take the bioassay, the urine bioassay and figure out an intake of a chronic intake model over this time period.

MEMBER RICHARDSON: What's on the Y-axis there? Isn't it excretion, dpm per day?

DR. TAULBEE: Yes, based upon this model, based upon this intake model that we've developed, this chronic intake model, the urinary excretion would follow those particular lines there in the center, but the 95th percentile of that intake model would be those dotted lines.

DR. NETON: This is Jim. Part of what you might be seeing here is the way that we default to a minimum of GSD of three on all coworker models, as far as the bands on the excretion values. That's because we believe that that's the minimum uncertainty

that could exist because of the uncertainties in the metabolic models themselves. So you'll never see uncertainty less than a GSD of three on any of our models. Even if it comes out to be 1.5, we're going to automatically increase it to three.

MEMBER RICHARDSON: Yeah, sometimes people make confidence intervals that are point-wise, and sometimes they make them on a smoothed line. And my take was that this was the confidence interval off of kind a smooth regression line where calendar time the explanatory variable, and that the point-wise confidence intervals would be much wider as you're going out in time because there's much less data there. I guess I'm not following the other parts, the other explanations.

CHAIRMAN MELIUS: Yes, I have the

same question, so it's confusing.

MEMBER RICHARDSON: I mean, at some point that does become relevant, because it becomes relevant what 95 percent confidence limit are you going to take? And if it's when there isn't very much data there, then you sort of would like to reflect that more than just leveraging the fact that there was information in the '70s.

DR. TAULBEE: I mean, effectively what we're doing is using all of this bioassay here and coming up with a single intake for this time period and then plugging that in from a chronic exposure model, on a per-year basis, what would the urinary excretion then look like? Okay? That's what this particular line is. And as Jim was talking about, we assign a GSD of three associated with that, and that's what's giving you this uncertainty here.

DR. NETON: I think we're really getting into the technical weeds on this, and we might be better served to present this to the Board maybe at a future meeting as to how this occurs.

CHAIRMAN MELIUS: If I recall my airplane reading correctly, this is that ORAU RPRT-55 that we were asking SC&A to review. It at least has some of this.

DR. NETON: Yeah, there's some of this.

CHAIRMAN MELIUS: Yeah, as the model, the specific models. Some of the other reports have the basic --

MEMBER RICHARDSON: I mean, I guess there are other questions, but one that really caught me was what's being proposed to be done starting in 1990?

DR. TAULBEE: Okay. In 1990, what we would be doing is instead of using

that intake model that I showed in the previous graph, is we would be assigning 2e to the minus 13 microcuries per cc intake to anybody that was in that particular building as a thorium exposure.

Because that was the trigger point, they would allow that concentration in the labs, in the rooms, people could breathe it in, before they took action to remedy the situation, remedy the airborne activity. And so that was the upper bound. And that's used today. Ten percent of a DAC of commonly used throughout the complex. And so that's where the intake value would be and that's how we'd calculate the dose.

CHAIRMAN MELIUS: Any other questions? David, I can't tell if you're still asking questions or not.

MEMBER RICHARDSON: No, I think I'm understanding what was said. That's all

I was aiming for.

CHAIRMAN MELIUS: Okay. Thanks. Thanks. Anybody else?

Okay. Thank you, Tim. And I think we next have a presentation from Mark Griffon disguised as Joe Fitzgerald. Joe will be presenting on behalf of the Work Group.

MR. HINNEFELD: Ted, I don't think this presentation is in the content for Live Meeting. It's going to take me a minute to get it up here.

MR. KATZ: Okay.

MR. HINNEFELD: I have to think a minute about how I'm going to do this.

MR. KATZ: So for people listening in, this is a presentation for Mark Griffon. And if you want to see the slides, you'll have to go to the NIOSH webpage for today's meeting and it will be

posted there. But I think Joe can talk through it and you'll understand it.

MR. FITZGERALD: Yeah, I'll just talk to the notes. Good afternoon. I'm going to start with the first slide and then we're tight on time.

In my list of what's ongoing review in terms of priorities, these first four pretty much match up with what you saw from Tim, except I wanted to emphasize we're still very much focused on comparing the construction trades with the non-construction trades population. That's a very big issue and it's an overarching issue. And we touched on it a little bit, but that's been certainly an undercurrent.

So neptunium-237, thorium and the subcontractor database validation. I want to remind the Board, there's a whole series of other issues. We have set priorities

within the suite of items for this SEC, which I think over the last several years things have been moved around, but certainly we're working on a report on recycled uranium, which should be ready next month, which certainly was an outstanding issue.

And we were aware of the coworker model, 055 was mentioned earlier, that we've just been talked with. That came out a few months before the Addendum 3, and we chose to work on Addendum 3 because of certainly the novel approach with OPOS. But we will certainly go back now and look very closely at the trivalent have that ready for the Work Group.

Tritium, tritides, exotics. I think those are all issues that we have on the table.

Going to Work Group activities, the only message I have here is it's been a

very intense review. I think SC&A has worked with NIOSH. We have walked down this coworker model, figuratively and literally, at the site a number of times.

And the notion is, I think Jim said earlier, on the coworker model approach, what we're looking at is certainly the technical aspects, the robustness of the model, the completeness of the data, whether you have confidence that you have all the information you need. And I think what you heard from Tim is that certainly he has and we have worked with him to truly want to characterize the neptunium and thorium operations to make sure that sort of no stone was unturned in terms of the data we needed for that model.

And if I may, there's almost a two-track process that you'll notice on both thorium and neptunium, which is to focus on

the technical aspects, the mechanistic aspects of the model, to be sure that it's accurate and complete. And also to address this question of stratification, which I think I won't go through that, but certainly Jim and Jim talked about it earlier, which is an overriding question which goes back to this comparing the two Work Groups, the construction workers and non-construction workers, and to justify and validate whether or not one can use that data as a whole, or turn to stratification.

So that's been two avenues that have pretty much consumed the Work Group over the past seven or eight months, which is to certainly work at the site to be sure that we had all the necessary information that would feed into the coworker model. And also, in the SEC Work Group, to address the question of is there a way to validate

whether stratification is necessary or not and whether OPOS will get us there.

I'm not going to repeat all the neptunium issues, because actually Tim covered the actions that came out of the Work Group pretty well. Again, I just want to point out that we did have those two tracks and we are very much in the process of looking at some of the activities or actions that Tim alluded to in terms of questions that SC&A had at the Work Group level on different aspects of how the coworker model for neptunium and the coworker model for thorium would be implemented.

And going back to the presentation on coworker models from the SEC Work Group this morning, this notion of being able to place a worker in a certain facility at a certain time period and to

know the specific nuclides that would have been -- that that worker would have been exposed to is certainly the very framework of the coworker model and one thing that we are taking a hard look at. SC&A did take actions from the Work Group sessions. It wasn't all NIOSH.

As we're going through table 5-1, which in the addendum 3 actually -- oh, I'm sorry, OTIB-81 provides a matrix which takes the facilities, the Savannah River facilities and for certain time periods will identify potential source terms to which the worker would be exposed. And that's almost a road map that would identify how you would apply the coworker model. So we're basically going through table 5-1, which has been expanded, and to come back to the Work Group and actually be able to validate whether we think again the table has a

supportive basis and that we can see how it would be implemented. And this goes back to I think the questions that you were raising, David, earlier, is how can one have that kind of information and apply it with the coworker model? And I think this review on table 5-1 -- I think will illuminate that, hopefully.

Beyond that, I am going to just touch on this question of; this is the last page, this subcontractor database validation. Just to reiterate what Tim was saying, this is such a fundamental question that we really feel strongly that -- as does Tim and NIOSH, that we really just need to be able to validate the fact that the records that were compiled in these so-called company files over time in fact were -- can be deemed complete enough to be used in this process and that when the time

came to migrate those paper records into the electronic data file that in fact is being used in dose reconstruction and being used at the site, that in fact that was done adequately and completely as well. Two fundamental questions.

And I think as Tim noted they're not easy to answer. Just the nature of subcontractor management in DOE. It's not just not this site. It’s all across the board. And when you get to the late '80s into the '90s it even gets sketchier and when you get to second, third and fourth-tier subcontractors. So answering that question I think is fundamental to whether or not you can even get to the step of talking about coworker models. Do you have the data? Is the data complete? And that's what we're asking on that particular issue.

That's all I have, because again

I think you've gotten a pretty good characterization of the operations, but we have spent I think a fair amount of time on site and there's been a lot of discussions about the information. Any questions?

CHAIRMAN MELIUS: Questions for Joe?

MR. FITZGERALD: Thank you.

MEMBER RICHARDSON: I have a question.

You both have talked about the distinction between construction workers and non-construction workers. And Tim pointed to curiosity of if construction trades worker were never monitored, then there wouldn't be 1,600 bioassay samples among the construction trade workers, for example, which raises the question you either don't understand the bioassay procedures for making these determinations, or you don't

understand who the construction workers are, which is another possibility.

So at some facilities; I'm remembering, for example, Hanford, there are people who were construction trades workers, and then they were operations workers, and then they were construction workers. And so that the term itself is dynamic. And you wouldn't say there's X number of construction workers and Y number of operations workers. You would have to say something like there were X number of person years worked in construction trades and Y number of person years. Because people were both.

MR. FITZGERALD: Right.

MEMBER RICHARDSON: And the classification is not an attribute of a person's name. It's an attribute of --

MR. FITZGERALD: Right, and

it's --

MEMBER RICHARDSON: -- what they were doing when and who paid them.

MR. FITZGERALD: Right, and it's time-related. In a DOE complex you had a progression from a time; I think Tim alluded to it, when on site here at Savannah River you had DuPont construction workers. Well, these were subcontractors, but sort of in name only. They actually worked side-by-side and pretty much the same as your DuPont workers. And over time, however, work was outsourced until you got to a time frame probably in the late '80s into the '90s, for sure, where a lot of the construction and the crafts trades were brought in with subcontractors typically at some sites with D&D, but even here at this site. And then you get into a situation where it's not just sort of this in-house

set of subcontractors. You have second, third-tier, fourth-tier subcontractors, ones that were very much removed.

And so the question is if you had a monitoring practice, a bioassay practice that fit these earlier in-house sub-contractors who were more than likely monitored the same way as perhaps the people that worked side-by-side with them, what happened 15 years into the outsourcing of a lot of the work at the sites where you no longer had a DuPont or Westinghouse imprimatur on the monitoring of workers, but in fact you had to rely on the subcontractor management.

So there's -- I think Savannah River, unlike some other sites, probably had more central controls and expectations, but nonetheless your question is -- it's very dynamic. And that's one reason I think it's

important to in fact look at not just the quantity of bioassay records, but look at the actual practices over time and within the different levels of subcontracting.

It gets to a point where you have to validate what exactly is the practice and do the -- does the sampling match up with those populations, particularly over time, because things did shift quite dramatically over probably a generation and what may have held in the '70s would not hold in the '90s. So I think particular with this site that's something to look at.

And it's not the first time we've looked at it. I know this subject has come up before at other sites. I know it came up at Rocky Flats.

CHAIRMAN MELIUS: Yes, Dave?

MEMBER KOTELCHUCK: How do you propose to get the information from the --

to distinguish the first, second and third-level subcontractors?

MR. FITZGERALD: Well, that's something -- there's been a pretty vigorous discussion, and there's a number of different options. One option, which I think Tim alluded to, was looking at the subcontractors in your NOCTS database, for example, and comparing that up against some known subcontractors.

Other options would be to identify your second, third fourth-tier subcontractors and actually; and there's way to do that, and establish whether you can find those names in the electronic database. That's kind of a straightforward one. It sound simplistic, but it is not. Just trying to figure out what would be statistically significant and being able to identify and be able to compare, it's a

pretty big task.

So there's different ways of -- different gradations, but answering the question how do you know whether the distribution of doses that you have are actually representative of the subcontractors that you're dealing with over time I think is an important question that needs to be answered before you can do anything else.

CHAIRMAN MELIUS: Okay. Thank you, Joe.

Ted, I believe you're going to -- the petitioner has a comments that need to be read into the record. So go ahead.

MR. KATZ: Thank you. I was going -- is that Mr. Warren? I was going to read your statement into the record, Mr. Warren.

CHAIRMAN MELIUS: And after that

we'll open up for public comment.

MR. KATZ: Right. "So, since 2008 my law firm or I have represented one of the original petitioners who petitioned this Board for a Special Exposure Cohort, and this petition from a non-construction worker asked that all workers who had worked at least 250 days at the Savannah River Site from 1950 to the present be included. This petition was merged with another petition from construction workers, and in December 2011 this Board found that NIOSH could not accurately perform dose reconstructions for all workers from January 1st 1953 through September 30th, 1972, primarily because records were not adequate to determine if they were exposed to thorium and other radionuclides. Now we are back before this Board with NIOSH's reliance or worker records and saying both construction and

non-construction workers should not be considered in an expanded SEC.

"Congress, and the President at the time the EEOICPA was enacted, knew that DOE would have problems nationwide in providing records showing radiation exposure of workers. The purpose of the EEOICPA as set out in the original law ' ... is to provide for timely, uniform and adequate compensation of covered employees, and, where applicable, survivors of such employees,' That is why the SEC was incorporated into the law and why thousands of workers and their survivors were initially eligible for benefits in Paducah, Kentucky, Portsmouth, Ohio and Oak Ridge, Tennessee. This Board has been tasked by the President of the United States to ' ... Advise the Secretary of Health and Human Services (Secretary) on the scientific

validity and quality of dose reconstruction efforts ... ' as well as ' ... advise the Secretary on whether there is a Class of workers at any DOE facility who were exposed to radiation but for whom there is a reasonable likelihood that such radiation dose may have endangered the health of the Members of the Class.' (See Executive Order dated December 7, 2000.)

"You will find that over the years we have already provided much evidence that the HPAREH system used at the SRS was not always accurate and did not correctly reflect the amount of radiation received by non-construction and construction workers. Annual differences in the number of millirem received can make a substantial variance in a person's dose reconstruction over the years worked at the SRS when NIOSH uses the HPAREH records.

"We have other records showing subcontractors working in the 1990s who did not have HPAREH records and whose employment at the SRS was only confirmed by the president or the son of the president of a now-defunct company or a human resource director of a company, or in one case by a copy of a picture ID showing the subcontractor's name in the picture. Some of these workers could not be identified by the Center for the Protection of Workers' Rights (CPWR) because the Center has never been given a list of the DOE subcontractors by DOE. Companies, e.g., Diversco, Defenders, Inc., and HBS, which is Houston Building Services, Bonitz Insulation Company, and Burke Contracting, Incorporated had short-term contracts with DOE in the late 1980s and 1990s, and DOE cannot find the contracts. Cleaning jobs as well as

escort services were contracted out to workers who were usually not issued TLD badges or given personal protective equipment even though the workers were performing jobs in radiation zones or in areas where asbestos and other toxic substances were present.

"NIOSH gets some records from DOE when the case is sent for a dose reconstruction. If a lawyer is involved, NIOSH may receive additional records sometimes involving an incident, but NIOSH does not get DOE to give copies of minutes from 'Lessons Learned' or (later 'Critiques') which would show what happened, when, how much radiation was involved, where the incident happened, who was involved in the incident and what things should occur so that the incident doesn't happen again. Our law firm has requested for our clients from

DOE all reports of incident including all supporting documents, but we have never received documents entitled 'Lessons Learned' or 'Critiques.' As far as I am aware, NIOSH has not received these documents either. Other documents which would provide useful information to record radiation received by workers are Radiation Survey Log Sheets maintained at each building in an area.

"These records (or lack thereof) should give you further reason to doubt the validity of NIOSH's assertion that HPAREH records can be used to perform accurate dose reconstructions after 1972. NIOSH cannot do correct dose reconstructions when they do not have the correct radiation exposure for each employee.

"Although I requested results for the SRS only, NIOSH did not provide the data

in that format and referred me to the NIOSH Compensation Results from dose reconstruction data nationwide as of February 20, 2014. Viewing those results, one can see that 1,799 claims for lymphoma and multiple myeloma (62.7 percent denial rate) have been made. This figure is an underestimate since it is unknown from this chart how many lymphoma and multiple myeloma claims were included in the subtotal categories of claims with multiple cancers. If one adds in the other leukemia (except CLL), the total number of cases is 535 with a combined denial rate of between 50 percent to 60 percent.

"Thyroid cancer is probably the most common cancer for people exposed to radiation, but for 344 thyroid cancer claims there is an 84.3 percent denial rate nationwide with again an underestimate for

the number which could be included in the multiple cancers. For the 1,272 claims for colon cancer at all sites (without considering the number included in multiple cancer tables), the denial rate is 92.8 percent.

"If Members of the Board see some red flags with the NIOSH dose reconstruction process, we implore you not to allow the process to continue. You Members are the only hope for thousands of claimants who do not understand NIOSH's insistence on proving their case with records that are non-existent or are hidden within the DOE. We have lost our way with the dose reconstruction process and the Members of the Advisory Board are the only way out of this nightmare."

And that concludes the statement.

CHAIRMAN MELIUS: Okay. Thank

you. Thank you, Mr. Warren.

I think we now will go into the -- continue the public comment period. So, Ted, do you want to read the instructions and

then --

MR. KATZ: Sure. So first of all, I hope folks have signed up in the sign-up sheet, which would be out -- back out the door, if you're planning to speak. But if you haven't, you can come up after other people have made their comments.

So just to let you know, your comments are recorded verbatim like everything else in this meeting and will appear in transcripts published on the NIOSH website for all the public to read. So any comments you make about yourself, personal matters, will appear for public view. The one exception to this though, if you make

comments about other parties, third parties, their privacy will be protected. So what you say about other people, to the extent necessary, those comments will be redacted to protect those persons' privacy. And that's sort of the summary of it.

The full requirements are on the back table, I you want to know. Those are called redaction policy. And for people on the telephone, those requirements are on the NIOSH website under the meeting section for the Board.

CHAIRMAN MELIUS: Do you want to get the list?

MR. KATZ: Yes.

CHAIRMAN MELIUS: Meanwhile, while Ted's getting the list, does anybody wish to make public comments on Savannah River, whether you signed up or not signed up? Who else? Yes, all you need to do is

identify yourself. If it will be easier for you to sit at the table here --

MR. ROWE: My name is Gordon Rowe. I am one of the petitioners on the original SEC.

I would like to say that the number of delays that has been -- happened with this petition have been very, very numerous, and to me they are inexcusable. The Work Group could be more conscientious about their job. Because of all of this, there are workers that are not being compensated as they should be. As a petitioner, I have not heard one word of apology for these numerous delays. It's obvious that NIOSH would rather believe what the health protection workers and the supervision at Savannah River Site tell them rather than believe what the workers tell them.

As an example of this, as -- at one of these meetings a foreman told NIOSH that their records were inadequate, were not right. He said that he -- when he and other workers worked overtime on a Saturday, they came in on the job, they would pick up other workers' TLD badges because they didn't want the radiation recorded on their badges because if you got too -- picked up too much radiation, they would stop you and didn't work over -- stopped you from working overtime. As a result, he said that the records were inadequate. He wasn't questioned. He wasn't -- he didn't -- there was nobody ask him about this any further.

This shows that the records were -- are not accurate, yet NIOSH continues to see that these records are accurate. And there has been too many times that the records have been wrong, yet NIOSH

continues to use these records to do a dose reconciliation and they -- everybody that works at Savannah River Plant will tell you that records are falsified, they're inaccurate.

When they get records of the dose records through the mail, they are inaccurate. Some of them pick up many, many rems of radiation, but when they get the quarterly report, they didn't pick up a radiation. And they know they picked up more radiation in one day, one work -- one example of work -- in a work place and through the dose reconciliation, through the dosimeters and all of that, they pick up more radiation in one work time period than they get -- that the records show they got in an entire quarter.

So I think that NIOSH or -- and the Work Group and everybody should be --

should put some more investigation into the record keeping at Savannah River Site. And if you did, you will find that there's many cases documented of falsification being done by shift supervisors and HP personnel, and everything else. So you -- NIOSH should not be using these records because they are all wrong. Thank you.

CHAIRMAN MELIUS: Thank you, Mr. Rowe.

Next person I have listed is David Anderson. Yes, there you are.

MR. ANDERSON: Thank you, Chairman Melius. My name is David Anderson. I'm an administrative manager with the Law Offices of Bob Warren, lawyer for the petitioner, [identifying information redacted], and I am authorized to speak for the petitioner.

But I would like to do something

a little bit different right now, and I don't know how redaction is going to deal with this, but I want to pay tribute to Mr. Bob Warren, the contributions of Bob Warren. Those of you who have been on this Board for years have heard Bob's presentations to you, both in person and in teleconference, and have received and hopefully read his many emails, faxes and letters seeking a just resolution for the hundreds of claimants denied by the dose reconstruction process.

Bob grew up in Allendale, South Carolina, right down the road, one of the many small rural communities in the shadow of the Savannah River Plant. As a young lawyer he took the rural cases other lawyers wouldn't touch. He never made any money; still doesn't, but earned a reputation for someone who would stand up for the little guy.

When the EEOICPA passed into law, right away Bob recognized its potential to help hundreds, if not thousands, of the little guy workers at the Savannah River Site, not so much or not really the scientists and the management, but the laundry workers, the truck drivers, the forestry folks, the secretaries, as well as countless construction workers. Starting at the very beginning, 15 years ago, Bob eventually devoted his entire practice to these people, helping hundreds of claimants navigate the complexity of the program. I dare say, and I proudly say that no one understands the Act and the details of its implementation better than Bob Warren and no one has single-handedly, I might say doggedly, helped more Savannah River Site claimants.

He is here today in his signature

red suspenders; he did not know I was going to say this about him, but due his failing health, there's a good chance this will be your last chance to meet him in person. I just wanted to put on the record an acknowledgment of the contributions that Bob Warren has made to the EEOICPA and to the former and current workers at the Savannah River Site and their families.

Thank you, Bob. That's him right there.

CHAIRMAN MELIUS: Thank you. And I'd just like to add we greatly appreciate Mr. Warren's contributions to not only individual claimants, but for the work of the Board. He's been extremely helpful in dealing with what's a very complicated site and a lot of challenges involved. And appreciate both your efforts to help us and help us better evaluate the SEC and the

other issues that come up at the site as well as your advocacy for the workers involved. So thank you.

MR. ANDERSON: My comments will be somewhat redundant as they've been brought up already this afternoon, especially by Mr. Fitzgerald. He's summarized them I thought pretty well.

Our view of the current status of the SEC petition is unchanged. We strongly believe that the acceptance or denial of this petition rests on the same two things it always has: The accuracy, and most importantly completeness of exposure records available to NIOSH and the accurate identification of exactly where an employee worked, especially construction workers.

Regarding records, NIOSH has consistently argued that record keeping at Savannah River was thorough, accurate and

available. And indeed today, it makes it look -- every time he makes a presentation, it looks so clean that it's almost unbelievable how much record keeping they kept there. But our own years of experience examining claimant records and the myriad stories we've heard from former workers, like the one Mr. Rowe suggested, makes us just as confident that DuPont's fervent desire for a nice clean record along with having simply too many employees, especially construction workers, to monitor made their record keeping spotty at best and duplicitous at worst. To make matters worse, many workers embraced the can-do spirit of the organization and knowingly put themselves at risk in order to fix a company problem or complete a dangerous task.

We've already provided you all over the years with lots of examples. I was

going to give more examples today, but I don't think you need to hear them. We have processed many FOIA requests for records, and it's amazing how often people who worked at Savannah River Site for 30 years have 55 pages of records in their files. It's just unbelievable, especially for folks that were working in reactors. So we question that accuracy.

But secondly, we seriously challenge NIOSH's confidence that it can place workers, especially construction workers at a specific location at a specific time. I'm actually surprised that Dr. Taulbee still believes that badge data can be relied upon, especially given that this Board previously acknowledged that badge information at SRS was amorphous and undependable. In addition, if you're relying on bioassay records to place a

person at a particular place and that record is unavailable, I don't see how NIOSH can convincingly say they know where a worker actually was.

In a recent Work Group session, as well as in today's presentation, NIOSH suggested that construction worker records would have been kept by the various subcontractors. I can tell with frustrating experience that the subcontractor world at Savannah River Site was a shifting morass of companies that came and went, frequently changing names. Our experience, and I could give you many examples, is that most subcontractors have few or no records on their workers. With many companies working various sites at the same time, it's often difficult enough just being able to prove that a claimant was on site at Savannah River Site during a specific time, let alone

prove exactly where they were.

So we constantly come back to the same conclusion: If you can't be absolutely certain who was exposed and what they were exposed to because you're not exactly sure where they were at any specific time, how then can you claim to be able to with sufficient accuracy reconstruct their dose? We respectfully submit that this is exactly why the Act included to option of a Special Exposure Cohort and why we believe it's time for this Board to vote for this one. Thank you.

CHAIRMAN MELIUS: Thank you, Mr. Anderson.

Next person I have listed is Knut Ringen.

DR. RINGEN: Good afternoon. My name is Knut Ringen. I'm the science advisor for CPWR. I'm the principal

investigator for the Building Trades --

CHAIRMAN MELIUS: Closer to the mic, yes.

DR. RINGEN: -- National Medical Screening Program.

I'm going to briefly cover two things here. Three things, actually. The first is why the Work Group and the Board is allowing this modeling to go on for so long. We're talking about exotic radionuclides that emit alpha radiation, and so internal dose is necessary to make a determination about risk. Yet, for all of the years that are covered here, NIOSH, according to its one worker-one sample, has shown that they have data on between 25 and 50 construction workers per year. That's out of a total of between 6,000 and 7,000 construction workers on the site per year during those periods of time.

So what in the world do those 25 workers that you have the bioassay data on, or that you have had some bioassay monitoring for -- what do they represent out of those 6,000 to 7,000 workers out there? Does this mean that only 25 of those 6,000 to 7,000 workers had an opportunity for any exposure to any of these exotic radionuclides? And can you further conclude that the exposures of construction workers were sufficiently similar to exposures for other workers that you can extrapolate from that sample of workers to all construction workers who might be at risk? I don't see how you can do that statistically. There are better statisticians here than me, but 25 out of 6,000 or 7,000 is not a whole hell of a lot to look at, yet this is being spun into model after model after model that we have trouble following. That's my first

point.

The second point is that when you look at risk, you have to think of it as a relationship obviously between exclusion and biological response. I know more about the biological response side of it. And we have just -- we're just now completing an updated mortality study for the construction workers who have been in the DOE facilities based on the people who are in our medical screening program.

This cover 18,800 participants in our screening program who were enrolled before December 31, 2010, and 2,803 deaths among them. Within this population there are 3,864 construction workers from the Savannah River Site with 562 deaths among them. And we can calculate things like person years of exposure and all of this kind of stuff.

What we find from this mortality

study, which is an update of a much smaller one that we did five years ago and which provides us with much more statistical power and the ability to look at risk in much more detail are three important things: First of all, all-cause mortality in our population is significantly elevated even though mortality from common causes of death like heart disease and diabetes are very low compared to the general population. The reason that all-cause mortality is very high is that -- is higher than in the general population is that we have very high rates for cancers and for non-malignant lung diseases in particular.

The rates for our construction workers in the DOE facilities are significantly higher than the rates for production or non-construction workers in DOE facilities as reported previously and

also among those workers in those occupational categories that we have within our screening program. So that to say that there is uniformity between the risk for instance construction workers or production workers simply does not hold up, in our opinion.

The list for cancer sites where we find high risks matches almost identical the list of SEC cancers in the EEOICPA legislation, as amended subsequently. This suggests for the construction trades workers that there's -- it reflects very significant risk for radiation exposure over the years.

And the third finding, which is quite significant because it's never been shown before, is that we now find excess risk for workers who were employed after 1980. Many people have insinuated that most of the risks at DOE facilities were limited

to the early years. The Manhattan Project, the buildup of the Cold War and that kind of thing. And that was mitigated significantly later on, but we see that that is simply not correct and that therefore in regard to this SEC, which covers the years after 1972, you should assume that there's opportunities for very significant risk here as well, and that should be taken into account.

Finally, when it comes to the messy business of trying to understand what construction workers do and don't do and who they're employed to and who they're not; Joe Fitzgerald is absolutely right, it's not a neat picture. It's not an easy analysis to do. But I think we have learned how to do it very well with the 5,000 to 6,000 -- no, over 4,000 SRS workers who are now in our screening population and the work histories that we have done on them. And there's lots

you can learn about their employment, both within DOE facilities, when they go from DOE facilities to other facilities, and all of this kind of thing. That demonstrates to us that it is very difficult to do the kind of modeling that's being proposed here. We don't see how it can be done for construction workers.

Let me conclude by saying that we know a great deal about subcontractors. CPWR maintains a database for the Labor Department on subcontractors who have been in the DOE facilities across the country. For Savannah River I'm not sure exactly how many subcontractors there are in that database now, but there are many, many hundreds of these subcontractors.

Let me make one point with regard to the delays that are taking place as a result of going through all of this

modeling, which I think is meaningless. In our population since the Savannah River SEC was filed, approximately 800 of our participants have died, SRS participants have died since that was filed. Of those somewhere between 260 and 300 of them have died from cancers that would have been covered under an SEC had that been available to them. As long as you keep delaying this, more of these workers will die off and in effect you will deny them their opportunity to have the compensation that they should be entitled to. Thank you.

CHAIRMAN MELIUS: Thank you, Dr. Ringen.

Jeff Rice? Welcome.

MR. RICE: Thank you. My name is Jeff Rice. I was a pipefitter out at the plant from 1988 to 1998. I had no plans of speaking today. I just got a letter about

the meeting and I come in to hear what it was about, and I'm kind of glad I did.

I just got through -- started going through the dose reconstruction with NIOSH. And after going through it with the relevance of the numbers that they give me and after I got through studying the exam, it's not relevant to what's going on every day out there on the job.

I was talking to one of your all's representatives and I said, well, you know, you're all showing me as a total pick up of 30.38 millirem at the highest dose, one time only. And I gave them 10 examples where I picked up more than that in a one time during the course of the day.

I can give you the example where we were on the tank farms where I had to cut a dip tube in transfer line. I'm laying down. My TLD is laying over here under me.

My pencil dosimeter is clipped to my hood here. You know, I'm cutting a hole in the transfer line, so I get exposure to the core. I pick up 80 millirem that morning. We come back in that afternoon to weld it up to get it tied into the transfer line, I pick up another 120 millirems. The most they got me down there for is 0.38 millirems the whole time.

I said, well, why doesn't this dose reconstruction show up on your all's records? He said, well, we don't use pencil dosimeters. We do it strictly off of TLD. Well, a lot of times with pipefitters and the awkward positions we have to get in, our TLD dosimeter may be behind us, over to the side of us, not getting any of the exposure that we're getting of the radiation out there in the plant. So these records are totally inaccurate on what they're putting

on the paper.

And, you know, I'm going through it right now. Sign my conclusion. I'm going to request a hearing once it gets back from Jacksonville because there's no accuracy on these radiation levels that they're doing. And I named eight or nine different ones. He said, well, we can't go over all of them. You know, we have it noted. We understand you say you picked up the dosimetry, but we don't have the records to show it, so they use a calculation of beta. And all the numbers are impressive, but they're not relevant to what we got going on every day out there in the field.

And on a personal note, I heard you all talk about there was maybe three more organs that we're looking at. I heard somebody say, well, are we going to spend the government's money to -- you know, my

dad worked out there 40 years. He's been deceased eight years. I've probably seen about 30 to 40 of his cohorts leave this world with leukemia, most of them not having the experience of being able to have the exposure for this, because it wasn't around, you know, back when that was going on. But that's just a little personal note I want to say. Thank you.

CHAIRMAN MELIUS: Okay. Thank you very much, Mr. Rice.

Anybody else wish to speak to Savannah River?

Okay. I believe that Terrie Barrie was on the line and -- Terrie, if you're there, you wanted to make comments?

MS. BARRIE: Yes, Dr. Melius. Can you hear me?

CHAIRMAN MELIUS: A little louder, if you can.

MS. BARRIE: Okay. Sure. Thank you for allowing me to speak tonight, this evening, Dr. Melius and the Board.

This is Terrie Barrie and I'll state who I am a bit later in the comments.

I want to thank the LaVon Rutherford for providing the explanation this morning about Rocky Flat SEC petition years. You had all of us in Colorado a little bit worried --

MR. KATZ: I'm sorry, Terrie. Sorry to interrupt, but you're very muffled sounding. It's very hard to --

MS. BARRIE: Really? Okay. Is that any better?

MR. KATZ: Yes, I think so. Thanks.

MS. BARRIE: Okay. What I was saying was I'm thanking LaVon Rutherford for providing the explanation about the Rocky

Flats SEC petition years. We were all worried that DCAS would stop looking at issues after 1989, and we're thankful that they're not going to just stop and look at all the issues.

And to remind the Board, some of the issues that remain to be fully evaluated are the destruction of records and the presence of neptunium, thorium and tritium at the site.

Concerning tritium, I filed a FOIA request in January of 2013 for emails from NIOSH with respect to the Rocky Flats petition. I received those emails last week. While most of the good stuff was redacted, I did find a few that discussed the tritium issue.

One email that I found quite interesting was from Stu Hinnefeld dated August 1st, 2012. And I believe this was

before the Evaluation Report was issued. He expressed reservations about the tritium model that was going to use a 1973 tritium incident as a bounding incident to reconstruct dose. He states about Rocky Flats, and I quote, "They had tritium all over the place without knowing it. They don't know where or when the highly exposed individuals, the ones that they did the dose assessment for this report, were exposed," end quote.

That's my thoughts exactly, too. One worker supplied an affidavit to support the petition explaining how he was exposed to tritium but had no monitoring records for that incident. How could DCAS be absolutely sure that this worker did not receive a higher dose than the workers in the 1973 incident? Additionally, workers have explained to DCAS about the frequency of the

tritium alarms going off and how all they were told to do was go home and drink six-pack of beer. I am looking forward to further discussion on the tritium issue.

Stu Hinnefeld also mentioned this morning that -- about the meeting the advocates had with the federal agencies in February and he was unsure of how to label the advocates. Like the program itself, the advocacy for the sick workers is a bit complicated.

A few months ago the advocates formed a citizens' volunteer group and we're called the DEEOIC Interim Advisory Board. DIAB is made up of sick workers, sick worker spouses, children and grandchildren of deceased workers and advocates for EEOICPA claimants. Together we have more than 100 years' experience working with EEOICPA. DIAB is dedicated to helping DOL improve the

implementation of the law by following guidance from various government sponsored studies and reports.

DIAB also plans to work closely with DOE, NIOSH and this Board to achieve the same goals. DIAB will function until Congress amends EEOICPA and establishes the Advisory Board on Toxic Substances and Worker Health or until the President established the board by executive order.

DIAB held its first town hall meeting for the Rocky Flats claimants earlier this month and also issued its first White Paper on DOL's Site Exposure Matrix. Town hall meetings for workers at Portsmouth and Paducah are being planned for June and July of this year.

Because DIAB will only address involving DOL Part E and Part B lung claims, the Alliance of Nuclear Worker Advocacy

Group, or ANWAG, will continue to be the lead advocacy to address dose reconstruction and SEC petition issues. And I thank you for your time and I'm looking forward to working with you.

CHAIRMAN MELIUS: Thank you, Terrie. Does anybody else on the phone wish to make public comments?

MR. WALZ: Yes, this is Mark Walz, petitioner for the NMI SEC.

CHAIRMAN MELIUS: Yes, you'll need to speak up, sir.

MR. WALZ: Okay. This is Mark Walz, the petitioner for the NMI SEC 195.

CHAIRMAN MELIUS: Okay.

MR. WALZ: And if I could just make a comment first. I'd like to thank Vern McDougall and Dr. Glover and Josh Kinman and Ed Scalsky and the host of others who worked very hard to gather a great deal

of past data in pursuit of this petition. On behalf of all the employees I just want to extend my thanks to them and the team.

Beyond that, I've got three or four questions that I'd like to ask, which for expediency I can either do here or perhaps I could submit to Josh Kinman. These are questions that employees have asked me, points of clarification, things like that on, for instance, how the 1990 cut-off date was selected for the extension of the SEC Class and other questions. Would it be better if I submitted those to Josh Kinman and have --

CHAIRMAN MELIUS: Yes, that would be fine if you contact Josh, and he'll talk to the technical people involved and can get right back to you.

MR. WALZ: Okay. Let's take that path then.

CHAIRMAN MELIUS: Okay.

MR. WALZ: Again, I appreciate everyone's effort. Thank you very much.

CHAIRMAN MELIUS: Okay. And thank you for your efforts also.

MR. WALZ: Got you.

CHAIRMAN MELIUS: Anybody else on the line wish to make public comments? Okay. That concludes our meeting. Thank you, everybody. And to the Board Members, we'll talked to you on the phone and see you in Idaho.

(Whereupon, the meeting was adjourned at 5:56 p.m.)