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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120th MEETING

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WEDNESDAY
DECEMBER 13, 2017

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The meeting convened at 8:30 a.m., Mountain Time, in the DoubleTree by Hilton Albuquerque, 201 Marquette Avenue Northwest, Albuquerque, New Mexico, James M. Melius, Chair, presiding.

PRESENT:

JAMES M. MELIUS, Chair
HENRY ANDERSON, Member
JOSIE BEACH, Member
BRADLEY P. CLAWSON, Member*
R. WILLIAM FIELD, Member
DAVID KOTELCHUCK, Member
RICHARD LEMEN, Member*
JAMES E. LOCKEY, 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
ALLEN, KELLEY
BARTON, BOB, SC&A
BEHLING, KATHY, SC&A*
BLAZE, D'LANIE
BURGOS, ZAIDA, NIOSH
CALHOUN, GRADY, DCAS
CARROLL, STEPHANIE*
CRAWFORD, CHRIS, DOL*
DOMINA, KIRK
EVASKOVICH, ANDREW
FITZGERALD, JOE, SC&A
GIRON, ELOI
GRIFFON, MARK
HAND, DONNA*
HINNEFELD, STU, DCAS
IRWIN, PETER
KINMAN, JOSH, DCAS
JACQUEZ-ORTIZ, MICHELLE
LEWIS, GREG, DOE*
LIN, JENNY, HHS
NETON, JIM, DCAS
RUTHERFORD, LAVON, DCAS
STIVER, JOHN, SC&A
TAULBEE, TIM, DCAS

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8:33 a.m.

Welcome and Introduction

CHAIR MELIUS: We are going to get started. And Ted, do you want to do the opening?

MR. KATZ: Yes. Welcome, everyone. This is the Advisory Board on Radiation and Worker Health. Welcome to our 120th meeting, in Albuquerque.

Some preliminaries: The agenda for today and the materials for today, and for tomorrow morning's meeting, are posted on the NIOSH website under the Board's schedule of meetings section. Click on that, today's date, and you should have there the agenda and all the presentations for today and tomorrow morning, as well as all the background documentation that relates to those presentations. So you're welcome to follow along with us there.

There is also a Skype link on the agenda. And if you want to, you can use that Skype link with your computer to follow the presentations as they are given. Either way, you

have the presentations on the web or you can follow it by Skype, if you want to see the pages, so to speak, turn as they are being presented. The audio, in any case, is this phone line. So you'll hear it either way.

Also, there's a public comment session at the end of the day today. It's at 6:00 p.m. So, anybody who is listening right now for that comment session, please be available at the beginning, because it starts at 6:00 and it says 6:00 to 7:00, but it will end whenever we are through with comments. So please be there at the beginning.

And people that are here in the room, if you want to make public comment, there's a sign-up sheet outside. For people on the phone, no need to sign up. We'll get to the phone comments after we go through the in-person comments.

Okay, and last preliminary is, for everyone on the phone, please mute your phone while listening to this conference. The Board Members, of course, will be speaking at times,

but everybody should keep their phone on mute, except for when they're addressing the Board. And if you don't have a mute button for your phone, press *6. *6 will mute you phone, and *6 will take your phone back off mute.

And also, please, nobody put this call on hold at any point because that causes disruptions for everyone listening on the phone. If you have to leave the meeting for a while, just hang up and dial back in, but don't use hold.

Okay, then, let's get, then, to roll call. We have no conflicts of interest for today's sessions, except for there is an update at the end of the day for Sandia. We have several Board Members that have conflicts there. But it's just an update. There's no interaction. So there's really no issue with conflicts for today or tomorrow morning. So we won't address that with roll call.

(Roll call.)

MR. KATZ: With that, no more ado, it's your meeting, Dr. Melius.

CHAIR MELIUS: Okay, thank you, Ted.

We'll get started, as usual, with an update from NIOSH and Stu.

NIOSH Program Update

MR. HINNEFELD: Thank you, Dr. Melius, and good morning, everyone. I'm here to provide my traditional update of what's new for the program for the past period of time.

Our news updates, the first one relates to Super S solubility class plutonium, which you all recall we developed a method for dealing with Super S solubility before the ICRP. The ICRP did not have a model for Super S. They stopped at S.

So we had had data available from the TRU Registry that kind of indicated what the longer retention for Super S plutonium was. We developed a mathematical workaround, while we did not develop new model parameters to fit to the ICRP model. We just worked a mathematical workaround.

Well, recently, the ICRP has caught up with us and addressed Super S solubility in their model, their lung model, and by changing those

they've actually changed the model parameters for using their lung model. They've adapted it to address Super S solubility.

And so we will be going back to our OTIB-49, which is our Super S Technical Information Bulletin, and conforming it to the ICRP's model, since we now have an ICRP model for Super S.

So, that will be an activity that will be coming up. It's not in place yet. It's not real clear how that will affect the outcome. I don't suppose it will be very -- you know, the outcome of cases I don't think will be affected to any great degree. But, anyhow, that is a piece of work that is coming up and a piece of news that came up just fairly recently.

Our other activities that I've got on the news report here are outreach activities. We did have our annual Joint Outreach Task Group meeting in October. That's typically an in-person meeting in Washington, but since we don't work in Washington, we attended by phone. And we largely discussed lessons learned from things

we've done and some plans for the upcoming year.

Our outreach contractor, ATL, sponsored our Dose Reconstruction and SEC Workshop in Cincinnati. We do that once a year, usually in September, and invite people who are interested in the program from around the country to attend and give them a quick workshop on the dose reconstruction and SEC process.

I did attend a Public Joint Outreach Task Group meeting in conjunction with the Advisory Board on Toxic Substances and Worker Health meeting in Santa Fe. That was last month.

Since so many of the principals associated with Joint Outreach Task Group were going to be at the Part E meeting, they decided they would have a public meeting in association with that meeting. And so we went and attended. I did take the opportunity to attend one day of the Part E Board meeting while I was there.

And then just last week the Department of Labor sponsored an Authorized Representative Workshop in Jacksonville, Florida. This is an attempt to continue outreach to people who have

more than a personal -- more than their personal claim interest in the program and to provide them some tools and assistance in performing their job as an authorized rep.

At the moment, my computer is not doing anything.

(Pause.)

MEMBER RICHARDSON: Stu, could I ask you a question while you're waiting for the computer?

MR. HINNEFELD: Sure.

MEMBER RICHARDSON: This relates to the ICRP model for Super S. You mentioned the lung. Does the ICRP model have target organs other than the lung? Does it model transport to other compartments? And is that going to have any --

MR. HINNEFELD: Well, Jim, correct if I'm wrong here, but, yeah, the ICRP model has a lung model that includes the transport of materials into the bloodstream for distribution to other organs.

So, as far as I know, that portion of

the ICRP is not changed by this addition of Super S to the lung Class. But, you know, the lung Class describes parameters for -- there are several compartments of the lung and different clearance parameters to either physical removal, transferred to lymph nodes, or transferred to the blood stream.

And this describes -- the change in the model changed the coefficients of transfer for those compartments. Once it's in the bloodstream, then there is also an ICRP model for the distribution to organs and recirculation from the organs from the bloodstream.

MEMBER RICHARDSON: Okay, and those are assumed to be uniform for the different -- for Super S?

MR. HINNEFELD: Yeah, the solubility Class in the lung is not assumed to affect the transport once it's in the bloodstream.

(Pause.)

MR. HINNEFELD: The remainder of the report is our status report on cases. As you can see, we have over 48,000 cases we've received

from NIOSH. The majority of those have been returned. Some 800 are administratively closed and 1,200 are with us in some stage of the dose reconstruction process.

Of the cases we've submitted to DOL, 41,000 have gone with dose reconstructions and then roughly 5,000 have been pulled for one reason or another, many of those for SEC determination because an SEC was added.

This is a breakdown of the cases that are at NIOSH. You can see that, of those 1,248 cases that are at NIOSH, 274 of those are actually with the claimants, the draft dose reconstructions are with the claimants. So that leaves, really, close to 1,000 in our inbox, which has been a pretty steady number for a while now.

Probability of Causation summary, this percentage hasn't really changed much. That's around roughly 27 or 28 percent of the cases that have been through dose reconstruction are above 50 percent Probability of Causation.

The DOE has zero requests from us that

are above 60 days. So this is kind of an improvement since the last couple of months. And the 155 outstanding just means we're waiting for responses, but they're not very old.

And then our summary of the first 20,000 cases, this is how they break down: 16,732 have been submitted for dose reconstruction; 2,000 have been pulled because SECs were added once we had the claim in our hands; and 770 were pulled for some other reason.

Of the claims we have now, you can see from the breakdown here, there are three that are identified as initials. Of course, I'm always interested in those because there shouldn't be any initials in the first 20,000. So, those three cases, in two of those three cases, the claimant was paid through the SEC process. In other words, we got the case for dose reconstruction. While we had the case, an SEC Class was added, and so the case was paid through dose reconstruction. So it never showed up as a final. The dose reconstruction just showed up as incomplete. Those two people then got non-SEC cancers,

submitted another claim for medical benefits for those non-SEC cancers, and so the Department of Labor sent the case back to us.

Since we had never sent back a dose reconstruction to the Department of Labor, our system shows them as initial cases. So, they actually sat for many years between the time they were pulled for SEC and the time we got it back for the additional cancer.

The third case was a case where we did a draft dose reconstruction, the Energy Employee claimant did not return the OCAS-1, and so the case was administratively closed. Again, we did not return a dose reconstruction to DOL. Many years later, a survivor claimant picked up the claim, reactivated it, and so it shows up as an initial because we've never sent one back, even though it was inactive for many years.

Okay, that concludes my statistics. I've taken more than my time but I'm blaming my computer for that. Are there any other questions?

CHAIR MELIUS: Any questions for Stu

or for his computer, since they've shared the last 20 minutes or so?

Okay. Now, we have another challenge.

MR. HINNEFELD: Trying to get it going again.

CHAIR MELIUS: Getting it going again.

MR. KATZ: While he's getting that going, Board Members note, if you didn't hear before, the internet connection here, after you leave your computer idle for ten minutes, the internet connection will drop you and you'll have to rejoin. So you might want to just tap your computer every now and then to keep that live.

MR. HINNEFELD: Yes, the Department of Labor's presentation is now on the screen. I believe the Department of Labor representative will be presenting from the phone.

CHAIR MELIUS: Yeah, Frank Crawford, are you --

MR. CRAWFORD: Yes, I'm here.

CHAIR MELIUS: Okay, go ahead.

DOL Program Update

MR. CRAWFORD: And thanks to Stu for

helping me with his presentation, as usual.

I'll just provide -- go to slide 2, Stu. This slide shows the compensation paid for Part B and Part E. We see that we have paid out $6.4 billion in total compensation for Part B, and $4.2 billion for Part E. We've also paid $3.7 billion for medical bills, for a total of $14.3 billion for compensation and medical bills paid. There were 197,000 cases filed, as of mid-November. Next slide, Stu.

On this slide we see that we're talking about Part B cancer cases with a final decision to accept, of which we have 10,366 cases with dose reconstructions and final decisions, representing $1.53 billion in compensation. We have a further 25,726 accepted SEC cases, representing $3.8 billion in compensation.

And then for cases that are accepted both on SEC status and with a PoC of greater than 50 percent, we have 990 such cases, representing $148.5 million in compensation.

For the total, all the accepted SEC dose reconstruction cases and combined cases,

37,082 cases, we have paid out $5.52 billion in compensation. Next slide, Stu.

This shows the location of NIOSH-referred cases. Our numbers always differ a little bit from NIOSH's, but we show 48,850 cases referred to NIOSH for dose reconstruction.

We also show that 47,001 cases have been returned from NIOSH to DOL: 40,712 of those with dose reconstructions and a further 6,289 were withdrawn from NIOSH with no dose reconstruction. There are all sorts of reasons for that, including a lack of survivors, SEC-involved cases, that sort of thing.

And we show 1,849 cases currently at NIOSH. Next slide.

Now, this shows graphically the acceptances for Part B cases with dose reconstructions and final decisions. We see that we have 35 percent approved, which is 11,394 cases, with 65 percent final denials, representing 21,170 cases. Total cases, again, 32,564.

Next slide. This represents a

breakdown of all Part B cases. And that shows that 34 percent have gone to NIOSH. Then a further 12 percent represent SEC cases referred to NIOSH for medical benefits, primarily. And then we have another 15 percent of SEC cases never sent to NIOSH, probably, again, because the cancer was one of the listed cancers which qualified for the SEC and they have no other reason to file.

Nine percent were RECA cases. And the Other category is large but it includes beryllium sensitivity, chronic beryllium disease, chronic silicosis, and other lung problems.

Next slide. Now we have Part B final decisions. These include, I believe, SEC cases, because they are much larger than the last slide we showed with that. We have 97,560 cases with final decisions under Part B; 51,184 Part B approvals, or 52 percent approved, and 46,376 Part B denials, or 48 percent, the remainder.

So we see the addition of Part B makes a large difference -- I mean, the SEC part to the Part Bs.

Next slide, please. This should be showing us our top four worksites. Those don't change too much: Hanford, Savannah River Site, the Y-12 Plant, and Nevada Test Site are our top sites for cases. These are the most recent three months that we have -- or four months.

Next slide, please. This slide also is fairly static. We're showing the monthly percentage of new cases, DOE cases versus AWE. The AWE cases are fairly steady. They should decline somewhat because those are our older sites, for the most part, and we're just getting fewer claims over time for those.

Next slide, please. This shows the petition sites that will be discussed in the meeting -- that are planned to be discussed, in any case. These included Ames Laboratory, Area IV of Santa Susana, the Savannah River Site, and Sandia National Laboratory, Albuquerque.

This slide's a little too complex to read every number here but there is quite a disparity in claims. Ames Laboratory has 950 cases compared to, say, Savannah River Site,

which is 18,356 cases.

We also see statistics on how many cases have received final decisions, how many cases have had DRs done, how many Part B approvals, how many Part E approvals, and how much compensation and medical bills have been paid out.

Savannah River alone accounts for $1.1 billion of compensation and medical bills, with, interestingly, Sandia at $310 million; Area IV, $64 million; and Ames, $67 million.

Next slide, please. For outreach events, this first slide is repeated from meeting to meeting. So, the program conducts outreach events in response to new SEC Class findings. We have town hall meetings and traveling resource centers to inform people of the new events. In small SECs, there are press releases but no meetings. And then we do host informational meetings regarding medical benefits provided under the Act.

Next slide, please. The Joint Outreach Task Group is composed of members from

DEEOIC itself; the Department of Energy; the Department of Energy Former Workers Medical Screening Program; the National Institute for Occupational Safety and Health, NIOSH; and then the Ombudsman to NIOSH for EEOICPA, Denise Brock; and finally, DOL's Office of the Ombudsman for EEOICPA, Malcolm Nelson. There are monthly conference calls and then town hall meetings, of course, are conducted. Next slide, please.

These are just our recent meetings. We see that there was a joint outreach meeting in Santa Fe in November; a quarterly medical conference call in September; a quarterly medical conference call also in September, two weeks earlier -- oh, no, a day earlier, sorry. There was a medical benefits session in Monticello, Utah, August 23rd; another in Shiprock, New Mexico, August 22nd; finally, a traveling resource center and medical benefits session in Metropolis, Illinois, in June.

The rest of the slides are standard handout slides, which I will not present here, having to do with features of the Act and who

qualifies as survivor, that sort of thing. They're available on the Board's site.

Does the Board have any questions?

CHAIR MELIUS: Questions for Frank?

No questions.

MR. CRAWFORD: Thank you.

CHAIR MELIUS: Thank you very much. The next presentation is Department of Energy, which is also from a distance, I believe.

DOE Program Update

MR. LEWIS: Yes, Dr. Melius, this is Greg Lewis from DOE. And I'm logged in online but, for whatever reason, I don't know if it's the network interface, but I cannot actually see the presentation. So I believe Stu's going to go quick through mine. And it's short so I think I should be able to follow along via paper, but I will do my best.

MR. HINNEFELD: Hold on a second, Greg. I think I got thrown off the wireless again.

MR. LEWIS: Well, while you're doing that, I just had a few things to mention, much

like Stu had mentioned. We also participated in the joint outreach event in Santa Fe a few weeks ago. I think there was an excellent turnout, close to a hundred folks. And then DOE gave three separate presentations to the authorized representative meeting that Stu mentioned that was down in the DOL office in Jacksonville. We think that was well-received and hope it was helpful to those advocates that are helping folks navigate through the claims process.

And then Stu had mentioned that we're currently at zero claims, or zero records requests over 60 days, and we're very proud of that. And as he mentioned, that hasn't been the case recently, particularly surrounding the changeover from FY '17 to fiscal year '18 there at the end of September and early October. Because of some funding challenges we had last year, there were a few sites that had exhausted their funds in mid- to late-September and then they had to wait until we got new funding in October for the new fiscal year. Even though we're under a continuing resolution, we obviously

get some allotment of funding and we were able to resupply those sites that were out.

So, there were a few sites that had some late claims, late requests at the end of September but we're obviously all caught up now and we worked very hard to do so. So, we will try to stay as current as possible.

MR. HINNEFELD: Okay, Greg, your slides are on the screen now.

MR. LEWIS: Alright. So, again, I am Greg Lewis, the Director of the Office of Worker Screening and Compensation Support at DOE and I'm just going to give you a brief update about our activities here at DOE.

If you can go to the next slide, Stu, our core mandate is to work on behalf of the claimants to provide records to NIOSH and to the Department of Labor.

The next slide, Stu. And I'll go through some of these fairly quickly. Most of these are routine slides. And then I'll take questions at the end.

Our overall responsibilities: we

respond to individual claims, individual records requests for folks that have applied to the program. We also provide assistance to Department of Labor and NIOSH and the Advisory Board for large-scale site characterization projects, like the Special Exposure Cohorts that we're going to be talking about over the next couple of days: Ames, Savannah River, Sandia, and Santa Susana Field Lab.

And then also we work with both agencies to do research into covered facility designations, when necessary.

Next slide, Stu. We should be on slide 4. It's just giving you a general idea of the volume of requests we handle out at our DOE field sites. We get about 7,000 employment verifications a year, approximately 4,000 requests for dosimetry and radiological monitoring information from NIOSH, and then about 7,000 what we call DARs, document acquisition requests, but those are basically DOL is requesting all exposure information specifically related to an individual.

And these records requests from DOL and NIOSH can be very complicated. Folks can have worked at multiple sites or as a federal contractor and subcontractor over the course of their career. So we can have to go to multiple different locations to answer one records request.

You can go to the next slide. Now we're on slide 6 with the volume of records at the top. This is just some statistics. We recently closed our books on FY '17 and it looks like we responded to 18,522 records requests for over 25 different DOE sites.

And if you can go to the next slide, slide 7, we're still updating these to reflect 2017. So these numbers are about a year old. We had some issues with our statistical package that we're trying to correct, so we had to use some old numbers here. This is just giving you an idea of some characteristics of the records that we provide. The average number of pages for an EV, employment verification, is about 14; average number of pages we sent to NIOSH is about 50; and

the average for DAR is 150.

So, while the overall average is, it looks like, about 214 pages, that's somewhat misleading because most of what's provided in a NIOSH request and an employment verification is also then included in the DAR. So I would say that it's probably more accurate to say our average number of pages is somewhere around 160, somewhere along those lines.

And I always want to caution folks when they're looking at an average, you know, many of our responses are much larger and, of course, many are much smaller. Particularly, we struggle with the subcontractor records. We try very hard to find those but we certainly don't find as many records for the subcontractor employees or short-time employees versus the career employees with the prime contractor.

If you can go to the next slide. We have, of course, our goal is to get all claims in in under 60 days. And as Stu said earlier, as of this moment, we're doing very well.

In FY 2017, we responded to about 87

percent of all requests in under 60 days. That's down from the previous year. In FY 2016, we were up around 95 percent and we'd like to get back there in '18.

In FY 2017 we had some difficulties, primarily with funding. There were some other issues. One of our larger sites, Y-12, went through a -- they closed their current records center and they moved everything to a separate facility. So they were moving thousands and thousands of boxes. And while they were pulling those, putting them on pallets, and shipping them in trucks over to the new center, they were inaccessible for our purposes for a month or so, at least a couple of weeks.

So that caused a number of our requests at that site to go over 60 days. And then also because of funding interruptions at various sites due to the continuing resolution last year, the end of the CR, and then the end of the fiscal year, our on times for response rate did go down in 2017. But as I said, hopefully, we if our funding is a little bit

steadier this year, we're hoping to get that back up to 95 percent.

But I will point out that, even with the challenges, there were a few sites that had a near perfect record last year, including, out in the New Mexico area, Los Alamos had only two late out of 831. And then Savannah River and our Oak Ridge office also performed extremely well last year.

If you can go to the next slide, slide 9, it's talking about the large-scale records research projects, such as the Special Exposure Cohorts. We worked very hard to get NIOSH and the Advisory Board and their contractor the information they need to do their job.

Next slide, I just listed a few that we had been working on. Obviously, you know, we're working on many at any given time. Some are large requests, some are small, but we try to get them to NIOSH in the requested timeframe.

Next slide, slide 11. Document reviews, again, I talk about this every presentation, but I do want to note, for this

particular meeting I know we received a rush request for a document review, I want to say, I think it was Wednesday afternoon of last week, for a document that was needed for this Board meeting.

Typically, we request documents with about two weeks' advanced lead time just so we make sure that our classification staff has the time to review them. But, you know, we got this rush request. It was needed for the Board meeting today and so we were able to expedite that. We talked to our classification folks and they made it a top priority and they were able to get it back to NIOSH, I believe, Friday morning. So we were able to turn that around in just about a day.

And we can't always do that, depending on the staff, the level of difficulty or technical content of the document and such, but we always try to meet NIOSH's needs and get things back as soon as possible.

And then next slide, facility research. I'll skip over this. Again, where

needed, we do research into covered facility designations. And you can skip past the next slide. I think I've talked about outreach.

And you can go to slide 14, which is the Former Worker Medical Screening Program. And just to make a few notes about that program, for those in attendance, our Former Worker Program is a completely separate program from the compensation program, but it serves many of the same workers. All former federal contractor and subcontractor workers at DOE sites are eligible for our Former Worker Screening Program. We offer screening at no cost to the workers. We can find a facility close to your home. We have programs that serve all of our major DOE facilities, but if you worked at one of the smaller programs or you worked at one of the bigger programs but have moved out of the area or retired to a different location, we can find a clinic in your area to give you a screening.

We screen particularly for occupational diseases and we'll give you an interview and talk to you about what you did at

your site and tailor this screening to meet those things that you're likely at risk for.

So, if you can go to the next slide, slide 15, I've got a web link for our website and for a brochure on our program. So, if you or someone you know might be eligible or might be interested, I'd encourage you to give them a call and sign up for a screening. We aim to catch things early before they become a problem. So you certainly don't need to feel sick to go in for the screening. The whole point is you go when you're feeling healthy and we may catch things that you're unaware of. And the earlier they're caught, the more successful treatment can be most times.

And I think, if you go to the next slide, that is it. And I'll take any questions.

CHAIR MELIUS: Questions for Greg?

You guys are on a roll. Nobody has questions.

MEMBER RICHARDSON: I have a quick question.

CHAIR MELIUS: Oh, Dave. Well, at

least you waited until the end of the slides.

MR. LEWIS: I couldn't get off scot-free.

MEMBER RICHARDSON: It's just about clarification. The movement of the Y-12 records, what motivated that and are they moving to a place where you expect that the time to respond to records requests will be shorter or longer?

MR. LEWIS: So, the reason for the move, and I'm not an expert on this, it had nothing to do with the compensation program. Basically, it was a price issue. The site had worked through a contractor for the records center. The records center was built for Y-12 but it was owned and managed by a private company. And for whatever reason, there was some differences in opinion about the rates or something to that effect. Again, I'm not very well versed in it, but the site and DOE decided to move the records to a federal records center.

In terms of the timeframe, as far as we can tell, there's been no difference. I guess physically it is a bit further. I'm not sure

exactly which federal records center they're located in, but things, I think, that they can scan and send, when necessary, they can physically send them back. We haven't noticed any difference. It may end up taking one to two days longer, on average, but we actually don't know that for sure yet.

We certainly don't anticipate any significant difference in time. It should be roughly the same. The product should be the same. The time should be the same. And we anticipate no negative impact to claimants.

CHAIR MELIUS: We'll remember that you said that.

MR. LEWIS: I know you will.

CHAIR MELIUS: Thank you, though, Greg. Any other questions?

Okay, thank you. Okay, our next presentation is Dave Kotelchuck, who will give us an update on the Dose Reconstruction Reviews.

Dose Reconstruction Reviews Update

MEMBER KOTELCHUCK: Alright. I've got a report on our Subcommittee on Dose

Reconstruction Reviews. The hardworking members of our Subcommittee are Josie Beach, Brad Clawson, Wanda Munn, John Poston, and Dave Richardson.

The next slides are slides about our mandate. So let's now look at the resolved and open findings by set.

If you will take a look, we have completed up through the 13th, and they were in our report to the Secretary. But I'd like for you to take a look at the ones for 14 through 18, which we've been working on recently. And you'll notice, if you'll go over to the next to the last column, there are ten open or unresolved findings, two of which are still with the Subcommittee, others are awaiting action by different groups, whether SC&A or NIOSH/ORAU.

And as you see down at the bottom, we are 97 percent complete on reviewing the findings, the 1379 findings. And the number of cases we have is 498. We are in the middle of doing sets 19 and 21. If you'll just take the column number of cases in set, subtract 60, you

have about 438, which is about a little over a hundred more cases reviewed than we had for the Secretary's report at the beginning of this year. So we're moving along well.

Let's take a look also at the observations. So, we'll go to the next slide. And these are set. Of course, the open/unresolved findings, we have the ten. And there is just one open or really unresolved -- unopen finding. So we just have 11 total issues to deal with. And not much more to say about that for the moment.

Findings and observations per case by case group. You'll notice from the first Secretary's report, the findings per case 3.98; the Secretary's report at the end of last year, the beginning of this year is 2.7; and the current report we're down to 1.90. I think this reflects the fact that, as time goes on, we develop more and more prescriptions about what should be done in a certain case, and that narrows the issues about which there may be a finding.

So the findings per case are going

down, the observations per case are about the same. And we have been speeded up dramatically by the suggestion by SC&A that we take a look at Type 1 and Type 2 issues. Type 1 issues are issues in which neither NIOSH/ORAU or SC&A differ by very much. Either there are no findings or the differences of the findings are essentially resolved in discussions by the two groups. And as you see, 80 percent of the findings are Type 1 issues and we can move these along fairly quickly.

And the Type 2 issues are ones where there are substantive differences between the two. They represent only 20 percent, or a fifth of the cases that we're reviewing now in 19 and 21. So that has really, I think, dramatically speeded up the process.

Now, let's take a look at the blinds. On the left-hand column, I have removed the facility, so maybe an extra degree of caution to protect privacy of the individuals. I will come back to the issue of what facilities we've looked at.

But, take a look. We have reviewed 25 blinds so far. So, I think we can't put them all in one slide and have it visible. I hope these are reasonably visible to you, particularly those in the audience.

The first slide on the blinds, that's essentially been shown to you before and was part of the Secretary's report. And if you'll take a look at the PoCs by SC&A and NIOSH. Start with the NIOSH, the middle column, the NIOSH/ORAU POCs.

You'll notice in the beginning we took quite a large range of PoCs for the cases that we reviewed. Many of the cases were in the middle and low 40s. Look at the 9 through 14. There are quite a few that are in the 40 percent area. The likelihood of a difference between SC&A and NIOSH/ORAU that will change the compensation decision would be small. And so, not surprisingly, but importantly, the compensation decision for all of those first cases of the 13 cases that we reviewed, there is agreement.

More significantly, let's take a look

at some of the more recent ones, the set 22 and set 23 blinds. If you'll, again, take a look at the NIOSH/ORAU PoCs, you'll notice that those cases that we've selected for blind reviews, that the Subcommittee has selected, the numbers are quite near 50 percent: high 40s, 46, 48, 46. And then a few over 50: 50.08, 50.57, so that if there some difference -- and there is, of course, differences because of professional judgment -- between what NIOSH found and what SC&A, we're right near the edge of changing compensation decision, depending on how the variation between the two. Quite strikingly, the compensation decisions have agreed for these blind reviews.

And then, in the last set of reviews in set 23, as you see, we are going up, if you will, quite near the edge of where the compensation decision would change. And dramatically and impressively, the compensation decisions agreed.

So in all the 25 cases that we've reviewed so far, the compensation decisions have been the same based on the blind reviews. And

I'm quite gratified, and I think we on the Subcommittee are quite gratified to see that degree of agreement.

And also let's look right now at the facilities that we've look at. Now, I haven't listed them on the left-hand column, but I'm summarizing the facilities from which blind cases were reviewed.

There were four blind cases each from Oak Ridge, Hanford, and Rocky Flats, which are very large facilities, obviously; three from the Nevada Test Sites; two each from Fernald, Sandia, Pacific Northwest Lab; and then there was a single one from ten other sites. And as you see, that counts up to 31 sites, because, of course, some people worked at more than one site.

In fact, out of the 25 blind cases for blind review, five, as you will see just doing the arithmetic, there were five cases -- oh, you won't see it, but I will report there are five cases in which people worked at two facilities and one case in which a person worked at three facilities.

So this is particularly an area where you would think that there might be problems in kind of combining the data and getting a dose reconstruction from two or three different facilities. It challenges how precise our determinations are.

And the fact is that, for those 25 facilities, simply there are no differences in compensation decision. Which means, roughly speaking, that since we've had no difference in decision in 25 cases, then the number of times, in this very select group -- this is not a representative group of cases, right? This is select group right on the edge between 45 and 52 percent PoCs. In that very select group, as I said, there is an error rate of somewhere between zero and four percent, one out of 20. But we don't have one out of 25, which would be four percent. So, somewhere between zero and four. We don't know what it is.

And obviously, in time, given the differences of professional judgment between the two most competent groups, there will be a time,

and there must be times, when the decision will be different, as it is near the 50 percent PoC, that the two groups will disagree. But so far, in the first 25, they have not.

Now, of the blinds reviewed, just looking at the statistics that we have for the 25 cases, 25 blinds were reviewed. In 16, NIOSH/ORAU PoC is larger, and for nine, the SC&A PoC is larger. And that is satisfying, if you will. I mean, NIOSH is the group making the decisions in all of the cases, beyond simply the one percent that we reviewed. And they are, if you will, slightly more claimant-favorable.

But for each blind case, we looked at the difference in PoCs between NIOSH PoC and SC&A PoC. And since they're both professional groups, we can't say which is correct and which is not. They are just their variation in professional judgments.

So we looked at the absolute value of the differences between the PoC. And the average of the PoC differences is 2.43, with a standard deviation of 2.63. A median, you'll notice, is

a bit lower, 1.53. That is to say there are a few of those that are outliers. So, if the average of the absolute differences is 2.43 plus or minus 2.63, then we conclude that the average of the absolute difference of PoC values for blind cases calculated by the two groups are compatible with zero. That is, they are consistent. And that is impressive and gratifying.

And that, I think, is the last slide there. First, are there any comments by Members of Subcommittee? If anyone cares to have a comment, please do.

CHAIR MELIUS: Wanda?

MEMBER MUNN: I have to say that the statistics that we looked at appear to be fairly dry. Those of us on the Committee know that the actual reality involved a fascinating number of difference in cases and a fascinating number of technical issues had to be addressed by each of the groups that were doing the reconstructions.

But, as Dr. Kotelchuck said, I think the most striking aspect of what we have done on

this Subcommittee in the last ten years has been the result that we saw in comparing the differences between the two and seeing that the final results do, in fact, agree so well when they're given that close scrutiny.

So, my thanks to the people who put in extra effort to try to make sure that these comparisons were as complete, as thorough, and as accurate as possibly could be done.

I think we all can be very pleased to review those results from time to time and reassure ourselves that a good job's being done.

CHAIR MELIUS: Any other Board Members, questions or comments? Andy.

MEMBER ANDERSON: My question is, while it all works out quite nicely there, have you taken a look at are there certain components of developing the score that are most consistently different between the two groups?

I mean, if you're using the same data, unless it's a subjective call as to where you choose something from, they actually should come out identical. Now, they're quite close but

there must be -- I mean, if it's a random issue versus are there some specific things that NIOSH is looking at and they're rounding up and SC&A are rounding down on some of these, that could account for this. Or is there a component here that might be worth looking at that's contributing to these differences?

MEMBER KOTELCHUCK: Well, I think what you raise is a good point. And we have not done this -- I have not done this in analyzing it. We certainly can.

I think until now, until this very report, we hadn't actually sat down and figured what the average of the differences was and that it was really consistent with zero. But we can and we should do that, I think. I'd like to consider that. That's something the Subcommittee should do, now that we can go a step further with the 25 that we have.

And, of course, we have another set of blinds coming up already that SC&A and NIOSH have reviewed, which we will add to the group.

Other questions?

CHAIR MELIUS: Questions or comments?

I'm really concerned about the statistical emphasis here. While you say it's compatible with a difference of zero, it's also compatible with a difference of five, which is worrisome.

So I could take your same data here and say, "My God, what's wrong here? This is terrible." And I don't think that the blind procedure is set up for a statistical comparison.

It ought to be what Andy mentioned already. What are we finding where there are differences as parts of the individual dose reconstructions? Now, you're looking at a variety of sites and you have small numbers so far to look at, but I think that is a better target for what we want these blind reviews to do, because I don't think we'll ever get the numbers up that we can really reach statistical conclusions on every site and so forth.

We really don't even, in our other reviews, really get to have a really large sample for any site, and particularly the smaller sites

it's very few.

So I would caution there. And I mean, to me, if I can find the slide here, the set 17, the second number four on your list there, where there's a difference of about ten percent.

MEMBER KOTELCHUCK: Yes.

CHAIR MELIUS: Now, to me, it's not that that difference is ten percent, but what is the difference between SC&A and ORAU? What is the rationale? What part of the dose reconstruction did they have such a disagreement on? Or was it interpretation?

Was it something -- a lot of times it's not -- I won't say it's professional judgment as much as maybe the background documents are so vague or uncertain that two people can interpret them very differently. Or is that just a statistical fluke where it's just a bunch of small differences just added up going in one direction or the other side?

So I think we're more concerned -- and maybe when we report on these in the future as you go through the next 25 or whatever is what

are we finding about the process that should be improved or could be improved, rather than just what is the absolute number and do we find compensation/non-compensation difference.

MEMBER KOTELCHUCK: Well, I would just say that I believe that the most significant thing is that the compensation decisions agree, given that there is variation in the PoCs from the review.

The fact that, if there is a difference of average of two percent between the PoCs, you would think that already we might find some that disagreed. The fact that they didn't, I think, is the most impressive thing.

I agree with you, though, that we can go further in checking what components contribute to the differences and is there one that's consistent. And I will certainly, I think -- I agree with you. We should do that, and we will.

CHAIR MELIUS: Yeah, but if there's -- in the sample you have here, the 25, I mean, if you're applying 2.5 percent as your average difference, it's just a question of time until

there's a compensation difference.

MEMBER KOTELCHUCK: Absolutely.

CHAIR MELIUS: And I also think that when you're doing your blind reviews, there's a lot of pressure to bring it to -- to limit the difference between the two.

MEMBER KOTELCHUCK: I don't see how. If it's blind, how is it that we're bringing them together?

CHAIR MELIUS: Well, if you're doing your review and so forth. So I just think a statistical approach is sort of the wrong focus at this point in time. I don't even know if you'll ever get up to a number that will be -- and I don't think looking at compensation/non-compensation, it's the components of the dose reconstruction methods that I think need to be the focus. And blind reviews is one way of getting it.

MEMBER KOTELCHUCK: Well, I guess I agree that certainly these should be looked at. It was not given that when we started that we would have agreement, given the complexity, as

Wanda Munn said. I mean, the complexity of the calculations, it was not given that they would agree. And they will not agree, at some point. That must be the case that we'll come across blinds that won't.

But, perhaps, not knowing what the results will be from the different groups, I am most impressed at the agreement.

However, you're absolutely right, and Dr. Anderson, if we can look at components, I'd take that as something that the Subcommittee should do.

CHAIR MELIUS: Yes, Wanda, and then Josie.

MEMBER MUNN: I'd like to point, however, that what we do when we are looking at these, when we are looking at the final results, is we discuss the reason for the differences. You can see that in our transcripts.

Unless I was seriously mistaken at the time we undertook this particular portion of the program, it was the intent to not have people do exactly the same thing. It was the intent to

have two different expert groups look at the same material, performing a review in the way that they would do so.

And I don't remember any instance in the reporting of these comparisons where it was not acceptable and understandable to the Committee Members what those differences were at the time that they were discussed. I guess those differences could be compiled and codified in some way.

I guess my only point is to point out that your concern about why they are different is what we discussed.

CHAIR MELIUS: Well, that should be reported as part of your reporting to the Board.

Secondly, remember these are not -- originally our blind reviews were that our contractor would start de novo with basically a person and a site and a work history, the available information, and sort of start from scratch. And we decided that was not publicly feasible because sites are complicated. They'd have to sort of recreate all the procedures that

are being used currently by ORAU and NIOSH for doing these dose reconstructions.

So what they're doing is applying the same procedures, essentially. At least that's my understanding. And so it is a question somewhat of interpretation. It's also the way that ORAU has done, and I think done a good job, of sort of pulling it together and providing some consistency in how to interpret certain issues. And there's some issues that are not documented for Board purposes, or even for SC&A to have access to, that ORAU uses, which makes sense for them to do.

And so we're essentially applying the same procedures, at least as they're published for us to use, to the same set of data, the same set of information.

So I think what's important is, one, you have to some extent what the agreement is when SC&A does that, but also where are there differences and what could be done to assure that those differences are minimized in the future? That there's some uncertainty about the process

or whatever that's being implied or the source of the data. A lot of times it's just that the data is so weak that it's hard to -- you're going to end up with differences no matter what happens because there's so little information about a site.

Henry?

MEMBER ANDERSON: Yeah, I think this shows that the methodology that's being used must be quite prescriptive and understood by the various groups evaluating, which is a good thing.

On the other hand, I think part of the goal here ought to be, can this be improved? Now, the results are one thing. As I look at this, there were only six that were chosen that started with an award and a PoC over 50 percent. And so there was two-thirds of them that started below because we want to be claimant-favorable and see did they under estimate what it could be.

On the other hand, another issue would be, did you go the other direction, that by looking at it, whoever was doing it, was looking that it's awful close, you want to be claimant-

favorable, and so subjectively perhaps moved it up a tenth of a point and the person gets awarded.

So, I think it's useful to take a look at is there a part of this that could be tightened up with instructions in some way, for the methodology? So, the good news is the decisions appear to have been correct, regardless of the number chosen, but it would've been nice to know can it be improved.

CHAIR MELIUS: Josie, who I forgot about. And then David, I think.

MEMBER BEACH: No, I am in agreement with the discussion today. I think we do, like Wanda pointed out, discuss this during our Subcommittee meetings. We talk about the differences and why they're there, but we could go this step further and report it out. And it makes good sense to make sure people understand what, why, and what needs to be improved on, much of what Andy said.

MEMBER KOTELCHUCK: Yeah, we certainly could.

CHAIR MELIUS: David.

MEMBER RICHARDSON: Yeah, I've been struggling with the question of, if the average error was two percent, and even if you had one standard deviation off that, you're already at around five percent. So if that was just a random error, and we've got cases that are chosen, I don't know what the average value is, around 48 percent or something like that, we should be seeing flipping back and forth across the average.

But what Henry is pointing out is there is one small set of cases, which are those which came in above 50 percent. And if you look at the average error for those, it's very close to zero and there's not a tail going towards overestimation of those. So they're at the same value, but it's not as though when ORAU returned a value of 50 percent we see SC&A coming up with two percent greater than that or five percent greater than that. It's very close to zero, and, actually, tends to be a little bit negative when SC&A is doing it. So they're not being overly generous and overestimating those which are above

50 percent.

And then you've got the other group, which is below. And there's a tail there which goes down to ten percent.

So there's something going on with these distributions of errors, which we could take more of a look at. It's not as though it's a normal distribution around each case, and it's partly dependent on these two classes of cases that we're looking at.

CHAIR MELIUS: That's a good point, Dave.

MEMBER KOTELCHUCK: Yeah, okay. Well-taken. Well-taken.

CHAIR MELIUS: Any Board Member -- Bill, first. Then I'll go to the phone.

MEMBER FIELD: Yeah, I think, looking at this like from 20,000 feet, if I was the claimant, I think what I'd be reassured about is, as Dave was saying, there doesn't seem to be a systematic bias on NIOSH's part to minimize dose reconstructions. I mean, at that level, I think that that's something that we can take from this

and be reassured from.

CHAIR MELIUS: Or if there is, it's hidden away in all the procedures. I don't want to over-interpret that.

Board Members on the phone, did any of you have questions or comments?

Okay, hearing none, thank you, David.

Now we'll continue this dose reconstruction review focus.

So we've been working on the Dose Reconstruction Review Methods, the Work Group has, and Mark, as a subcontractor or contractor to NIOSH, has put together a report for them looking at a couple sites. And I'll let him present that.

And then after he presents, I will do a short presentation just trying to get us focused on what do we do next in terms of changing our approach to dose reconstruction reviews.

Dose Reconstruction Review Methods

MR. GRIFFON: Thanks, Jim. I'm here to give an overview of the report I did on professional judgments in dose reconstruction.

And I think, after Dave's presentation, it's hopefully a timely topic that I'm on the agenda right after Dave. I think during his presentation he mentioned professional judgment several times. And I think when the Board mentions looking at the components that might have contributed to differences, I think some of those are where I started to dive into in my review here.

So the scope of what I was trying to look at was, where are professional judgments necessary in dose reconstructions? And I looked at it through the lens of a DOE sample site and an AWE sample site, hoping to get a lot of the trends for the gamut of the program.

Could the judgments result in potential inconsistencies? That's one major part of this. And the key, I guess -- for me, anyway -- is what approaches can be used to assess where these professional judgments can result in significant inconsistencies?

And, you know, the assessments can come at several different levels, and I'll get

into that when I present my recommendations. I think that the Board can look at this, NIOSH can look at this, and ORAU, internally, may have some things that they can do to look at these issues.

So, to start my assessment of this, I looked at two site: Savannah River as one example, and Linde Ceramics was my AWE example site.

I actually tried to do a real dive into the data. Some of you that remember me being on the Board, I do like to get down to the details. I got much further down into the details this time during this review.

MEMBER MUNN: You certainly reminded me of that.

MR. GRIFFON: I'll take that as a compliment, Wanda. Thank you.

But I also tried to, and I hope this came through in the report, I tried to look at the micro level, but also tried to step back and think of what programmatically can be done to look at these questions.

So I looked at Technical Basis

Documents, the Technical Information Bulletins, procedures, SC&A reviews of these various documents. And, very importantly, the next to last bullet, looked at the internal guidance documents. And for Savannah River, I think if I have this number -- I know the number's in the report -- I think it was 12 different iterations of DR guidance through the program.

And I would say that's a very good thing. That means that internally there is continuous improvement. So they're refining. As issues come up, they're refining this guidance to help the individual DR staff resolve problems. And it adds to consistency. So that's a good thing. But I'd just mention that's a different type of document. It's in the case files but it's not a control document.

Lastly, I reviewed a bunch of individual cases. I didn't do a random selection from NOCTS, but I tried to look at best estimate cases. If you go in the NOCTS system, I tried to pick cases that were done with full internal or full external dose reconstruction or both.

Usually, that'll give you best estimate cases. That's not a perfect way to sort the cases, but that's what I used. I also took some cases out of the ORAU QA database, some cases that they had come across in their reviews, and out of the Board's Dose Reconstruction Subcommittee cases.

And I mention these two things last. I looked at the process from sort of the beginning to the end. And there's a useful procedure that I just want to highlight here that gives a good overview of the whole process, and that's PROC-106, Roadmap to Reconstructing Dose. And I've got a couple slides coming up on that in a second.

And then I also looked at the QA/QC program. And when I looked at this, I looked at it in the lens of the systems that exist in the dose reconstruction program that may be useful in improving, or in reducing the inconsistencies around professional judgments. So I think that's important. I was trying to look at the process, not if there is inconsistencies. Although we do want to identify those, or the Board may choose to try to hone in and identify where these

inconsistencies occur.

Also, I want to look up the line and say, what was the cause and can we be more prescriptive? It may be that that's impossible. But are there other systems that could be put in place to reduce those inconsistencies? And one possible system is a QA/QC system.

Okay, these next couple slides, they're in the back in an attachment in my report. I think they're readable in there.

But the main point I want to make on these is that I looked at this from the beginning, the overall process. And the top box there sort of identifies where the case is coming in, the data that comes in, the case prep work.

And then there's logic for all of the various components, including the interview component, calculating the environmental or ambient doses, the medical, external, and internal doses.

And if you look onto these, these two are blowups from the subsections in the last diagram. The external dose reconstruction. And

I raise this because immediately there's an assumption. The assumption is, do we have adequate monitoring data to reconstruct dose? So that's the first assumption an individual dose reconstructor has to make.

Some of this -- and as we go through these, you look at these logic trees, some of these are prescribed in guidance documents or in TIBs or in other things. Some of those end up being individual -- the individual dose reconstructor has to make that judgment.

In this case, if they don't have adequate monitoring data -- and I would argue that there is instances where this is a mix, too. Like over a portion of the period that you're doing dose reconstruction, there's adequate data, but there may be a portion later in the work history of the person that you don't. So it may not be just one answer here.

But to simplify it, assume you don't have adequate monitoring data, and then you're left with a couple questions. And it's a hierarchy of decisions. And that hierarchy comes

up not only in the DOE sites but also in the AWE sites.

So you may use coworker data or you may use source term data or area monitoring data. And I think the last one would be radiation limits, site administrative limits. So, here's some of the judgments that start the process for the individual dose reconstructor.

Similarly, the same thing on the internal dose reconstruction side. And this time the branches for the hierarchal decisions are off on the right instead of the left, but it's the same kind of decision that you have to make. Is the monitoring data adequate? If not, we have some other options that we can use.

Okay. So, the other thing in the report that I put together, I really, when I started this, was focused on the individual dose reconstructor sitting at his or her computer doing a case. But I realized quickly that there's a lot of these judgments that are going to come down to that person, but there's a lot of judgments that were made prior to this individual

working on the case.

And I would argue that, over the years, that's helped the process. I mean, I know that ORAU has told us for quite some time that the workbooks have come a long way since the early years. And now that some decisions that the individual dose reconstructor can make, once you make that decision in a workbook, it almost auto-fills other fields with the data. So there's less individual decisions about, you know, dose for a certain year or time period. But these are judgments, nonetheless.

So I wanted to highlight that there are personal judgments that that individual has to make when doing a case. But there's also program judgments. And these program judgments are, I mean, part of what the Board has been reviewing for the last 12-14 years, going through the Procedures Subcommittee, reviewing the TIBs, going through the Site Profile reviews. The Board has looked a lot of these judgments that are included in these Technical Basis Documents.

Some are maybe still pending

evaluation by the Board. And other ones, I would argue, it may be useful to have a summary document to sort of outline where the Board came down on a particular judgment. And some of these we in the past labeled sort of "global issues," in some cases, and have been discussed and debated back and forth by SC&A, by the Board, by NIOSH. And if there's resolution, there was a history of discussions about it, it would probably be useful in assembling that and being clear where the final conclusion was.

So, on the personal judgment side, I will mention, I mean, a lot of these, as you look down this list, I don't think it's going to shock people. In fact, SC&A put out a memo and has weighed in on this topic prior to my looking at this. And I think there's quite a bit of overlap with some of the areas where they saw issues and what I found. But it's useful to go through just for a second.

You know, I will say the work location and job title issues at the top of this slide come into play quite a bit. And calculating

missed internal dose, especially when there's in vivo and in vitro bioassay and lung or whole body counting data to deal with. And best estimate cases, and the judgments regarding calculating doses associated with incidents or events that might be mentioned in the interview records.

And let me just step back for one second on this. I think -- and I think Dave, in his presentation on the Subcommittee, alluded to this, is that the impact of what I'm reporting out on here is for probably a little less than five percent of all the cases. These are likely to impact the best estimate cases almost exclusively, because in the other cases you're making underestimates or overestimates and they're less likely impacted by these professional judgments. So you're looking at a smaller slice here; nonetheless important because you're close to the PoC in some cases.

Just to go a little further from the last slide, work location and/or job title, the impact that that may have in the individual -- or the effect they may have on the assigned doses.

And I tried to show that sometimes the decision on where to place a worker, or how you view that job, whether that job was likely to have a great deal of exposure, will impact or could impact several different things, including the photon dose, neutron doses, internal doses. And I sort of outlined some examples of each of those.

I mean, photon doses, even down to the energy percentages, can vary depending on what building you assign a worker to. So, they have some subtle little differences, but, at the end of the day, when you're dealing with cases that are very close to the 50 percent cut-off, they can be significant.

Also, the last one, the assumption regarding the missed dose, there's a question of missed or unmonitored doses. And whether you use a coworker model or whether you can just say, if it's a reported zero, you can assume limit of detection divided by two to estimate the missed dose.

There's also some cases where they can use a nearby. So if the worker worked in an area

before and after, and they assumed they worked in the same area during this unmonitored period, they can use a nearby approach.

The coworker question has come up quite often, even on the Dose Reconstruction Subcommittee, because there's options on the percentile. You can use a 50th or a 95th percentile of the coworker model to assign dose. And that is dependent on, sometimes, the job or location assumptions. So this gets back to the assumptions made by the dose reconstructor.

Just, again, filling in the gaps. I think I sort of mentioned this missed and unmonitored periods and using coworker or other approaches.

For internal dose, there's also a question, in some cases I saw where there the monitoring ended but there was an assumption extending the intake values to the end of the employment. So there might not have been monitoring for the last five years of a worker's employment. How do you fill in that gap from the last monitoring result to the end of employment?

And there are some assumptions and different ways to do that.

Calculating internal doses. Again, judgments here. There's sometimes favorable approaches that can be used. Even in best estimate cases, there's more favorable approaches. You may use one chronic exposure for the entire period of employment, but there's other cases where they may break it up for obvious reasons and fit the data better. Or there's different intake periods, there's different times of intakes.

There's also judgments if you don't have -- the last point I'm making there, you may have bioassay data, but, depending on the area the person worked, you may make different assumptions regarding the plutonium-americium mix, and that can impact the intake that's calculated from that.

So, again, it goes back to several issues working together, but the work location and job can impact a lot of these things.

And the last one, estimating doses

from intakes. I know one that I will say I saw a lot on this is people that mentioned contamination events in their interviews, in the CATI interviews. And the reconstructor went back and found records that showed contamination events on or about the time that the person being interviewed mentioned. And they actually had specific contamination values, they had measurement values. So, in some cases, they were able to really fine-tune the skin dose calculations from those kind of values.

But there is a judgment here, again. You know, is there enough information? Do we have to go back for more information? Can we assume that the bioassay records that we have available would encompass the incident described in the interview? That sort of thing has to go on. So, another set of judgments.

Okay, then, to go back now to the program judgments. I just listed some as examples of what I'm thinking about when I'm thinking about program judgments.

One is dose from residual

contamination. So, you know, at the Atomic Weapons sites, oftentimes there's a residual period after the operational period ended. There's maybe some residual contamination there. Work continued. You know, people were still working there. And how that exposure is assessed is usually modeled in -- well, there's an approach in a Technical Information Bulletin, and I think there's site-specific guidance for some of the AWE sites on this, too. But that's a program judgment.

Again, for these kind of cases, the reconstructor will get down to -- it doesn't have to make this decision. This is already put into the matrix for them for an AWE type of case.

The highly insoluble plutonium issue just was mentioned again this morning, TIB-49.

Here's one that may be less obvious, but uncertainty for internal and external doses. And there is some guidance. IG-001 talks about uncertainty for external doses. And I will get into that in the next slide, actually.

Just a blowup on this example, the

external dose uncertainty. There are several guidance documents. IG-001 talks about how to calculate the dose uncertainty. There was PROC-6, TIB-12, a Monte Carlo approach for dose uncertainty calculations. And, for the example I reviewed, Savannah River Technical Basis Document has some pertinent information as well.

And the point I wanted to make here is that the Implementation Guide contains a formula that is used to do this calculation that feeds into the Monte Carlo analysis of this uncertainty calculation. But it is dependent on site-specific information, the critical level, the critical number for the dosimeter, and the sigma star, which is the estimate of percent standard error for that type of dosimeter.

And those, I believe, for the most part, at least for Savannah River, they were included in the Technical Basis Document and had been discussed by the Board and the contractor. But it's one of these I think it's unclear to me whether some of those issues have been totally resolved or signed off sort of by the Board.

Part of the reason for that is that they were considered, at the time, to be Site Profile issues. And there were so many bigger SEC-type issues that had to be handled by the Work Groups that they went down that path. But there may be some questions still to consider in this question of handling uncertainty.

Okay, so, to move into my recommendations that I made in this report. Recommendation 1 is basically to do some sort of assessment on these individual personal professional judgments that are made. And I think, to sort of pick up on what Dave was talking about with the Dose Reconstruction Subcommittee, one option may involve blind reviews.

And I talked about possible ORAU, NIOSH, or Board blind reviews. And when I say ORAU, the idea I had there was to have two dose reconstructors on the ORAU team each take the case and separately work the case. And if they found discrepancies, it may be likely that it would help them to fine-tune their guidance to resolve some of those inconsistencies before they

got fully processed.

And then the next level, NIOSH blind reviews, I know NIOSH had done some blind reviews for quite some time. I think the number had reduced a little bit in the last couple years because of resource issues, but that may also be an avenue.

And then, of course, the Board. The other way to consider this, I think, and I think SC&A in their memo sort of alluded to this as well, is focused reviews. So, whether you can debate which of these issues might be most significant and perhaps do a more targeted review, focusing in on perhaps the application of the coworker models, whether the number of cases that involve coworker models, 50th or 95th percentile, look at the guidance and the professional judgment that led up to those decisions. See if it's done consistently, et cetera. That may be one area that is fruitful.

The one thing I would say on focused reviews is that I would think it might behoove the Board to look not only at an individual site

but across sites to see that there is consistency in some of these judgments. For instance, compare Savannah River cases and their approaches to Hanford, to LANL, to make sure there is consistency with how they're being done across different sites.

The last point should probably be Recommendation 1A, or it might even be included in a later recommendation that I have. But it's basically to look at refining the way NIOSH does their peer reviews. And currently, my understanding is that they, for their comprehensive or their extensive peer reviews, there's two different levels they do, there is a five percent sample that's selected from NOCTS. And it's a random sample. And I would say, perhaps for those comprehensive reviews, it's more important that it be biased toward these best estimate-type cases.

Now, I know you know you can say the Board is reviewing a lot of those cases. There's a lot of different reviews on these cases, but it may be worthwhile having NIOSH spending more of

their time on those comprehensive reviews on those best estimate cases.

Recommendation 2 goes to these program judgments. And this is basically to say that it might be useful to have nice, succinct summary documents on some of these more global issues. And I referenced Jim Neton did a report on estimating exposures during the residual period. And I think it was maybe 10 or 12 pages long, but it was a nice, succinct effort to say here's where the TIB started, here was SC&A's review, here was our Revision 1 of the TIB, and here is the Board's review, and here's where it stands, the final approved version by the Board.

And I think some of the other topics that I mentioned earlier might benefit from a similar document, especially, I mean, I've been around the program for a while, and to track some of these things through the Board Review System, the Board tracking system, and then back to transcripts and try to piece it together is time-consuming to say the least. So I think that, in terms of archiving this program for the future,

I think that that might be time well spent, for some of these bigger issues, anyway.

Recommendation 3 talks about comparing the approaches on the AWE sites. And this is that question of the hierarchy of data use. And you probably want to look and compare has NIOSH done that consistently in terms of which data should be used over which other data, when available. And I stress that, when available. But you want to see if that's being done in a consistent fashion for these similar types of AWE sites.

So, Recommendation 4. And this I say consider because I hesitate to standardize. I know all these sites are very unique. But consider at least what should be in a DR guidance or DR notes for all these sites. And I think there's a fair amount of variability right now, but some of that is probably necessary because the sites are different. But there could be some major pieces that should be incorporated into all of them.

Recommendation 5 is recommending or

considering, again, reevaluation of cases by changes in the DR guidelines. And the reason I bring this up is it's the timeliness of the reevaluation.

When the Technical Basis Documents change, that will likely trigger some of these Program Evaluation Reviews. And it's no fault of ORAU's. There's delay in the Board reviewing the Technical Basis documents, so they don't want to update. I can understand that they don't want to constantly update the Technical Basis every time the Board comes out with recommending a change in a certain part of it. They're kind of waiting for all the recommendations to come up from the Board.

In the meantime, though, DR guidance has changed quite a bit and is it significant enough to say, oh, it's been eight years since we've had a Technical Basis update and the guidance has changed quite a bit in that meantime, should we trigger a PER type of review off of these guidance changes? And not just wait until the Technical Basis changes. So, that's

something to consider.

And then this last one I feel pretty strongly about. And I think I should say that, as I reviewed this, it was clear how the growth of the program from 2000 up until now, that these DR guidelines are included in every case file that you have. There's a lot more specifics in terms of being able to get the numbers that the staff person got.

I would say, for the best estimate cases, though, there are some maybe best practices in some of those sites that I saw that might be incorporated in other sites. There's some very good language in the Hanford workbook on the usefulness of the timelines and the usefulness of, as I called it, sort of the case narrative, to aid not only in the internal reviews but also the external reviews.

So if you can point out, if the individual staff person says, "I made this judgment and this is my basis," it makes a heck of a lot easier on the Dose Reconstruction Subcommittee to say, "Okay, we agree or disagree

with that judgment and here's why."

So, better narratives and better timelines for the more complex or best estimate cases, at least.

And then just a couple more. And, again, I didn't really prioritize these. I think that's something that Stu has mentioned that's fair to -- you know, some of these may be -- all of these take resources. Some may be more of a bigger priority to the Board and to NIOSH than others.

But one thing that I noticed when I was doing the review was the tracking system, in 2012, ORAU updated their QA/QC tracking database. And I think it may be useful to see if they can in some way be combined with a larger tracking system, including the Board findings. There may be some sort of field differences and things like that that have to be worked through, but it may give you a larger number of total entries to look at to see if there's any trends in maybe some professional judgments, other things, errors may jump out more quickly that we haven't thought

about. So, making this sort of combined tracking system I thought might be something to consider.

Then, I mentioned this one already, the increased level of peer review on NIOSH's side. I do want to note, during the review that ORAU pointed out to me that the best estimate cases, they do a double peer review now. I don't know when they instituted this, but they now do two peer reviews for all the best estimate cases. And I think that's a great -- you know, again, continuous improvement. That's a great improvement.

Then this other one, the CATI information. And I say also other interview information, because there has been interviews that have been conducted through the SEC process and other processes.

And I found in review that there was some interesting information in the, I guess, "other" section or the incident section. And I thought at least a pilot project to see if extracting that information into a database and sort of looking at it in aggregate fashion,

whether that would have any utility.

And I certainly wouldn't recommend jumping in and saying, you know, make a master database out of the whole -- it's a huge undertaking and probably may not be worthwhile. But there were some -- and, specifically, I looked at certain job titles that I looked at the interview data. And it was incredible the amount of information they had in those incident and other work sections. Not always, however, with great dates or times. You know, that is one of the problems. But I thought at least it might be useful to do a subsection of one of the sites in a pilot fashion, see what can come out of it, and see if that can in any way be used to improve or enhance the dose reconstruction, the overall Site Profile, perhaps.

And that's really it, I think. The last thing I wanted to say, you know, I think it's useful to look at these judgments, the personal judgments. And again, my focus, the lens that I was putting on this, is how to reduce potential inconsistencies. And assessing and

finding the inconsistencies is one thing, but then going up the stream a little bit and looking at systems -- and when I say systems it may be the dose reconstruction guidelines. You know, can we be more prescriptive in this area? Can we have better, more clearer guidance for making these judgments to assure that it's done in a consistent fashion? But it may come down to, you know, can we change our QA process or QC process for these types of cases to assure that we catch inconsistencies that way?

I know there's other things that can be improved in the in-house level. I know that ORAU has, for the Savannah River team, they have number of dose reconstructors that focus on Savannah River cases. They often have team meetings with the whole group. My understanding is there is also another level of meetings that occurs which sort of looks at cross-site issues.

And I think so putting systems in place like that, or improving those systems, might be useful in, again, identifying these areas where there's inconsistencies and assuring

that, across the complex, across all cases, that there's a level of consistency that occurs.

And I'm not trying to suggest that there's a great degree of inconsistency right now but that would be a way for continuous improvement.

And that's all I have.

CHAIR MELIUS: Okay, thank you, Mark.

Questions for Mark? All of you thoroughly read the report.

Wanda, go to it.

MEMBER MUNN: Not questions, just comments.

Mark, you've reminded me what we mean when we say regularity. And I'll have to admit I was gobsmacked just trying to follow the pathways that you have followed yourself in coming to these conclusions and presenting this.

It just simply outdid me. And actually forced me from the technical into the existential philosophy of where in the world we're going here. There's enough material here for me to contemplate and discuss the individual

recommendations for weeks. I couldn't possibly do it in one or two meetings.

First of all, thank you for such a thorough review. I don't believe anybody could ask for more.

My first thought, after I got as far through it as I could, was to read your conclusions and say, well, to what end? But I'm not going to ask that question here because, obviously, we all know the same platitudes, to do better, to do the best we can, to get the best fairness, to be consistent, although I would even argue that inconsistency is necessary when you have the scope of individual cases that you have here.

But all I'm going to really comment on is the fact that I don't believe that one can remove judgment from what we do in our daily lives, and certainly not from what we do in programs of this magnitude. Even the choice of the word judgment is in itself judgmental.

You called what we do here on the Board an evaluation. But the truth of the matter

is, what we do here is express our judgment. And in everything I see that you suggested here, ultimately what is happening is you're asking judgments to be placed on other people's judgments. That's what we all do. We are making choices in everything we do.

And although I'm not, in any way, dismissing any of the points that you've said here, I can't get past the fact that what I see here is an enormous extension of the problem. That's what I meant when I said, to what end? Whether it's going to make anybody any happier, whether it's going to provide what adds up to about a quarter of a million dollar assignment to more people, I don't know that. And I don't think any of us know that. But, certainly, it does not meet one of my preferred goals, which is to establish and adhere to a program which had all the best intentions in the world when we began.

So, I just want us to be aware of the fact that everything that I've seen suggested here, although I have no objection to any of it, I see most of them as being an attempt at greater

precision that, ultimately, boils down to our making a judgment about judgments that have already been made, or judgments that will be made in the future, based on judgments that we've already made.

But it's certainly been an interesting study and is beneficial from the point of view of identifying where the marks are. Thanks for doing it.

MR. KATZ: Before we go on to others, there are people on the phone who are carrying on conversations, and I guess they are more audible for folks on the phone than they are in the room, but it's important that we put an end to that, please.

So, people on the phone, everybody should have their phone muted. And if you don't have a mute button, press *6. That will mute your phone and then you can carry on with your conversations without disturbing everyone else.

So, again, *6 will mute your phone for this conference line so that everyone else can hear well. Thank you.

OPERATOR: And excuse me, sir, this is the operator. If you'd like, as the leader, you can press *4 and that will mute everybody but the person presenting.

MR. KATZ: Yeah, the trouble with that is that we have people on the line that we do need to hear from and we don't want to mute them. But thank you.

OPERATOR: Okay, you're welcome. Enjoy your conference.

MR. KATZ: Thanks.

MR. GRIFFON: Wanda, I know there wasn't a question in there, but I do want to say that I think there was something you said that I think is very important, that in the professional judgment, in these judgments that are made, I think there's a line that people are going to find between can we prescribe a direction or guidance to handle a certain issue or there's just individual unique cases that you have to have some flexibility?

So I think overprescribing can be a problem, too. So I don't want say -- that's why

I said there's multiple systems to consider and maybe trying to -- and I am looking at the continuous improvement. And also I need to highlight again that I'm talking, where these issues have an impact, I believe, is the five percent of the cases. And it's the five percent of the cases that the Board is focused on in the DR Subcommittee reviews. So, they've gotten a lot of attention.

But we're not talking about the majority of the cases being processed. It's this smaller group that's close to the 50th percentile.

But, anyway, thank you for your comments.

CHAIR MELIUS: Josie.

MEMBER BEACH: Mark, your report is excellent, a lot of things to think about. I particularly like the transparency part of it with your Recommendation 6. I think that would bring in a little bit more transparency, not that anybody did anything wrong, but how it was done, why it was done, so that others can follow it

later. Thank you.

CHAIR MELIUS: Other questions or comments?

MEMBER ROESSLER: Jim, this is Gen.

CHAIR MELIUS: Okay.

MEMBER ROESSLER: Yes, I would like to either agree or disagree with Wanda, just to liven things up a little bit, but I appreciate Ted's comments about muting. I think that helps. But I know Wanda will be talking again later. So I would recommend, Wanda, that you get closer to the mike and speak a little louder so we can hear you. That's one comment.

The other one is by sitting here and listening to both of these reports, I think things have come a long ways on this subject. And I think the Subcommittee has a lot to work on. And I think, under Dave's leadership, that they'll go quite a long ways on it.

CHAIR MELIUS: Dave.

MEMBER KOTELCHUCK: Just a comment. First, it was an excellent report; difficult because it is granular. But I did find your

distinction between personal and programmatic judgments useful. And it seemed to me that a focus on the programmatic judgments is probably what we can best consider, because those are judgments that we've built into the process and it may be that they should be considered, reconsidered, modified.

So, those programmatic judgments, I think, are what I would certainly like most to focus on.

CHAIR MELIUS: David Richardson.

MEMBER RICHARDSON: One of your recommendations was considering more systematic use of CATI and other interview information. One question was -- well, first an observation. I know that that's been a point that you've raised maybe for a decade. Do you still, in your reviews, do you still find cases where that information's not being drawn upon?

MR. GRIFFON: I think it's certainly considered in all the dose reconstructions. All the ones I reviewed certainly considered it. I think that what I wanted to point out, I didn't

get it down into whether they made the proper judgment, but, in most cases, and this has been pointed out before, there's limited information. Some of them mentioned an incident that they were exposed to plutonium, they got an intake of plutonium sometime in the '80s, you know, and it's very hard to connect that back to their individual dose records and things like that.

But, when they have dose records over the course of their history, usually the way it's considered is, like, you know, do we find any reports of these, official reports of this incident? If not, does the person have bioassay records all around that time period that would give the opportunity to reconstruct the dose? And if so, then it's reasonable to assume that they can reconstruct dose from those personal records.

There was one in particular that I found where there was an external exposure mentioned in the CATI to a californium-252 neutron source. And I believe there was a correction, based on the person's interview

record, that quite significantly increased the estimate of exposure for that time period for that person. And then that raises the question of, you know, if you collect this data in aggregate, maybe there's other people that worked in that area during that time period that you may assess their dose differently.

But for the most part, definitely, they considered all the incidents in the interview information.

MEMBER RICHARDSON: So, in the sense of being systematic with that information, when something is noted, it's flagged and then the judgment about its relevance is documented?

MR. GRIFFON: Right. Right.

MEMBER RICHARDSON: Okay.

MR. GRIFFON: Yes.

CHAIR MELIUS: Henry? And this will be the last comment. We need a break, especially since we need to take a taxi to find the restrooms in this building.

MEMBER ANDERSON: I just wanted to say I found it a very useful review. And I think

having all that documentation there, although it seems overwhelming, it is very helpful for moving forward.

And I would point out that the program is now settling in and is old enough so that there's staff turnover, both at ORAU and at NIOSH, and it will be important for new staff coming in. We'll have new approaches to judgments to be able to look at this, and, NIOSH, as part of your training, deal with that. So the new staff is where a lot of the risk or the differences could potentially occur.

And also I like your recommendations, three of them being kind of firm and the others being considerations. So I think that's important.

But I would say Recommendation 1 follows on our earlier discussion. And I think the Committee has done -- and is spending a great deal of time and effort and resources on reviewing these cases. And I think if we now use your focus to see whether, out of those, we can capture some of the data specific to these types

of issues, that may be an easy way to not have to do something additional, but simply continue with what we're doing and capture a better set of data that everybody can use. It's there, but having to go back through and sort it out takes a lot of time and effort. But if we just do it going forward, put it into our system, I think that would be very helpful.

CHAIR MELIUS: Okay. So let's break. We'll come back with further discussion on this issue later in the meeting. Since I have a short presentation, but Wanda's comments took up all my time, but I'm not going to intrude on her time. I know better. But we have some other Board work time that we'll handle it.

Thank you very much, Mark.

MR. GRIFFON: Thank you all.

CHAIR MELIUS: Don't go away and try to get back as promptly as you can around 11 o'clock because we do have a petition and a petitioner on the line. So we need to move it along on that.

(Whereupon, the above-entitled matter

went off the record at 10:45 a.m. and resumed at 11:04 a.m.)

CHAIR MELIUS: Okay, if everyone can get seated? Yeah, get seated. At least stop talking. You can stand up and not talk, whatever you want to do, but just don't talk, and hopefully people are back on the phone. We know the people on the phone weren't talking, just people in the room we were pointing out.

So we start now with Ames Laboratory, the SEC petition 83.14, and Tom Tomes, Tomes?

MR. TOMES: Tomes.

CHAIR MELIUS: Tomes, Tom Tomes, okay.

MR. TOMES: Either way will work.

CHAIR MELIUS: Okay, I have the same problem. I can't remember how to pronounce my name anymore, so from NIOSH. We'll start. Welcome.

Ames Laboratory SEC Petition

(1971 - 1989; Ames IA)

MR. TOMES: I'm here to give a NIOSH Evaluation Report for SEC 245. SEC 245 is with Ames Laboratory for the period of 1971 through

1989.

A little background on Ames Laboratory, it's located on the campus of Iowa State University in Ames, Iowa. There are two specific locations. One is on the main campus which consists of a few buildings, and there's a remote campus location about a mile away that's the location of the former Ames Lab Research Reactor and a couple other facilities.

Ames Laboratory is a DOE covered facility from 1942 to present. They have engaged in various research in material science and theory. In their early years of operation, they developed methods and produced uranium and thorium.

They produced approximately 1,000 tons of uranium metal during World War II, and they produced thorium metal, about 65 tons from the 1940s through 1953. Those operations resulted in contamination of a few buildings on the site.

The background for this petition is a review of the Ames Site Profile. NIOSH has a

Technical Basis Document, TBD, that is used as a guide for dose reconstructions. SC&A provided a review of that report to the Board in August of 2013.

The review contained 22 findings on various aspects of the internal dose and external doses. NIOSH has provided a response to the Ames Laboratory Work Group, the two White Papers on a number of those findings, but among those findings were comments that certain intakes lacked the basis for dose reconstruction.

In an attempt to resolve those findings, we have done - we contacted Ames Laboratory and requested additional documents. We've received those documents, reviewed them, requested more documents, and finally we made a trip out to Ames Laboratory and went through the records and got more documents. That was done in June of this past year.

We have now gone through those records and we have determined that we do not have enough information to fully reconstruct internal doses prior to 1990 which prompted the 83.14 petition.

NIOSH believes that the available monitoring data and the information in the Site Profile are sufficient to reconstruct external doses. Adverse external dose findings in the Site Profile review by SC&A, but we believe those are Site Profile issues that can be resolved.

There are four previous SEC Classes established for Ames Laboratory. The first of those was SEC 38. That period covered the Class from 1942 through 1954. The basis for that determination was insufficient internal dose monitoring for thorium and plutonium. I believe this was on the slide that was also for that determination.

The conclusion also - they also made a conclusion that there was insufficient external dose monitoring data prior to 1953. That particular petition covered five facilities that were identified as being involved in the process.

SEC petition 75 resulted in a Class added from 1955 through 1970. The basis for that determination was insufficient monitoring data for thorium worked in Wilhelm Hall. Wilhelm Hall

was the location of the thorium production, most of the thorium production work from 1949 through 1953. The SEC Class 75 determined that there's insufficient data to reconstruct doses to maintenance workers who performed renovation work in that facility.

A third Class was added, SEC Class added at Ames Laboratory. That covered the period from 1955 through 1960 for work and research, studying research work in Spedding Hall. Spedding Hall had several laboratories for research in radioactive materials. It also had a hot cell in the facility.

Those three Classes combined comprise a Class from 1942 through 1970 for various workers and facilities. A fourth Class was added, SEC 185, which redefined those Classes to include all employees in all areas from 1942 through 1970.

In SEC 245, NIOSH proposed that all - to add a Class for all employees of the Department of Energy, predecessor agencies, and their contractors and subcontractors who worked in any

areas of the facility from 1971 through 1989. The basis is insufficient monitoring data and process information to reconstruct internal dose.

There are 123 claims that NIOSH has received with employment in the period evaluated by SEC 245. Of those 123 claims, 16 have tritium bioassay data. The tritium bioassay was a routine monitoring program for the Ames Lab Research Reactor during operation and decommissioning. A few of those 16 claims have a couple other incidental miscellaneous bioassay data. Twenty-one of the 123 claims employed in that period have external dosimetry data.

Ames Laboratory operations, we've grouped those into three basic aspects of operations with potential radiation exposure. One of those is the research and development of various radionuclides.

The other is the operation of the Ames Laboratory Research Reactor which was a five megawatt heavy water research reactor. And finally, a third category considered the remediation of past contamination primarily from

the production era of 1942 through 1953.

In the research and development, the research started in 1942 in the early days of the Manhattan Engineer District Project, the Manhattan Project. They did laboratory research work with uranium, thorium, and plutonium. They worked with rare earth metals, fission products, activation products, and other various radionuclides.

Various equipment and devices were used and they had facilities, box facilities for work with plutonium and uranium.

They also had additional work beyond the laboratory work. They had the Metals Development Building that was built specifically to process studies larger than laboratory scale work. They processed uranium and thorium metals up to 25 pound batches.

This work was processed in various - in other facilities, the chemical processes. The Metals Development Building had a machine shop that produced materials for use in ground and at the machine shop for further studies at the

laboratory.

The Ames Laboratory Research Reactor was operated from 1965 through 1977. The decommissioning work was completed in 1981. Also located near the Research Reactor facility location were a couple other buildings, including some burial grounds where contaminated debris was buried in the early years of operation.

The reactor facility was also the location of a waste disposal building, and that building still exists and it houses the Alpha Operations Facility which was built initially in the mid-1980s for low box work with uranium and plutonium to support their ICP work, research work.

The other category, next category of work is the remediation work at the facility. Wilhelm Hall, as I mentioned earlier, was the location of most of the thorium production work. It was built in 1949. Previously, the thorium production work occurred in Annex 1, Chemistry Annex 1 and Chemistry Annex 2. All of those facilities were contaminated as a result of the

production work.

Annex 1 was demolished in 1954. Annex 2 was demolished in 1972. Wilhelm Hall is still an operating facility that has had various projects over the years for remediating areas that were contaminated and identifying contaminated areas.

Some of the areas that were contaminated included duct work, pipe tunnels, inaccessible areas that are under furniture fixtures and things like that that they have had to track over the years.

Other remediation work that was done during the evaluated period was the Gillman Hall stairwells. Gillman Hall was the chemistry building. It was known as the chemistry building back in 1942.

That building was the site of the initial work with uranium production. About a third of the metal that was used in the CP-1 Pile was produced in Gillman Hall and parts of that facility were contaminated. In 1943, that work was transitioned from that facility into Annex 1

and Annex 2.

Other remediation work in the evaluated period was a block house as I mentioned earlier was located out near the Ames Reactor. That was demolished, and there was also thorium contaminated debris in soils that were excavated. Those were from previous work at the site.

To support the remediation work, they operated a waste handling building. The waste handling building received all of the radioactive materials on site and packaged them for shipment off site, and there are records from people who worked there that they had some potential exposures in that facility. They wore respirators.

The radiological monitoring data is fairly limited during this period. There are some environmental air samples from 1980 to 1982. There are some air samples from Spedding Hall and Wilhelm Hall. They are insufficient to characterize intakes for all workers, and there are a few air samples from the Alpha Operations Facilities in the mid to late 80s.

In addition to this data, there is also, I mentioned they had a routine tritium monitoring program. That was in place during both the operation of the research reactor and in the decommissioning, and those data are sufficient for those workers who were monitored.

There is also a substantial amount of loose contamination survey data available in more recent years. Some of that is a significant amount of smear data, and most of that data, the majority of that data is available from 1983 forward, and that's when they started doing a more concentrated effort to identify contaminated areas in the previously used facilities.

The data is not sufficient to characterize work during all of the remediation - exposures during a lot of the remediation work. Much of that data is verifying clean condition after some of that work was done.

For the internal dose feasibility, NIOSH concludes that the tritium bioassay data from Ames Laboratory work are sufficient to use to estimate dose. However, we have no

information on which to estimate intakes from fission products or activation products from that facility.

The research and development work, there are insufficient data also to estimate intakes from the various radionuclides that we use in that work, and NIOSH concludes that some of those operations had the potential for internal dose to the workers.

For the remediation work, the primary exposures are thorium and uranium. There was a significant thorium and uranium contamination in several facilities, and those have been gradually, during the early years, gradually remediated. Again, the data that I discussed as available earlier is insufficient to write an estimate intake for those operations.

And the conclusion for SEC 245 is that there is insufficient monitoring data or process information to reconstruct internal doses from 1971 through 1989. For the post 1989 period, we still have some work to do on that.

We are - much of the data we received

in our research in response to the findings indicated some additional radiological work that we did not settle previously in the Technical Basis Documents, so we're continuing to review those and address findings in the Site Profile.

CHAIR MELIUS: Okay, questions?

MEMBER ROESSLER: Jim, this is Gen.

CHAIR MELIUS: Yes, go ahead, Gen.

MEMBER ROESSLER: Okay, Tom, you mentioned work that you're doing after the 1989 period, but wasn't this end date chosen because most of the radiological work had ceased at the end of 1989?

MR. TOMES: Yes, it was. The discussion I had in here on the remediation work, much of it was done, but not all of it was done. There was still some work done on remediation of pipe tunnels and things in Wilhelm Hall, and we have some comments to look at on that.

The operation of the Alpha Operations Facility was ongoing past 1990, but I agree that according to what we found out, there was not significant operations past 1989, that the

exposures should have been reduced at that point.

MEMBER ROESSLER: Okay, the other comment I have is you mentioned 123 claims, and I was wondering how many potential people would be in the Class, but I think Chris Crawford mentioned that this morning. I think at Ames he mentioned 350. Is that right?

MR. TOMES: Well, the 123 claims are the claims that we've identified as of whenever this date we did this check a few weeks ago that had employment during the 1971 through 1989 period, so those claimants who had a covered cancer and 250 days would be some portion of those 123 claims.

MEMBER ROESSLER: Okay, that's the end of my comments.

DR. NETON: This is Jim Neton. I think it's actually somewhat less than the 123 because that's anyone who had employment in that period, but there's a number of people that had worked prior in the previous SECs. I think I want to say the number is in the 50, 60 range. It's in the Evaluation Report. There's a table that

contains that number.

MR. TOMES: That's correct. The presentation just had an abbreviation, but there's a table in it.

MEMBER RICHARDSON: Could I ask for a follow up to that because there's a distinction between the number of claims you have and the question which is, "What is the size of the Class?" And my understanding, and you can correct me if I'm wrong, would be that in this case, the DOE or its predecessors had a contract, grants or contracts, with an organization, and that was the university. Is that right?

MR. TOMES: The facility started out as under contract to the Manhattan Engineer District.

MEMBER RICHARDSON: Yeah.

MR. TOMES: And after World War II, they established Ames Laboratory.

MEMBER RICHARDSON: But it's here the contract is with Iowa State.

MR. TOMES: Well, they are the operating contractors.

MEMBER RICHARDSON: Right, and the documents, I mean, we went through this before, but the documents sort of describe, at least for some period of time, there were no operational - there were no controls, restrictions over entering the chemistry building and some of these other buildings which were university facilities. So is - I mean, I've always had this in my head that the potential size of this Class is enormous.

MEMBER ROESSLER: But according to Chris Crawford, I thought he mentioned the potential Class was 350.

MR. CRAWFORD: This is Chris Crawford, Gen. The information on the slide that I had for Ames said that a total of 950 claims have been filed. I might point out that 291 have Part B approvals already. 299 have Part E approvals already.

NIOSH has done 186 dose reconstructions. That's the kind of information I have here, but it doesn't lay out how many are in SEC Classes.

MEMBER ROESSLER: So is the - somebody said they thought the Class was enormous. I think we need to have a little better number on that.

MEMBER RICHARDSON: See, I was going through my head. It's Iowa State employees at this period would be those, and they don't - and there's no - you said that you can't identify who went into which buildings in which locations, but again, maybe I'm misunderstanding.

MR. TOMES: I believe we were talking about Ames Laboratory employees as determined by the Department of Labor.

MEMBER ROESSLER: It's probably - it's not pertinent to a decision here, but I thought it was - just out of curiosity, what is the number?

MR. RUTHERFORD: You can't define a number because it's going to be whatever number employees or people that get a cancer and file a claim that DOL determines has covered employment, but as Dr. Richardson mentioned, that could be a very large number.

MEMBER ROESSLER: Okay.

CHAIR MELIUS: My recollection is that we had resolved that, so it wasn't the entire university was covered, because I think it came up many years ago when we were first doing the Ames issue, and I think we straightened it out in terms of how the contract was defined and who it was with, but I don't recollect that.

MEMBER CLAWSON: Jim, this is Brad. I think that you're correct in that. I thought that we had taken care of this earlier on with Ames, that it wasn't the whole university.

CHAIR MELIUS: Yeah, we were - it was a concern, so, yeah, I don't want to dismiss it. We had the same issue with MIT and the laboratory up there. It looked like every graduate student at MIT because it would be employed, I mean, potentially employed, so how do you narrow it down, but that got taken care of when they sort of redesignated the facility, but I think it's the facility definition that also plays a part.

MR. TOMES: I believe there are currently approximately 725 workers at the facility full and part time, so over the years,

it could be a substantial number of claims.

CHAIR MELIUS: Which was, Jim, you had a clarification? No, confusion.

DR. NETON: I agree with you. I think we had this discussion at one of the earlier four SECs that have already been established, and the work is covered at Ames Laboratory, not the University of Iowa, and I'm not sure exactly how Department of Labor parses that out, but we did have this discussion and we have the claims we have.

I just checked their - right now, we have 57 people who started employment during this covered period that we're discussing. How many more could apply, you know, who knows?

CHAIR MELIUS: Could someone try to get some clarification on that so that we - not immediately, but hopefully while we're still thinking about it before we leave here or something? I don't think it necessarily needs to hold up our decision on this SEC, but any other - Josie, yeah, go ahead.

MEMBER BEACH: Not for Tom, but just

in general. I know there's a Work Group formed for Ames. Do we have a recommendation or has the Work Group met on this at all?

CHAIR MELIUS: The Work Group has not met on this, no. Remember, this is the one, this is the report that DOE had to, you know, facilitate its quick review which we thank DOE for. I'm not sure why it got hung up at NIOSH for so long, but they got it through, so that's fine. Any other comments or questions? Yes, Lorraine? Loretta, excuse me.

MEMBER VALERIO: So if I am understanding correctly for the internal dose feasibility, that the ongoing remediation beyond the 1980s is focused primarily on thorium and uranium?

MR. TOMES: The only ones that I know of is some occasional work that was done on the pipe tunnels in the Wilhelm Hall. In the late 1980s when they were instituting additional controls as far as DOE Order 5480, they had an increased effort to identify those areas, and there was some work done on washing those tunnels

down and remediating those in the 1990s, so there is at least some potential exposures to consider, but it was not routine work going on.

CHAIR MELIUS: Okay, any more questions or comments? I think I need to hear - it's an 83.14. Do I get a recommendation from the Board? It's an 83.14 petition. Yeah, there is a - is the petitioner supposed to be on the line? Not for - okay. That's what I thought. Okay, so does someone want to recommend an action? David, just speak into the microphone, please.

MEMBER KOTELCHUCK: I'll recommend as Chair of the Work Group, the Ames Work Group, that we accept this as an SEC.

MEMBER BEACH: I'm going to second it.

MEMBER CLAWSON: I wanted to second it.

CHAIR MELIUS: Brad, you're out of order. You weren't called on.

MEMBER CLAWSON: Sorry.

CHAIR MELIUS: Okay, and let me just for the record read the Class Definition into the

record. All employees of the Department of Energy, its predecessor agencies, and their contractors or subcontractors who worked in any area of the Ames Laboratory in Ames, Iowa during the period from January 1, 1971 through December 31, 1989 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. So no further discussion. Can we - Ted, do your -

MR. KATZ: Sure, Anderson?

MEMBER ANDERSON: Yes.

MR. KATZ: Beach?

MEMBER BEACH: Yes.

MR. KATZ: Clawson?

MEMBER CLAWSON: Yes.

MR. KATZ: Field?

MEMBER FIELD: Yes.

MR. KATZ: Kotelchuck?

MEMBER KOTELCHUCK: Yes.

MR. KATZ: Lemen?

MEMBER LEMEN: Yes. Did you hear me?

CHAIR MELIUS: Not now. Our eardrums are all punctured.

MEMBER LEMEN: I don't know what's - from my end.

MR. KATZ: Lockey?

MEMBER LOCKEY: Yes.

MR. KATZ: Melius?

CHAIR MELIUS: Yes.

MR. KATZ: Munn?

MEMBER MUNN: Yes.

MR. KATZ: Poston? John Poston? Maybe you're on mute. I'll come back. Richardson?

MEMBER RICHARDSON: Yes.

MR. KATZ: Roessler?

MEMBER ROESSLER: Yes.

MR. KATZ: Schofield?

MEMBER SCHOFIELD: Yes.

MR. KATZ: Valerio?

MEMBER VALERIO: Yes.

MR. KATZ: Ziemer? Paul? Perhaps you're on mute too. Oh, Paul may be absent for

- he has a short period when he can't make it. Let me just go back. Dr. Poston, John, are you on the line, but on mute? Okay, then, well, I have two -

CHAIR MELIUS: He said, yes, he's on mute.

MR. KATZ: I have not heard it. Yeah, so, anyway, we have two absentee votes. I may try to collect those later in the meeting, but otherwise - the motion passes.

MEMBER BEACH: And then, Jim, just to further, the Work Group will take up any further issues on like the -

CHAIR MELIUS: Oh, yeah.

MEMBER POSTON: Ted?

MR. KATZ: Oh, there he is.

MEMBER POSTON: Ted?

CHAIR MELIUS: Yeah, just go, John.

MEMBER POSTON: This is John. I hit the wrong button and hung up. That was an ulterior motive, I guess.

CHAIR MELIUS: Okay.

MEMBER POSTON: But I vote yes.

CHAIR MELIUS: Okay, thank you. Thanks, John. Ted's handing out the letter, so I'm filling in for him.

MEMBER POSTON: And I'll try not to hit the hang up button this time.

CHAIR MELIUS: Okay, so again, I'll read into the record. The Advisory Board on Radiation Worker Health, the Board, has evaluated SEC Petition 00245 concerning workers at the Ames Laboratory and the statutory requirements established, incorporated into 42 CFR Section 83.13.

The Board respectfully recommends that SEC status be accorded to, "all employees of the Department of Energy, its predecessor agencies, and their contractors or subcontractors who worked in any area of the Ames Laboratory in Ames, Iowa during the period from January 1, 1971 through December 31, 1989 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. During this time period, the Ames Laboratory was involved in research and development work related to the production of nuclear weapons. This work included some remediation work on contaminated facilities.

Two, NIOSH found that there were insufficient biological monitoring data, air monitoring data, or process and radiological source information at this facility in order to complete individual dose reconstructions involving internal radiation exposures with sufficient accuracy for Ames Laboratory workers during the time period in question. The Board concurs with this conclusion.

Three, NIOSH determined that health may have been in danger for the workers exposed to radiation at the Ames Laboratory during the time period in question. The Board also concurs with this determination.

Based on these considerations and

discussions held at our December 13 and 14, 2017 Board meeting held in Albuquerque, New Mexico, the Board recommends that this Class be added to the SEC.

Enclosed is the documentation from the Board meeting where this SEC Class was discussed. Documentation includes copies of the petition, the NIOSH review thereof, and related materials. If any of these items are not available at this time, they will follow shortly.

If anybody has grammatical or other changes, let me know, but that will be the letter that will go forward to the Secretary.

Okay, so we have some time. I thought we would, rather than impinge on Wanda's time and getting myself into big trouble, I thought we would take up some follow up on the dose reconstruction review methods if I do that quickly, but just, I have a short presentation that just sort of - it's a laundry list of some of the things under consideration.

We've heard Mark's recommendations. There were some other recommendations that we had

talked about internally, as well as within the Work Group, and then there were also some recommendations, or suggestions, I should say, from SC&A from John Mauro, Rose, and others there that are on this list.

It's in no priority order or anything, but I thought we want to get going on this, and I would appreciate input from the Board on where we should start with whatever we decide to do on changes to our methods for doing dose reconstruction reviews.

We will take any recommendations the Board Members have, others, and back to another Work Group meeting, and then come back to the Board with a set of recommendations for starting to implement some changes to that. I think this will be sort of an ongoing process for a while while we, until we get some results and see what works, what doesn't work, and so forth.

So I just have four cryptic slides, but we'll go through some of this. First of all, I'm going to begin with sort of some of the considerations we need to sort of think about in

terms of how we approach changes to our dose reconstruction reviews.

And we've largely talked about it within the Work Group changes that had to do with consistency, but also, I think, accuracy and consistency are the issues that we're sort of focusing on.

We also have to consider do we do that looking at just a single site, or do we look for consistency across multiple sites? Are dose constructions for similar types of exposures, or work tasks, or work operations done similarly at each site? And that may be because of some differences in terms of how and when Site Profiles get reviewed and procedures get reviewed. That may be something that we want to sort of focus on over multiple sites.

I think another general consideration, are we using all of the available information that's available for that particular site or on that particular issue?

Another consideration is I think we want to focus our efforts on significant

exposures, meaning not on trivial exposures or things that are really very unlikely to affect dose reconstruction outcomes, but rather it has to be something meaningful.

That's a slippery - a little difficult to define. We've tried that before in looking at this and trying to focus, but I think it is something to take into account.

And then I think one other thing as Mark mentioned a little bit and it came up in our discussions, do we do a separate type of evaluation or do we try to incorporate some of this evaluation into our ongoing reviews, either our blind reviews, or more likely, our primary reviews as sort of an add-on to those which has advantages in terms of we've got the committee all set up, and the cases selected, and so forth? So, and it may depend on what the subject is we're focusing on.

And then one of the other sort of bigger questions, I think, is do we expand our procedure reviews? And that means do we go father down into the dose reconstruction process?

Mark used the term program judgments where there's some sort of documentation or procedure that's set up that's below the level of a Site Profile or TIB, and one that is not usually reviewed by the Board. I'm not sure all of them are even reviewed by NIOSH.

They're sort of implementation documents and so forth, but, you know, may or may not have, you know, a significant potential for doing dose reconstructions and affecting the outcomes of those. And again, for some, it's a question of resources. For some, the question is how, you know, what's involved in that particular documentation?

I think our Dose Reconstruction Review Committee has run into those occasionally, and they're trying to resolve discrepancies between SC&A's review and the ORAU dose reconstruction.

Another one that Mark mentioned is how we utilize CATI information. And if you go back to meeting 20 or something like that, at the beginning of this process, we had a large discussion of even as part of dose reconstruction

reviews doing separate interviews, additional interviews with the claimants as a way of seeing what kind of information was obtained or not obtained in that process.

That made everybody very nervous, but we decided not to do it, implement that, but I think in between doing that and just sort of accepting what's in there now, I think taking a better look at what's in the CATI, are there better ways of using that information to confirm or to modify dose reconstruction is something worth looking into.

Again, Mark mentioned this, and he also mentioned this next issue which is how to handle incidents. It's again been an issue that we've struggled with for a long time. Again, now that we have more data and information, is there better ways of - and we've got essentially more claims to look at. Is there a better way of using that available data in some way and doing it more consistently so that all claimants get a fair evaluation?

And again, we always run into the

problem that a lot of these CATI interviews about incidents and so forth where they come up, some people know about them, but then you have survivors who may have, obviously have a lot less information on what their spouse or parent may have been doing.

Again, these mostly come from Mark and the assignment of coworker dose to individuals, and how that's done procedurally and the judgment that's involved in that. Again, this came from SC&A location of skin cancers, some consistency in how that's done because that can make a change in terms of the dose reconstruction process, the various uses of in vitro and in vivo data.

Again, Mark already mentioned assignment of work title or how someone's exposure is judged or work tasks are judged. He had some examples of that in his report. Assignment of glove box correction factors again is something that may affect dose.

I think one issue, I think this is in Mark's report, was consistency of approach of using data across multiple AWE sites. This may

be sort of a question of timing of when Site Profiles were done and so forth, and I think how is that being - you know, how is that resolved and is that being done the same at every site in terms of how those judgments are being made?

And again, Mark, I think, elaborated on this, assignment of exposure area for individuals within a given facility. How is that judged and how is that consistent? Are the dose reconstructions consistent in doing that, various site assignments within large facilities, people moving from within a facility, and how is that evaluated and taken into account in dose reconstruction?

And again, more technically, assignment of missed dose and judgments that are made about that in terms of within the dose reconstruction process, how do you handle discrepancies in what monitoring data is available or when the data has inconsistency in various sources about that monitoring data, and the residual contamination issue which is, I think, really also the issue of consistency among

multiple AWE sites, but goes beyond that, and then assignment of various percentiles and so forth in terms of the 95th, or 50th percentile, or 75th, or whatever, for a dose reconstruction.

There's a lot of things we could look at, and I'm not sure, you know, what's the most important or whatever, but if people have ideas, Board Members, on what, thoughts on what we should be doing or where they think - or based on their experience?

We've all looked at individual dose reconstructions. Obviously our - Dave's committee has done it a lot more and seen a lot more than all of us, the rest of us, but I think I would be interested in everyone's input and thoughts, maybe now or maybe later, about what we should be focusing on, what they think ought to be our priorities for getting this process started.

So let me open it up if you have suggestions. I'll call on everybody except Wanda.

MEMBER MUNN: You don't want that.

CHAIR MELIUS: Questions, comments? If not, our committee will make a decision. Dave?

MEMBER KOTELCHUCK: It does seem to me that many of the ones that I consider of most significant concern relate to AWE sites, the assignment of coworker dose, the assignment of work title for AWEs which is discussed in the report, residual handling of residual contamination.

So it seems to me that to begin the - if those are priorities to begin with, we should begin to start looking more at AWE sites in the review process.

CHAIR MELIUS: Yeah, I would agree with that because I think it's probably where there's a lot of judgment involved, and enough similarities among those sites in terms of the type of work that was done that it would probably make sense to see how that's being handled across the sites, and obviously the issues with contamination and so forth. Henry?

MEMBER ANDERSON: Yeah, I would agree with that. I think the CATI information is one

that's worth looking at as to how the CATI information is utilized other than, you know, identifying a series or have a separate list of incidents, then going back to the site information to see if you could identify an incident.

I would be interested in what is done when you can't find the documentation for an incident that the CATI report seems sufficiently specific, that are you going to ignore it because there's no documentation for it, or how is that information subsequently used?

Because that could make quite a difference in your dose reconstruction if you accept CATI information without follow up or subsequent documentation for such an incident. How does a reviewer review that?

You look at it and, "Well, this sounds like the type of incident that we've seen at other facilities, and therefore it would not be unexpected in this particular circumstance, so it's consistent with the overall look at other sites and other things." How is that currently

handled?

In the specific reviews that I've done, I haven't had any where that's come up, and I don't know how often this is, and maybe the committee has some thoughts on that.

So it may be an unnecessary concern for something that doesn't happen very often, but the CATI information does seem to be quite rich in many cases, and therefore probably in more times than not, you actually go back and find that there is a mention in somebody else's report or something of such an incident to then utilize it, so it's useful, but when you can't do that, what happens?

CHAIR MELIUS: Dave?

MEMBER KOTELCHUCK: Well, the CATI information I found, well, generally, it seems to be handled that - for each individual case, there's a report of CATI info, you know, some CATI report, and then it's said, "Well, to what extent can we check it for this person?"

And I wonder for DOE facilities where it seems - I wondered if there's ways of gathering

the CATI reports, having a report on the CATI reports from one particular facility to help us pin down some information about that, or if it's not coworker data, but to see whether there are similarities perhaps in exposures, in external exposures at the sites where incidents have been reported with a certain amount of consistency, and that would be DOE sites as opposed to the earlier discussion which I suggested that we go AWE.

CHAIR MELIUS: Yeah, I think one of the questions would be: can you look at other CATI interviews for people with similar, you know, work, and time periods, and locations, and so forth? And then -

MEMBER ANDERSON: Is there some coding on it? That would be the question. Most of this seems most of the cases are focused on the individual as opposed to a surveillance system where we could sum up how many CATI reports there are in X, Y, Z.

We really don't have a data capture that can support that, so if that couldn't be

done, then we need to think about is there a way to put a key word search or something like that into the CATI system going forward as opposed to trying to reconstruct some of it.

CHAIR MELIUS: But I think it's also are there other dose reconstructions for people at that site where incidents were documented and there's follow-up exposure information that would weigh into the judgment of the dose reconstructor on whether or not that was a real incident or, you know, they had enough information to take it into account? Because again, this is dose reconstruction, so it's not if that had more information than just there was an incident on that. Wanda, I can't ignore you.

MEMBER MUNN: In the same vein, the only one of the suggested potential review targets that I can support most enthusiastically is the focus on significant exposures.

So we have spent a great deal of time over the years with lesser small exposures that we had asked the question in deliberation, "Is this going to significantly impact anything?" and

the answer is always, "No," except if there is something that was felt was necessary for completion. And I certainly agree focusing on significant exposures is a lofty goal and one we should pursue at all costs.

CHAIR MELIUS: Dave?

MEMBER KOTELCHUCK: Agreed.

CHAIR MELIUS: We'd better stop there. Other thoughts or suggestions?

MEMBER BEACH: I'm just going to throw my hat in for the timeline again, that way you'll know it's in the open of what was done, and what wasn't done, or why it was done, or - I think that's a value.

CHAIR MELIUS: I think it's also - I mean, in all, particularly in Mark's report, but I think we have to sort of think about speaking thereof, but, I mean, again, we're going to have to coordinate what we do with NIOSH and do that because I think, you know, there are some suggestions from Mark's report that sort of focused more on NIOSH and ORAU.

Are they - do you just target them on

certain types of dose reconstructions or, you know, are they worth the effort to, you know, have that documentation? But certainly it's helpful in cases you're reviewing. Stu, do you have any thoughts on that?

Lavon did it, Lavon. He was the last one up there.

MR. HINNEFELD: Okay, I'm on now? Okay, I have two conflicting overall responses to recommendations like this. One is that we at NIOSH of course are very interested in doing quality dose reconstructions and consistent dose reconstructions, and making sure that everyone gets the same shake when they come into the program, so we're interested in paying attention and doing really good work.

My conflicting response is that all of the effort we put into this evaluation effort is effort we don't have available to do dose reconstructions and site research for Site Profile and SEC work, so I'm fundamentally conflicted.

I think in terms of a timeline, which

is extremely attractive, and it's attractive to me because it provides a clear and unambiguous record of the government's decision, that's what I like and that's why I say we're not doing this for reviewers.

We're building a clear and unambiguous record of the decision. While I like that, that is the only recommendation that our contractor gave me a response on saying that this could take quite a bit of effort. It may be that they haven't really evaluated it in full, but it's a significant effort change in their view.

I think what Mark said was, "Well, maybe you only do that for best estimates." I think Mark said that in his recommendation, which certainly limits the number of times you would require that sort of timeline or case narrative to be included, so something -

And again, that reminds me of another part, another response to Mark's recommendation. Certainly Mark's recommendations are clearly our actions, NIOSH's actions, or ORAU's actions.

Others are sort of open and could be

taken on by the Board through its contractor or taken on by NIOSH maybe by a contractor, so there are a number of things like that to think about as we go forward on this.

I'm thinking of a compilation of CATI information for instance. For a Board's DR Subcommittee review, that takes it pretty far afield from the kinds of things it has typically reviewed.

That doesn't mean it can't do it, but it's pretty far afield of what they've typically done, and a contractor might be better, you know, better established to set that as a task, you know, with some discussion, determine a likely site and maybe a subset of years, and do things like that.

And similarly, an evaluation of AWE sites and are they using the information that's generally used for AWE sites, which is really TBD-6000, is that being consistently applied?

Now, we've done that for TIB-70. We went back with TIB-70 and residual contamination to a lot of AWE sites and changed the method so

that it all aligned with TIB-70. We've already done that, but in terms of the operational period, maybe that would be something to look at. So I have a lot of responses, none of them very coherent.

CHAIR MELIUS: I thought they were reasonably coherent, as well as any of us can do in this very complicated procedure we call dose reconstruction. Dave, go ahead.

MEMBER KOTELCHUCK: Yeah, I am also conflicted in terms of chairing the RRSC because we're already doing blinds in our, you know, one percent of reviews, and if we - even the things that I've suggested, if they come to our Subcommittee, then we will not get as much done as we've been getting recently.

So it's not as - I see heads shaking. I'd be interested from other Members of the Committee. I'm a little worried about getting overwhelmed with more tasks for that Subcommittee, but of course we will do what we're asked.

CHAIR MELIUS: Well, you were telling

us how much more efficient you were recently, so I thought you had free time.

MEMBER KOTELCHUCK: Right, that is the one thing that we may have a little more time now, but I'm not sure how much more time.

MEMBER BEACH: I was simply shaking my head because I was assuming it was going to go to the other Work Group, the special dose reconstruction, so, which you're also on.

CHAIR MELIUS: Since I have a conflict there, I will say that we, you know, sort of viewed this other Work Group as sort of an overview, you know, of the process, not actually doing any work.

MEMBER MUNN: Just making judgments.

CHAIR MELIUS: That's right. That's right, but we also overlap with the dose reconstruction, so, you know, so it's a little more complicated. Any other comments?

MEMBER SCHOFIELD: Yeah, I've got one comment in these CATI interviews. So for many of these sites, we have a pretty good handle on the materials that were processed there, but in these

CATI interviews, you may actually -

If we can build, I don't know, maybe a minor database, they could ask these people about how the materials were handled, and that would give you an idea whether most of the time they were, you know, 10 feet away from the material, or whether it was very close, hands on, right up next to their body when they were handling these materials.

That would help the person doing dose reconstruction being able to look at say, "Okay, well, they probably got a little more dose because the majority of the people that worked there, the way this was done at this facility, they would be up close to the material," or maybe a lot of it was more remotely handled.

CHAIR MELIUS: The thing with changing the CATI interview is that it gets into issues of OMB approval. It's a time consuming administrative function, so I think we have to think is it really worthwhile doing that and so forth?

I think the other thing we have to

recognize with the CATI interviews, again, a lot of times it's survivors, so less detailed, but, you know, the people doing the primary dose reconstruction at ORAU I think are pretty familiar with those sites.

I mean, they focus on certain sites only is my understanding, and obviously the people that have worked on the Site Profiles are often there, so I think they have a lot of knowledge on the sites that we wouldn't have.

I've been impressed in the individual dose reconstructions I've looked at that they do pay attention. They document what's in the CATI interviews and, you know, pay reasonable attention to it. I couldn't ask for more but to do that.

But again, I think it goes back to some of what Mark's suggestions are. You know, what is the basis for some of these decisions that are made programmatically as opposed to individually?

Again, I want to clarify it came up in our Work Group call, but, you know, I don't think

it's the Board's function to oversee individual dose reconstructors, so we're not looking at, you know, who is good, who is bad, or whatever.

I think they're all pretty good, but that's, you know, ORAU's job mainly, I mean, the internal process, and I think they have a pretty good process and apply it, and so we're looking sort of, you know, sort of by site and so forth, and trying to go beyond what can be done to improve the overall process, but it's not, you know, it's not by saying, "Well, you know, we don't need these - these people aren't doing as good a job." That's not our place or I don't think we have the capability of judging that at all.

And I think certainly we've seen the quality assurance sort of approaches, and the ways of oversight and procedures have much improved over what they were at meeting 20 or however many years ago when we started talking about this.

Also, the best example we have of missing data from our past history is the

original Quality Assurance Recommendation Report that Wanda, were you on that? We still have never located the report. That was before we had transcripts of our Work Group meetings.

So, Dave, did you have a question? So why don't we wrap up since it's a hike to get to lunch. I think maybe we could use our Santa Fe restaurant list because I think we're on the outskirts of Santa Fe, but whatever. So we'll reconvene at 2:00 and we'll talk procedure reviews with Wanda and company, so thank you all.

(Whereupon, the above-entitled matter went off the record at 12:04 p.m. and resumed at 2:01 p.m.)

MR. KATZ: Okay. Welcome back, everyone, to the Advisory Board of Radiation and Worker Health, the afternoon session. Let me just note a couple of things for people who may have joined us, be joining us, newly joining us this afternoon.

There is a public comment session today that begins at 6 o'clock. And if you plan on giving comments by phone, I don't see any new

people in the room, but by phone, please be here at the beginning of that period, 6 o'clock. Because I don't know how long that session will go for.

And when we have, when we run out of comments we'll end the session. We won't wait all the way through 7 o'clock if we don't have commenters here.

Also again, for people who are just joining us if you want to see the agenda and the materials for the meeting, those are posted on the NIOSH website, under the Board section Schedule of Meetings, today's date.

You can pull up presentations and background reading materials for the meeting as well, and follow along that way. You can also follow along the presentations themselves by Skype. And the Skype address, that's an internet address, is specified on the top of the agenda, which you'll find on that website. So, you can do that either way.

Let me just check and see about my Board Members who are on the line. All the folks

in the room are in the room. But let me check and see that we have again our Board Members that are joining us by phone. I can call your names, or you can just speak up.

(Roll call.)

MR. KATZ: Paul, while I have you, we did vote on the AIMS petition, and it passed. Do you, are you prepared to vote?

MEMBER ZIEMER: I am prepared to vote tonight, as I indicated to you in my email. And I vote yes.

MR. KATZ: Okay.

MEMBER ZIEMER: I'm supporting NIOSH recommendations.

MR. KATZ: Okay. Thanks, Paul. So then, that's everybody. And, Paul, that's unanimous then. Okay. Dr. Melius.

CHAIR MELIUS: Okay. Thank you, Ted, and everybody. And we will start again. I forgot to mention this point. This is meeting number 120 of the Advisory Board. Not that we're counting, but some of us have been here a long time.

So, we start with an update on procedures reviews on two of them, OTIB-20 and OTIB-52. And presenting will be Wanda Munn, who's the Chair of the PR Subcommittee, which is really the Procedures Review Subcommittee, not Public Relations. Though she does a little bit of that too.

Procedures Reviews: Use of Coworker Dosimetry Data for External Dose Assignment (OTIB 20); Parameters for Processing Claims for Construction Workers (OTIB 52)

MEMBER MUNN: Yes, a little. Thank you, Dr. Melius. We're going to talk about two of our complicated coworker and construction trades worker folks here this afternoon.

None of this should be very spectacular for any of you. I think you've all seen almost all of it before. This is more of a review than anything else. And at the end of the review I'll have a recommendation for you from the Subcommittee.

Use of Coworker Dosimetry Data for External Dose Assignment is the name of OTIB-20.

And it's the general information OTIB that allows dose reconstructors to assign doses for workers at any of the DOE sites that have limited monitoring data that gives a heart -- yes, accurate information.

This is not a new OTIB by any means. The first revision was issued in 2005. And we spent a number of years working through the findings on it.

The original revision had six findings. And we worked to resolve those for a couple of years. We were able to do that. And Rev 2 came out in 2008 as a result of the findings that we had closed on the original revision.

Rev 3 was then likewise the result of similar the revisions that were required. It was published in 2011. SC&A had done a pre-review to review whether there were sufficient changes in it to warrant a full review.

The first finding was, the applicability of the OTIB lacks clarity and prescriptive guidance. NIOSH responded, this is a general use document. And that if you want

specific site data we have to go to the specific sites.

This is intended to address coworker datasets for a number of DOE sites. If you want site specific information, then you have to go to that for prescriptive guidance on how to deal with the TIB.

Regarding the clarity, the purpose is stated very clearly. As you see on the screen, this TIB is to be used in conjunction with separate TIBs, or other approved documents that provide site specific coworker data. It was never intended to be a standalone document.

NIOSH and SC&A concurred that each one of the specific coworker TIBs should be used as a guide, and not as a substitute for a more site specific one. And also agreed that the only way to determine whether the judgments to use the coworker model was going to be done in a consistent manner is to review those dose reconstructions.

Resolution 2007, the Subcommittee found that NIOSH's response was acceptable, and

closed the finding.

Finding 2: Side stepping the use of the OTIB and coworker data requires the dose reconstructor to make a quantitative determination of what response to reasonable upper exposures that the unmonitored person may have received.

This is another one of those judgments we've been talking about all day. NIOSH explained, the context is critical. Use of coworker data as part of the hierarchy of data, we do rely on that hierarchy very heavily for the decisions that we make both in the dose reconstruction itself, and here at the Board, with the review there.

These types of data may be found in Site Profile documents, or in documents available through our database system. SC&A concurred. We closed that particular finding.

Finding 3: The OTIB stipulates that site specific coworker data might not be necessary for dose reconstruction. And the dose reconstructor may select "reasonable" upper

limits, provided POC is less than 45. This places an unreasonable burden on the dose reconstructor, and may lead to inconsistencies of, to the contractor.

NIOSH's response was the same as for Finding 2. It's in the hierarchy of data. And it is a part of the way we do business. SC&A concurred. And that was closed by the Subcommittee.

Finding 4: Dose reconstructors placed in a situation where again, "professional judgment" must be made. That is, 50th or 95th percentile dose. It's SC&A's opinion that data needed for these decisions are unlikely to be available to the dose reconstructor.

NIOSH responded, the DR staff will use PROC-6 to evaluate the claim. They don't work in a vacuum. Professional judgment is used during claim processing, supported by information from Site Profile documents and the coworker OTIBs, the available records from the site, our database documents, discussions with other staff, and interaction with principal dosimetrists.

Assumptions made about the choice of 50th and 95th percentile values have to be peer reviewed by other staff, as well as by OCAS staff. And that satisfied SC&A. And we closed that finding.

Finding 5: SC&A considers the 50th percentile constant value as one that is without scientific basis, and not favorable. NIOSH responded that the 50th percentile value is claimant favorable for certain types of energy employees, as described in the OTIB that was being reviewed.

In addition to using the 50th percentile measured dose, the claimant favorable quantity of missed dose is also added to the 50th percentile. Missed dose is, cannot be considered in any way other than claimant favorable.

A comparison of 50th percentile values of K-25 was conducted against values calculated using a maximum likelihood method. The results, which is contained, the results are shown in the table.

OTIB-20 shows the 50th percentile values consistently exceed the maximum likelihood

geometric mean values, and will generally exceed the maximum likelihood 95th percentile values as well.

We will pause while we get through here. Thank you, sir. Repeat that last sentence. The 50th percentile has consistently exceeded the maximum livelihood geometric main values, and will generally exceed the maximum livelihood 95th percentile values as well. SC&A concurred. We closed.

The last finding, there are multiple elements described in the guidance and use of this OTIB that require the dose reconstructor to make subjective decisions or require information that is not likely to be available.

The response was that the reviewer pre-supposes that information will not be available to make informed decisions. The variety of sources of information available to the dose reconstruction staff was a part of previous responses.

And the assertion that the DR staff can't resolve complex issues in a consistent

manner is just simply not true. The project has additional staff resources. They are available to assist the DR staff with respect to judgments on individual claims if necessary. And SC&A accepted that. We closed that in October of 2007.

So, the SC&A pre-review of OTIB-20, Revision 3. Because OTIB-20 had been revised at least twice since it had been last reviewed, the Procedures Subcommittee authorized SC&A to perform a pre-review to determine if there was sufficient technical changes for us to have another full review.

SC&A found that since the original review NIOSH had made two changes to the document, the K-25 example of coworker doses. They had been removed in response to a quality of, that ten year review comment of the quality of science.

Section 3 was modified as agreed on by the Subcommittee, NIOSH, and SC&A, to address a finding made by SC&A on OTIB-52, Revision 0. Neither of these changes to OTIB-20 is of a technical nature.

Therefore, a full re-review is not required. And OTIB-20, Revision 3 may be accepted without further comment. The Subcommittee agreed with the recommendation, and we closed that issue. Any questions about what we've done with OTIB-20?

CHAIR MELIUS: Anybody with questions?

MEMBER MUNN: If not --

CHAIR MELIUS: Well, I do. So --

MEMBER MUNN: I didn't want you to do that. I was going on.

CHAIR MELIUS: Sorry.

MEMBER MUNN: Yes, sir.

CHAIR MELIUS: Can someone explain to me the, your last slide, the K-25 example? It says, Table 7.1-1 had been removed in response to the quality of science ten year review comment. I guess I missed what that was. What comment was it in response to?

DR. NETON: Wow, we're going back --

CHAIR MELIUS: Yes.

DR. NETON: -- years.

MEMBER MUNN: Ten to be exact. No,

not quite.

DR. NETON: My recollection was that it had something to do with the maximum likelihood approach that we adopted. We had a couple of different coworker models for K-25 at the time.

And I think that we had, we're no longer using the approach that was listed in the TIB, at the time. But that's the best I can remember. Something like that.

CHAIR MELIUS: Okay.

DR. NETON: We could get you that information if you want.

CHAIR MELIUS: I'm just curious on that. But don't go away, because I have a follow-up.

DR. NETON: I definitely remember removing it personally from the --

(Laughter.)

MEMBER MUNN: Yes. Yes.

DR. NETON: I just don't remember exactly why we --

CHAIR MELIUS: I'm --

DR. NETON: I'm sure though --

CHAIR MELIUS: I was about to say, maybe the person who removed it is here, but, he can help us. But --

DR. NETON: I think I was involved.

CHAIR MELIUS: I guess not. But you do a lot of work. And so, we understand.

MEMBER MUNN: The ten year review actually is very effective in getting changes made.

CHAIR MELIUS: Yes. My other question is, and again, given the timeframe, Bob, I don't, wouldn't expect that, sort of the coworker guidelines that you and we have been working on would --

How, what's your plans for incorporating them into this document, or into, how would this, how would it get incorporated into dose reconstruction?

DR. NETON: You mean, like the IMP guide, just as we would find?

CHAIR MELIUS: Yes.

DR. NETON: It wouldn't necessarily

affect this TIB. This TIB is more generic guides about using 50th percentile, 95th percentile, that kind of stuff. That would more relate to TIB-52. TIB-52, if you remember, was a review of coworkers for construction trade workers --

CHAIR MELIUS: Right, yes.

DR. NETON: -- in the -- That one has some very prescriptive multipliers on external dose, and such, for various sites. I think there would be a complete rework of TIB-52, if we can decide on the IMP guide's --

CHAIR MELIUS: Okay. Yes.

DR. NETON: -- criteria.

CHAIR MELIUS: But, would you like reference it in -- I'm trying to understand how these are used. And that's something to do with our dose reconstruction review methods issues. And if you'd like to reference?

DR. NETON: I guess --

CHAIR MELIUS: Or the --

DR. NETON: -- I hadn't thought that through completely.

CHAIR MELIUS: Yes.

DR. NETON: I know TIB-52 will have to go away.

CHAIR MELIUS: Yes.

DR. NETON: Now, it maybe it would just be, go away. And we'd write another TIB that would essentially be the procedure that implements the --

CHAIR MELIUS: Yes.

DR. NETON: -- implementation.

CHAIR MELIUS: Right, right. Yes. But I would think like for external dose, and TIB-20, that you would be using both documents in some way.

DR. NETON: Yes.

CHAIR MELIUS: But they provide different types of guidance.

DR. NETON: I don't think that TIB-20 prescribes how to develop the coworker models, per se.

CHAIR MELIUS: Right.

DR. NETON: I think it tells us how to use the coworker models we have.

CHAIR MELIUS: Yes.

DR. NETON: That's my recollection. Tim might have some better input.

DR. TAULBEE: The only additional input I would add is that for the coworker models themselves that we'll be developing under the criteria, they would be site specific from that standpoint.

This is more of a generic guidance of how to use that information. But the details of this would likely go into those individual coworker models.

CHAIR MELIUS: Yes. But we already have a draft of a general guidance for how those coworker responses will be evaluated, that would be to me a similar to 20 in terms of its --

DR. TAULBEE: Exactly.

CHAIR MELIUS: -- scope. Now, I don't know what we call it, or if we call it a TIB --

DR. TAULBEE: Yes.

CHAIR MELIUS: -- or what we end up calling it. But it's --

DR. NETON: Well, I mean, we have an IMP guide, IMP Guide 4 or 5. I've forgotten the

number of it.

CHAIR MELIUS: Yes.

DR. NETON: I think they would have to be proceduralized to some extent.

CHAIR MELIUS: Yes.

DR. NETON: The IMP guide as written, by nature, pretty broad brush strokes. And we'd have to adopt something a little more specific to -- It couldn't be completely prescriptive. It's been said that it would be site specific. But it would be a little more, using the term from this morning, a little more granular --

CHAIR MELIUS: Yes.

DR. NETON: As to how you would approach it.

CHAIR MELIUS: Yes, yes. Okay. Okay. Thanks, Jim and Tim. Other questions, Board Members, on the phone or --

MEMBER RICHARDSON: Could I ask about, just in reading Finding 6 it's sort of, it sounds very similar to some of the issues that we talked about earlier today, which was, there are multiple elements in which a dose reconstructor

must make subjective decisions.

And the NIOSH response is, the assertion that the staff cannot resolve complex issues in a consistent manner is not true. So, it seems like somebody has pointed out that there's, decisions need to be made.

And the response is, don't assert that we don't do this consistently. But, which is, a response to an assertion with an assertion, as far as I could tell.

MEMBER MUNN: We, whenever we talk about consistency there is no question that the same guidance is available. I think that's where the consistency comes from.

What judgment needs to be made is often depending upon, especially in this type of TIB, which is, as I pointed out earlier, not a standalone document. It's a document that consistently refers you to the site documents for the specifics that need to be addressed.

MEMBER RICHARDSON: And that's, that was the issue that the, was being raised by saying that this required the dose reconstructor to make

subjective decisions?

MEMBER MUNN: I don't believe so. My memory is that it was a reassurance that the material was available consistently for different dose reconstructors to make those judgments. I think that's where the consistency comes in. Unless I'm seriously mistaken.

MEMBER RICHARDSON: I guess my question is about the finding, not about NIOSH's response. Finding 6.

MEMBER MUNN: Yes.

CHAIR MELIUS: Can someone from SC&A help here? I don't know who --

MEMBER MUNN: But you're asking a question about only one part of the response. And I thought that was the part I was addressing. No?

MEMBER RICHARDSON: That's, perhaps it's fine. I mean, I was asking a question about the nature of the finding. I don't think the finding was that NIOSH provides a series of documents that people can refer to. I believe the finding was referring to subjective decision

making, which needed to be made by the dose reconstructor.

MEMBER MUNN: Require the dose reconstructor to make subjective decisions, or require information that is not likely to be available.

And the earlier part of the response says that that's a pre-supposition that it won't be available. That there's adequate information for the dose reconstructor to make that assessment --

CHAIR MELIUS: Yes.

MEMBER MUNN: -- consistently.

CHAIR MELIUS: If you're looking at this over all sites, that's not true. I mean, some sites it may be available. Some sites it may not be. Or some, you know, it seems to me it's --

MEMBER MUNN: This bears on why OTIB-52 is so essential in the past, because of the selection of sites. And goes to the rest of my presentation, which ends up with the recommendation to review the new PER.

CHAIR MELIUS: Yes. But NIOSH's response doesn't seem to be in that direction. I guess we're struggling trying to --

MEMBER MUNN: But this response was in 2007.

CHAIR MELIUS: Well, it's now ten years later. So, which we're still going along with, we're trying to understand. And has SC&A's comments been addressed? We're trying to understand what SC&A's comments are. I mean, that's the -- Yes, yes.

MEMBER MUNN: Thanks, John.

MR. STIVER: Yes. This particular response predates my association with the program by 15, 20 years.

(Laughter.)

MR. STIVER: Having said that, I would say, just following the logic here, and I think there was since that finding a pre-supposition that these types of data, and so forth, won't, might not be available. It turns out that they are. I don't --

CHAIR MELIUS: They're always

available?

MR. STIVER: Not always.

CHAIR MELIUS: Well then --

MR. STIVER: It's hard for me to say right now. I don't know if anybody who was associated with that -- I don't know if Kathy Behling is on the phone. She's quite a bit closer to these than I am. If she's on, maybe she might take a crack at it.

MS. K. BEHLING: Yes, John, I'm on the phone. This is Kathy Behling. As we are continuing to say, this was done back in 2007. And at the time I believe this finding was based on the fact that, I'm not sure that all of the sites at that time actually had coworker models.

And so, our comment had to do with the generic nature of this OTIB. And the fact that there may be some decisions required by the dose reconstructor that they may not be, they may not have information available to them. Because I don't believe that all the sites had coworker models at that time. Does that answer the question?

CHAIR MELIUS: Not really. But it helped, it helps. So --

MEMBER RICHARDSON: Could I ask, since you're on the phone, and maybe you have a better recollection and -- I was also puzzled by Finding 5, which said that the 50th percentile as a constant value is without basis, and not claimant favorable.

And the response was, the 50th percentile is claimant favorable for certain types of energy employees, which it seems obvious it's claimant favorable for 50 percent of the employees, and it's not claimant favorable for the other 50 percent. What was the meaning of that response?

MS. K. BEHLING: What they were referring to is, when they're talking about certain types of energy employees, they're referring to administrative staff.

Typically they will look at the job function. And based on that job function they will determine if that should be a 50th percentile or a 95th percentile value applied.

But it has to do with job types.

MEMBER RICHARDSON: Yes. But that wasn't what this finding is. I believe, as I'm reading the finding it says, considering the 50th percentile constant value, which would not be a value which is job dependent, is it?

I was reading this to imply that there are decision points at which a constant value is used for a coworker assignment.

MS. K. BEHLING: Unless I'm mistaken, and I'm not the one that did this review. But I was around at that time. I really think that they were referring to just the 50th percentile of values used in that OTIB being applied to a particular administrative staff type person.

MEMBER RICHARDSON: Okay.

MS. K. BEHLING: Sorry I can't answer it better than that. I can look into it for you if you like.

DR. NETON: I might be able to shed a little light on the answer. We use the 50th percentile as a constant for external coworker models for exactly the Class of workers that

Kathy was referring to, the administrative folks, or people who worked in radiological areas, who had access to sources, but didn't work with them directly.

They would receive the 50th percentile as well as the 95th percentile. It would be a constant from the distribution. But we always put some uncertainty associated with the dose results in the IREP input file.

And typically for a garden variety film badge that would plus or minus 20 percent, as a normal distribution. That's pretty standard practice for us in the external dose reconstruction coworker area.

MEMBER RICHARDSON: Thank you.

CHAIR MELIUS: Could we get clarification on these points, you know, either at a subsequent meeting, or in writing, or something?

I mean, I know it's hard to go back and, you know, something that's been revised since that time. And we're looking at a review that was done in 2007. A lot's happened in the

program in the last ten years.

But if we're going to present this I think it's got to be presented more clearly, so that at least the findings can be, make sense. I mean, again, I'm not faulting that it, I know it's hard to do. But it's, to do it in a short time period.

Because I'm sure a lot more effort went into the discussion, and so forth. But we need something short of reading a transcript with something more than just a sort of general, you know, a few bullet points I think on --

DR. NETON: Do you want all the findings, or just the --

CHAIR MELIUS: The ones we've raised --

DR. NETON: -- couple --

CHAIR MELIUS: -- questions, 5, 6, and then --

DR. NETON: Five and 6?

CHAIR MELIUS: Yes, yes.

MEMBER MUNN: Well, this probably bears directly on our Procedure Committee's

recommendation to do a full review of the new PER-62, for this particular procedure.

CHAIR MELIUS: Yes. I mean, I think we're sort of struggling with what we have, a bunch of procedures that haven't been reviewed. And we're trying to catch, or they're reviewed some time ago, and they haven't been, you know, brought before Subcommittee or the Board.

And so, we're trying to catch up. And I'm not sure what the best procedure is for doing that. But I don't think it's very satisfactory to have it, to be presenting, and then when Board Members have questions about it, we don't have a, we can't resolve them here. Or we're, different interpretations and -- Because, you know --

MEMBER MUNN: That's true.

CHAIR MELIUS: I don't expect anybody to remember what happened ten years ago either. But I think it's that and, you know --

MEMBER MUNN: Well, the good news is the new PER was just issued last month.

CHAIR MELIUS: Yes.

MEMBER MUNN: And so, any review that

would take place under the new PER-20, I mean, PER-67, 62, sorry, would certainly encompass all changes that have occurred, and particularly have bearing on the difficulty involved in choosing which sites are typical for use in this particular OTIB.

CHAIR MELIUS: Okay. Okay. Any other questions or comments? Okay. On to 52.

MR. KATZ: While we're waiting for this, folks on the phone, some people have some open lines. Can you please mute your phones? And press *6 to mute your phone if you don't have a mute button, *6. Thanks. Sounds like that fixed it.

Someone just took themselves off mute and rejoined the problem. But so, whoever just came just off of mute, if you could go back on mute that would be great. Thanks.

CHAIR MELIUS: You're effective, Ted. That's good.

MEMBER MUNN: Those of you who've read this document know that, and who've been with us for more than three years, know that this is a

major document, and one that we have worked on, and worked with at considerable length.

I would like to call your attention to one error on the face page. This is not Redondo Beach, California, for which I am sincerely sorry. Although Albuquerque has its beauties, there is no sea breeze here.

CHAIR MELIUS: We were looking all over for the ocean.

MEMBER MUNN: I'm sorry. I blew it.

CHAIR MELIUS: We got lots of dust for you.

MEMBER MUNN: Well, that's good. The title of the OTIB is "Parameters to Consider When Processing Claims for Construction Trade Workers." It's a guidance document for the dose reconstruction for unmonitored construction trade folks.

The original issuance was in the year 2006. And SC&A identified 16 findings from that. Two years later, after considerable discussion, we closed five of those.

Rev 1 was issued in 2011. And the

SC&A review of Rev 1, which was involved in the remaining, what did we say, ten findings, no, 11 findings, was addressed in 2014.

The first finding, the OTIB does not address differences in doses received by different construction occupations. It was determined that this finding issue was addressed by Finding 16. So, it was combined with that finding. It's not unusual for the largest number of, the large number of findings, as we did in this case.

We transferred it to Finding 16, and also Finding 1. And therefore, in 2011 NIOSH issued Rev 3, with the requested changes. And that should clear up what we had outstanding at that point.

There's something about my finger and this particular button that does not communicate. Oh, now it communicates. And goes further than we wanted.

The dose databases, Finding 3, do not always identify who were construction trade workers. And for construction trade workers,

what were their jobs.

NIOSH indicated that the dose databases were the best available source of information for more than 179,000 bioassay values, and 216,000 external dose values for construction trade workers that existed on the analysis.

The criteria used to identify them were either set at the time the record was created by the site personnel themselves, or were identified in the OTIB in a description of the database query. The Committee was satisfied with the response, and closed the finding.

Finding 4: NIOSH did not make modifications to the internal dose calculation methodology, as they indicated and the Center to Protect Workers' Rights said they would.

NIOSH responded that the agreed on modifications, which were to increase the geometric standard deviation had resulted in implausibly large values.

As you may have remembered, you know, reasonable values are a part of our framework. A

better course of action was available based on actual bioassay data than assumed intakes that were based on air concentration.

The method that resulted from that is believed to provide a more site specific based approach to dose reconstruction. And therefore, more favorable to the claimant. We agreed and closed the finding.

Finding 5: Plutonium and/or uranium were used to compare internal construction trade workers to all monitored workers. What about other radionuclides?

NIOSH said, the vast majority of bioassay data in the DOE complex are for plutonium and uranium. We've certainly seen plenty of evidence of that.

Data on the others are limited in timeframe and number of results. Consequently, meaningful comparisons between the two for less prominent radionuclides were not judged to be feasible.

SC&A asked for a series of follow-ups, there was significant discussion over a period of

time. NIOSH then prepared changes to the OTIB-52, to satisfy the concerns that the contractor was raising. And issued Rev 1 in 2011.

SC&A reviewed the document. Based on the change and its acceptance this Committee closed the finding.

OTIB-52 does not address how to determine construction trade worker doses at sites that do not have a coworker model, was Finding 6.

And NIOSH's response, yes. For those sites that had no coworker studies the dose for construction trade workers is reconstructed the same way as for other unmonitored workers with the same potential for exposure or intakes.

The site TBD provides direction on how to assign internal and external doses. And then the appropriate adjustment factors are defined in OTIB-52. We were satisfied with that response, and closed the finding.

Finding 7, does not address how to determine neutron doses for the construction workers. Response was, external doses are not

intentionally differentiated according to gamma or neutron. So, there's no inherent bias in the reconstruction of a neutron dose on a likely basis.

Excuse me. I'm sorry for the musical background. Now, the neutron dose is normally associated with access to SNM. And that requires a security clearance or security escort.

Workers with those clearances were known and likely to be monitored. And since that's the case it is reasonable to assume that a neutron dose would be higher in the group of all monitored workers than in the somewhat more transient construction worker group. That was agreed, and we closed the finding.

Finding 8: Savannah River Site external doses are from HPAREH. NIOSH needs to evaluate other dose databases like Fayerweather and SRS-ABST.

NIOSH responded, no additional value is gained in this case by expanding the resources to study the contents of the other, less complete databases. The position was taken that HPAREH

was in fact the most complete information that was available.

There's no reason to believe that including the Fayerweather database in this particular TIB analysis would change the results for the SRS or for the ratio of 1.4 that was agreed to be applied to external coworker models there. Satisfactory response. We closed the finding.

Finding 9: Evaluation is based on DOE annual exposure report. NIOSH needs to address the Master Update Dump dose database for INEL, sorry, INL.

NIOSH responded that the Master Update list database covers the time period prior to 1986. The data in the Annual Reports is equivalent, because the Annual Report was created from that data for the overlapping time periods.

SC&A disagreed with that, presented evidence showing that the data were not equivalent. NIOSH presented its proposed changes to the 52 OTIB to address the issue. And then issued Revision 1 in 2011.

SC&A reviewed the document, found it to be acceptable. We closed the issue.

Finding 10: For post-1974 the ratio of penetrating doses experienced by construction workers to other workers shown in the OTIB does not agree with the INL epidemiology study that NIOSH made in 2005. That indicated a correction factor closer to two, and possibly higher than that for some job types.

NIOSH responded, the unmonitored construction trade workers at INL would not have worked in a radiation area. So, assigning the CTW a dose equal to 1.4 times the non-construction trade worker dose would be very claimant favorable.

SC&A disagreed, requested additional information. NIOSH presented its proposed changes, and then issued Revision 1 in February of 2011.

SC&A reviewed that document also. NIOSH added a new paragraph that explains the NIOSH 2005 data were not used, because the service workers were grouped with the

construction trade workers, a practice that inconsistent with the approach taken in this OTIB. Agreed and closed.

Finding 11: Claimant favorability of OTIB-52 approach for INL's early period internal dose, that is up to 1965, cannot be determined.

NIOSH explained that the reason pipefitters at Savannah River received higher doses during the 1960s was, the major modifications were taking place in the F and H Canyons during that time.

Those are classified workers. All workers would have to have been monitored. And any unmonitored construction trade workers would have received lower exposures.

SC&A presented evidence that led them to believe that INL pre 1965 internal dose is not well known or documented. NIOSH made the changes that were necessary in Revision 1 regarding this issue. SC&A concurred with those. And the Subcommittee closed the finding.

Finding 12: The REX dose database was not used. NIOSH needs to compare results based

on the REX database to those given in OTIB-52.

NIOSH's response was that electronic access to the REX database was not available at the time that the report was drafted. But that the data in REMS were derived from the data in REX, and they're assumed to be adequately representative of the ratio of CTW and AMW doses.

SC&A explained that Section 6 of this OTIB needs to be revised to indicate the Hanford analysis was based on REX data provided by the site expert, and wasn't based on the references provided in this current version of the OTIB.

NIOSH presented its proposed changes to address the issue. Issued Revision 1 in 2011. SC&A reviewed that document, and based on the change made the finding was closed.

Finding 13: Construction trade worker doses need to be compared consistently to other AMW or non CTWs. Currently different sections perform different comparisons.

NIOSH's response. Because construction trade doses are similar to that or higher than the AMW doses, the calculated ratios

which are used to form an adjustment factor are largely to be similar or higher when no construction trade worker is used in the -- when non CTW data is used in the denominator, instead of AMW.

The baseline method is to use AMW in the denominator. But the ratio would tend to be more favorable to the construction worker population when non CTW data were used.

Regardless of the comparison method the outcome would still be favorable to the construction trade workers, because the correction is typically applied to doses on a site specific coworker model, based on data for all monitored workers. Again, the key being site specific coworker models.

SC&A examined the Savannah River HPAREH penetrating data from '53 to '99, and determined that NIOSH's response is correct. And recommended closure, which the Subcommittee accepted, and closed the finding.

Finding 14: The handling of missing dose needs to be consistent. Currently some

sections include missing dose, while others do not.

It was explained that regardless of how missed dose was treated, the site specific comparison between CTWs and AMWs was fair, because missed dose was handled consistently for both groups within each site. Again, site specificity.

SC&A requested additional discussion on how the adjustment factors were selected, and why the dose ratios calculated using different methodologies can be compared.

There was quite a bit of discussion about that. It was determined that both average adjusted CTW to AMW ratios are less than the recommended correction factor. In addition, NIOSH added some appropriate wording to Section 4 of OTIB-52. And the Subcommittee closed the finding.

Finding 15: No instructions are given for what to do if high or low cumulative exposures are suspected.

NIOSH indicated that the normal

assessment methods defined in OTIB-20 for these types of exposures is the applicable reference. The method in OTIB-52 doesn't change when either low or high cumulative exposures are expected to be seen.

The Subcommittee agreed that OTIB-20 was a better document, better placed to address the issue than transferring the finding to the OTIB. And in 2011 NIOSH issued Rev 3 of OTIB-20, with the requested change that had been discussed, to address what we were seeing in the OTIB-52 finding. The Subcommittee was satisfied the change addressed the concern appropriately, and closed the finding.

Some construction occupations, Finding 16, that is, pipefitters, received exposures larger than the average construction trade worker exposure.

The average number of such groups may consistently receive external exposures above the 95th percentile, but possibly not by much. Occupational details in the data are not plentiful enough to decide a percentile value.

SC&A recommended that this issue be transferred to OTIB-20, alerting the dose reconstructor that certain CTWs, especially pipefitters, may have received higher exposures than the entire construction trade worker group as a whole.

And therefore, additional conservatism should be included in the dose reconstruction when the claimant belonged to pipefitters or similar kinds of trades.

The Subcommittee agreed that OTIB-20 was a better place to have the issue addressed, and they transferred the finding. And Revision 3, as we said earlier, was issued in 2011, addressing this particular concern. And there was, therefore, closure, which we did. Any questions?

CHAIR MELIUS: Questions, comments from the Board?

MEMBER BEACH: I just have a brief comment. As you were giving your report I went on to the BRS, and was looking at the information that's in the BRS.

Because they do go back several years. And not all of these are created equally. As in, some of the links are there. Some of them say they're there, and they're not there.

So, it's really, I think something for us to look at moving forward is how we are documenting the changes and the comments to be, so that we could actually go back and look --

MR. KATZ: Hold on, Josie. Josie, we can't hear it. But apparently there's a dog barking on the phone. And other people are, cannot hear. So, whoever has a dog, your phone's not muted. And if you press *66 that will mute your phone. But --

CHAIR MELIUS: *6.

MR. KATZ: *6, sorry. But --

CHAIR MELIUS: No wonder it's not --

MR. KATZ: *6, yes. 66, no. But, yes. I don't know if that problem, has that taken care of it? Can you hear it on the phone? Do we still have a dog barking on the phone? No? Okay.

MEMBER MUNN: We don't care whether it was Lady or the Tramp. Just don't want to hear

it. Thank you, Josie. It's very interesting information. And I have not checked that personally.

MEMBER BEACH: Yes.

MEMBER MUNN: And for those of us who hold our database near and dear to our heart --

MEMBER BEACH: Well, if you go back just in OTIB-20, and you try to retrack that, some of the information there is there. But then it goes on for several blocks of people putting stuff in with no real information that's helpful.

So, it's just something that moving forward, and possibly backwards, we should make sure that's, that tool is being used like it should be.

MEMBER MUNN: Well, I will make certain that I go through and see what you're talking about. Certainly at our next Procedures --

MEMBER BEACH: Well, if you just look at these two, they're pretty good examples --

MEMBER MUNN: Yes.

MEMBER BEACH: -- of what's missing.

MEMBER MUNN: Yes. And that's what we don't want to happen. The whole purpose in our database is to try to be able to go back 17 years later and look at it. So, thank you. We'll address that in Committee. Anyone else?

CHAIR MELIUS: I just have a comment, as I think Jim Neton already addressed it. But it seems that there's a lot of updating to do in this that, because there's a lot of activity at the sites with, we're wrestling with now between Savannah River, Idaho, some changes at Hanford, and so forth.

And so, I think update is going to be in order, and generally the issues with the coworker models, and so forth. So, I think we'll probably have to come back to this. And I'm not sure spending a lot of time on these individual issues at this time is helpful.

DR. NETON: I agree with you, Jim, that it needs to be updated. But I'm not exactly sure at what point that should occur. We continue to do dose reconstructions using TIB-52, using that 1.4 multiplier. I don't want to back it out

without having some other document to use.

And as you know, we're in the testing phase with Savannah River of a draft implementation guide. So, until that's wrapped up I don't know that we can really do much.

CHAIR MELIUS: I wasn't suggesting doing it until --

DR. NETON: Okay.

CHAIR MELIUS: -- some of these are wrapped up. And I'm not sure what the timeframe will be, or the right timing is. And it seems to me that you've already addressed a number of the earlier review comments.

And so, I don't think we're in necessarily bad shape on that one. It just seems to me that there's a lot of, you know, we could spend a lot of time talking about some of these individual site things. But it's, they're changing. And so, it doesn't make sense right now to --

DR. NETON: Yes. And I would, I remember going back. And there were multiple, multiple meetings on this TIB-52 arose. And so

the little sound bites that were there aren't representative of the volume of discussions that occurred on those individual pieces.

CHAIR MELIUS: Oh, yes. No. And I remember some of that occurring within the Board, and not just within the Procedures group.

MEMBER MUNN: Yes, that's quite true.

CHAIR MELIUS: Yes.

MEMBER MUNN: Every time --

CHAIR MELIUS: It's like a task --

MEMBER MUNN: -- the group was available --

CHAIR MELIUS: I remember asking, Mel Chew was involved. I was asking him questions. Pinning him down that not every site was equal, which was the early claim and, or premise. I shouldn't say claim, but premise for that.

MEMBER MUNN: And thank you for that segue. Not all sides being equal --

CHAIR MELIUS: Yes.

MEMBER MUNN: -- brings us to the good news that PER-62, as I mentioned earlier, was issued last month. And one of the

recommendations that we had from our contractor at this most recent meeting, was that they be appointed to full review of that PER.

Specifically because of the complexity that we keep running into in trying to establish which sites should be included in the PER process that's used to develop the population of claims for what we use here.

So, we discussed it in Committee, and agreed that this particular PER, because of its wide applicability, and because of the current status of 52, should indeed be passed to SC&A. And this is the recommendation from the Site Procedures Review Subcommittee, that the Board take action in that regard.

CHAIR MELIUS: Okay.

MEMBER RICHARDSON: I have a question, or a comment, as it goes.

CHAIR MELIUS: You need to be quick, Dave. Because we're already over, and we have Savannah River waiting.

MEMBER RICHARDSON: Okay, this is Finding 8. It's regarding whether only using

HPAREH, or using other sources of dosimetry information.

The NIOSH response is two assertions. No additional value is gained by including that other information. And there's no reason to believe that including that other information would change results.

Just to be clear, the HPAREH database was a dosimetry database for workers who were actively employed in 1979 or later. So, the other information is largely fleshing out information for all workers who terminated prior to 1979.

I would question whether or not there is value to be gained from studying workers who terminated prior to 1979, given what we know about the exposure distributions at the site.

And I have no reason to believe or not to believe that it would change the results. I think I would be agnostic on that point.

CHAIR MELIUS: Okay. That's a good point.

MEMBER MUNN: And I am not familiar with the database enough to make a statement.

This is, I'm assuming this is an item that will be covered during our further deliberations?

DR. NETON: This was extensively covered during the discussions, I don't --

MEMBER MUNN: I know it was.

DR. NETON: -- recall the exact rationale behind why we believe that at this point, but I know we didn't just make those assertions without any backup information.

And we had, I think, a fairly lengthy discussion. We can go back through the transcripts and rehash all that again, but it's certainly a lot more information there than just these two statements are cryptically cited here.

MEMBER MUNN: Oh, yes. I think the completion of the data in each case was the big issue in whether or not they overlapped. But you're saying they don't overlap?

MEMBER RICHARDSON: They certainly don't overlap. HPAREH was created as an electronic database for workers actively employed in 1979.

MEMBER MUNN: 1979, yes. I

understand.

CHAIR MELIUS: Maybe since it's been raised could you clarify that, whatever is appropriate means of doing it short of sending us 50 transcripts?

But whatever you think succinctly and fairly and comprehensively summarizes what the discussions were. Because I think that's a good point because the early years are important.

Anything else? Okay, because we need to move on to Savannah River. Thank you very much, Wanda.

MEMBER MUNN: Are we going to move on the recommendation for PER-62?

CHAIR MELIUS: I'm thinking we don't need to, do we? Do we need to --

Okay. So, we have a motion to pass PER-62.

Voice vote. All in favor say aye?

(Chorus of aye.)

CHAIR MELIUS: Opposed? Abstain? Okay.

MEMBER BEACH: And we have others that

need to be tasked too, will we do that during the break?

CHAIR MELIUS: We do all of them during the work session. Yes, that's what I thought. Okay.

MEMBER BEACH: Yes, perfect.

CHAIR MELIUS: Then why were you bugging me?

MEMBER MUNN: I wasn't bugging you.

(Laughter.)

CHAIR MELIUS: Okay, moving on to, hopefully I have this right, I don't know, Brad is supposed to say something initially. Do you have him with you or --

Okay. Yes, you can talk later, Brad, okay? Yes.

MEMBER CLAWSON: Okay, that sounds good with me.

CHAIR MELIUS: So we'll hear first from Tim and then next after that SC&A will present and we'll have some discussion. And I don't know if the petitioners want to make a comment today.

Somebody know? Okay.

Savannah River Site SEC Petition

Update (1972-2007; Aiken, SC)

DR. TAULBEE: Just a second to get to the beginning of the slide presentation here. Let it catch up. Thank you, Dr. Melius.

I'm going to give an update on the Savannah River Site subcontractor monitoring as a short overview. Or, before I get started let me recognize the ORAU team that has done significant work in the past few months. Led by Mike Mahathy and Matt Arno and Nancy Chalmers and Liz Brackett and others, have been doing a tremendous amount of work gathering the information that I'll be presenting here today, so I really want to thank them and appreciate their work here.

As an overview, I'm going to give a brief synopsis of what we presented back in August to the Board. And then we're going to go through our concerns with the SC&A Subcontractor Monitoring Report, particularly the 39-day criteria that was used.

We reevaluated the SC&A data that they collected. Also going to go through some NOCTS data and then talk about the notice of violation that has undergone a significant discussion. And then wrap up with the status of issues that the Work Group is still addressing.

So, just as a quick recap. We did a job plan analysis where we evaluated job plans at the Savannah River Site that required respiratory use and we found that 68 percent of the subcontractors had direct monitoring.

And if you consider other subcontractors who signed in on that same job plan doing the same work, in the same radiological environment with the same source term, that number increased to 92 percent of the subcontractors had either direct monitoring or a coworker was monitored.

We concluded that a coworker model would be sufficiently accurate based on this information. SC&A, in their analysis, looked at RWPs in the 1990's and they looked at what percentage of them left bioassay within 30 days

post-RWP.

And they came up with 66 percent compliance rate. And that number increased to 80 percent when they considered 90 days post-RWP.

And when the RWP specified bioassay, those numbers increased slightly to 71 percent and 84 percent. So this is what was presented back in August at the Board meeting when we basically ran out of time.

Our concern with SC&A's report was the use of the 30 day and 90 day criteria for bioassay. Thirty day is appropriate for tritium. Tritium has a ten day biological half-life. But a 100 millirem tritium dose is still detectable after 70 days.

However, for the non-tritium, through the procedure, annual monitoring was usually the requirement for non-tritium, or actinide samples. Plus SC&A excluded a significant number of monitored subcontractors from their analysis and indicated they weren't monitored when in fact they were monitored.

We believe a more fitting analysis

would divide the bioassay data into tritium and non-tritium categories and use the appropriate time interval for each category. And I'll explain why in the next slides here.

But before I do so, I want to briefly describe a little bit of the radiological work control and bioassay monitoring in Savannah River. And it starts with a radiation worker attending Rad Worker II training. We're looking at the 1990's here and so they had to go through training.

When they completed their training and they were issued a radiation qualifications badge, an RQB, and I've got an example of this over here to the right. And you can see the big Rad II indicating their training level, the dates of when they do the whole-body count or chest counts.

And the bottom line there is the bioassay codes. It's hard to read on here but it's PU-02, EU-02 and SR-01.

This corresponds to be monitored for plutonium twice per year, enriched uranium twice

per year and strontium-90 once per year.

So when a worker signs in on a radiation work permit, they check their qualification, they check the bioassay requirements against the RWP and the radiation qualifications badge to see if they are on a routine program. The worker conducts their work and then they leave a bioassay sample based upon either the routine schedule or the job specific requirement.

Now, graphically, this is what this looks like. The worker signs in on an RWP requiring bioassay, worker participates in a routine bioassay sampling program for the radionuclides specified on the RWP, yes, then they submit their sample based upon their routine schedule. If the answer is no, then they go through the job specific bioassay sampling.

So consider four, or five construction trades workers, say carpenters, working in an area, a plutonium area. Four of them routinely work in that area and are on routine plutonium bioassay.

One of them has been pulled from the reactor area, where they're on routine tritium bioassay and strontium-90. And then, so from that particular case, those four carpenters would then, submitting under the routine schedule and the one from the reactor areas would be using the job specific component.

In SC&A's analysis, what they did was they looked at workers signing in on the RWP and then 30 to 90 days, did they have a sample. They weren't looking at this routine monitoring.

So if a subcontractor was scheduled to leave a sample, wasn't scheduled for another 100 days, there won't be a sample, but they were in fact monitored. And what we found from our analysis is that a significant fraction of the monitoring population was monitored to be a routine bioassay based upon their radiation qualification.

Okay. When we reevaluated SC&A's data, we broke it down into tritium and into non-tritium. With the tritium evaluation we found that 119, or 108 of the 119 subcontractors on

RWPs that had potential for tritium exposure, have bioassay data. So this is 90.8 percent.

The mean number of days between the RWP and bioassay was seven and a half days. Eighty-nine percent were on routine prescheduled bioassay for tritium. This is what was called T-30, they were required to leave a tritium sample once every 30 days.

When you considered the coworker, like we did on our job plan analysis, this increases to 98 percent recovered either under personal data or a coworker working on the same RWP had a bioassay sample.

Now, with regards to tritium, if you look at the box plots, this is of the DuPont construction, trades workers and subcontractor construction trade workers, you'll see that since 1973 the 95th percentile of the dose distribution for subcontractor construction trades workers, has been less than 100 millirem. For DuPont construction trades workers, it's been since 1980.

If you go all the way out to the 1988

time period, where we've presented data here, the 50th percentiles for these two groups are 5 and 10 millirem. With the upper bounds being less than 50 millirem. So we're looking at fairly low doses for these workers at Savannah River.

Even though there's a pretty high potential here. So there's a large number of bioassay samples. I mean, we're talking in the range of 20,000 tritium bioassay. And so we've got a significantly monitored workforce that is showing quite low doses.

So our conclusion is the tritium monitoring for subcontractors is not really a dose reconstruction issue, but we have sufficient information.

So now let's look at non-tritium. Because this would be your plutoniums, your americium, curium, californiums, neptuniums.

Sorry about this thing jumping around, I have no idea why.

CHAIR MELIUS: Be nice to it.

(Laughter.)

DR. TAULBEE: Yes. I really have no

idea. The NIOSH, our reevaluation, found 102 subcontractors on RWPs that had the potential for plutonium exposure. Eighty-nine of the 102, or 87 percent, have bioassay data.

The mean number of days between the RWP and the bioassay was 125 days. This gets into that routine monitoring of they were monitored but it wasn't within that 90 day criteria that SC&A used.

Eighty percent of these were on prescheduled monitoring. So they typically used some of the same workers going into that area. But occasionally pulled from other areas.

You would have some job specific coming in, but you have a large number of subcontractor construction trades working in the same area. When you considered the coworker, again, this increases to 98 percent.

So, due to the notice of violation that SC&A brought up during the last Board meeting, where they were talking large numbers of subcontractors not being monitored or missing job specific bioassay monitoring, we decided to

go to NOCTS and look at what do we have. Do we see this large missing bioassay. There's a large number of these subcontractors not monitored.

So we queried NOCTS to identify workers with construction trades work with job titles. We found 412 claimants between 1991 and 1997. We reviewed each claim to determine whether they were a subcontractor or a prime.

We removed all the Westinghouse construction trades workers. These would be your formally DuPont construction trades that were electricians, millwrights, mechanics, et cetera.

And this was a labor-intensive process of going through each individual claim looking to identify who was their employer.

We removed the Westinghouse Savannah River crane operators and riggers who primarily worked in the separations area. Crane operators worked over the top of the canyons.

These people weren't even considered DuPont construction or Westinghouse construction, they were operations workers. Even though they had these job titles, these were the

operations folks that they reported to in the management chain, were a monitored group.

This left us with 371 construction trades workers who were subcontracted between 1991 and 1997. This is a pretty significant population to look at for monitoring.

We did look at the distribution by craft and we found that 59 percent were electricians, pipefitters, carpenters and laborers. Again, this is 371 workers.

The distribution matched well with what we found from our random sample in our job plan analysis. Of where pipefitters, electricians, carpenters made up 50 percent.

What we found from this analysis was that 339 of the 371, or 91.4 percent of the subcontractors in NOCTS, have some form of internal monitoring. Either non-tritium bioassay, tritium bioassay and/or in vivo bioassay during their work at Savannah River between '91 and '97.

Only 32 subcontractors in NOCTS have no internal monitoring data. Of these 32, only

four have external monitoring indicating radiological work. This is a time period where you would have, you would be wearing a TLD. A badge.

Again, sorry, for the slides flipping here. And so without having the TLD badge, there is no indication that they were really working in a radiological area.

We believe that the monitoring data from the 339 monitored workers can be used to bound the dose to the 32 unmonitored workers. Again, that distribution in the bottom follows what we found within the other samples.

This slide I'm not going to go through all the details of, but it does give the details of the subcontractor data that we have by year. The important point here, that I wanted to point out, was the internal monitoring, those with internal monitoring.

You can see it's a substantial population. And when you consider that from those who were externally monitored, you're looking at greater than 90 percent across each of

those years.

The bottom line, the bottom row, is the one I want to focus on. And these are the number that were externally monitored with no internal monitoring data. And you can see we're looking at single digits for most years.

Now, I want to go through the details of this monitoring data. And on the website, we've downloaded the slides. There is a download of all 371 workers.

And you'll see this particular depiction that I got here. And I want to try and go through this briefly with you all.

All 371 that are on the website are sorted by crafts. You can look at it by craft as well.

But in the first case the electrician, the red indicates no internal monitoring, the green indicates internal monitoring. '91 through '93 was the only three years that that person worked.

They had no external monitoring and internal monitoring. They likely did not enter

a radiological area during that time period.

The second electrician would be somebody who was monitored externally for all five years, '91 through '95. And they had at least actinide urine bioassay.

Most likely they would have some tritium as well as whole-body count. They used a hierarchy of actinide, tritium and whole-body count for our graph year.

Many of the people who have actinide monitoring also have whole-body count. Some of them do have tritium as well.

The next person that I want to go through is the painter, where you can see for three years you've got actinide monitoring, two years of tritium monitoring, another year of actinide monitoring and tritium monitoring.

This is likely switching between the work of plutonium facilities versus the reactor facilities.

The heavy equipment operator that you see is all red is who the coworker model would be applied to. This is somebody who has external

monitoring data but no internal monitoring data. This is who we are trying to develop this coworker model for to reconstruct their dose.

Yet, the last one that I want to point out is second from the bottom, the sheet metal worker. And this is somebody who is monitored for external in 1991 but has no internal monitoring.

But 1992 through 1997 has extensive external, or actinide monitoring. And we can use that latter data to bound if there were any potential intakes in that first year of their employment.

So this person wouldn't necessarily need a coworker model from that standpoint, that their latter bioassay data would bound what their exposure could have been.

So, I've just presented three different groups. The first was our job plan analysis, the second was SC&A's analysis and then this NOCTS analysis.

And so, when you look at all of these as subcontractors with monitoring data, the

percentage of subcontractors, you can see how this all kind of plays out on a per year basis and where we've got overlap. In our job plan analysis, we saw a low of around 55 percent and a high of 80 percent. With the overall being 68 percent.

In the SC&A analysis you can see that a low is around 70 percent and a few years there was 100 percent. All of them. Okay.

But again, these are both samples. Ours is a random sample, SC&A's is more of a grab sample.

The green bars are the NOCTS data when you include the whole-body count. But the other two analyses did not include whole-body count, it was just urine.

So that's why we presented the gray boxes here that are hashed so that you can see apples to apples here in the comparison. And you can see everything kind of matches reasonably.

The two red bars are the assessments that were talked about in the SC&A report. In particular, the emphasis on the latter one, the

full assessment, where there are 29 percent monitored.

But, again, this is job specific monitoring and a large fraction of the subcontractors are monitored under routine monitoring, okay. The difference is that separation, when you sign in on the RWP, what your radiation qualification badge said to do. That's the difference.

In the report, SC&A concluded that the bioassay data set for construction trade workers, subcontractors specifically, and CTWs generally, is demonstratively incomplete for 1989 through 1998, and likely before that time period, and does not satisfy the criteria set forth in NIOSH's criteria for evaluation in these coworker data sets.

We respectfully disagree with this. We believe that 90.8 percent and 87.3 percent direct monitoring for subcontractors is not demonstratively incomplete. Is it incomplete, yes. If it were complete, we wouldn't need a coworker model for these workers.

We believe this does satisfy the criteria set forth in the implementation data. Furthermore, the NOCTS data set, these are the actual claimants, indicates that subcontractors were monitored. Evaluation indicates that 91.6 percent of the subcontractors were claimants, between '91 and '97, have some form of internal monitoring of data between either in vivo or in vitro.

So now I'm going to switch gears a little bit to begin discussion on the notice of violation. And I first want to start this off with a discussion of the individual monitoring requirements for internal dose under 10 CFR 835.

The regulation states that for purposes of monitoring individual exposures to internal radiation, internal dose evaluation programs, including routine bioassay programs, shall be conducted for radiological workers, who under typical conditions, are likely to receive 0.1 rem or more committed effective dose equivalent and/or 5 rems or more committed dose equivalent to any organ or tissue, from all

occupational intakes in a year.

There's a DOE standard of 1128-98 Section 5.3.2 that describes the monitoring requirements and selection of employees for bioassay programs. It states, workers who are considered likely to have intakes resulting in excess of 100 millirems CEDE are required to participate in a bioassay program.

However, because of the extensive radiological control practices in plutonium facilities, including a high degree of engineer barrier containment, no typical plutonium worker is likely to have intakes of 100 millirem CEDE or more.

However, this should not be used as an excuse to exclude workers from routine bioassay. Although no one should be considered likely to have intakes resulting in 100 millirem CEDE.

Some workers, not all, are at significantly higher risk for incurring an intake than others and should be on a routine bioassay program. Okay.

And we see this with the Savannah

River monitoring. There's a large number of subcontractors who are going into the area routinely, they're on the routine bioassay monitoring program.

Are they at a higher risk, yes, they are. This is part of the surveillance that Savannah River was doing.

This standard is the standard today. I'll go back up here. It was originated in June 1998, reaffirmed by DOE in 2003 and they made small changes in language in 2005. This is the current monitoring practice that you'll see throughout the complex of plutonium facilities at all the DOE sites.

SRS used a defense-in-depth approach for radiation control. First, they had a zero intake policy, they had engineering controls, procedural controls, they used PPE and then they had a surveillance program to verify that these controls worked.

This is what their surveillance consisted of, air monitoring all of the areas, facility contamination surveys, personal

contamination surveys of people coming out of the areas.

The first two of these are designed to prevent exposures. To make sure that there isn't an intake.

The latter two are to check to verify that an intake didn't happen. That would be your personal contamination surveys and a routine bioassay. So all of these play together as part of your surveillance program.

So, in our efforts to evaluate this notice of violation we made some data requests. We requested information from both Department of Energy Headquarters and the Savannah River Site. The two parties in this notice of violation.

SRS provided over a thousand pages of information. DOE Headquarters provided just the final NTS report, which was eight pages, and indicated they did not retain any other information regarding this violation.

We asked and didn't get anything. We asked for notes, conference summaries. SRS actually provided more, some of the DOE generated

documents that DOE did not provide.

We sent a follow-up request to SRS in September of 2017 specifically requesting their internal assessments that were listed in the NTS report, as well as some of the other documents.

Around the beginning of the fiscal year, and so there was funding issues, and so their response, they have not responded yet but they are looking for that information at this time. We don't have it.

And now let me go through, I skipped a bunch of slides here. I'm sorry. Okay, so let's go through the notice of violation very briefly. So, again, I apologize.

This was a 10 CFR 830.120 violation that occurred. And it required the work be performed to establish administrative controls using approved procedures. That was Part 1 of the violation.

Part 2 was, and I'm not going to read this whole thing, I want to focus on the Bullet 3. And it states, that direction shall include identifying the causes of problems and working to

prevent recurrence.

And I'm going to demonstrate that there was a recurrence that resulted that was part of why they were fined. At least that's what I believe it is. I haven't gotten any information from DOE Headquarters.

For the first part, DOE in their violation, their notice of violation, stated, however, between January 1st, 1996 and September 20th, 1997, Westinghouse Savannah River Facility Evaluation Board reports identified that, one, workers were on incorrect bioassay programs as identified by the radiation qualification badge and consequently did not submit job specific bioassay sampling as required.

This is the one that caused me the most concern when I went through here, people being on the incorrect bioassay. And it's important to try and do the follow-up from these types of violations.

And so what Savannah River did for their corrective action is they sent 4,000 form letters on February 19th, 1998 and mailed them to

every site employee and subcontractor currently on routine bioassay, asking them to compare the bioassay codes on their RQB, radiation qualification badge, and those listed in the letter, which came from their database. And they found less than 100 discrepancies.

Were there discrepancies, yes. Were people not following the procedure because they're weren't on there, yes. But the effect is less than two and a half percent.

So is this really going to have a major impact on the coworker model, I don't believe so. Not when you're looking at the thousands of samples.

MEMBER RICHARDSON: Do you have their response rates?

DR. TAULBEE: No, they're looking into thousands of samplings.

MEMBER RICHARDSON: Do you know the, it was 100 percent response rate to the form letter?

DR. TAULBEE: This is what they reported, yes.

MEMBER RICHARDSON: Okay.

DR. TAULBEE: In the second component of the violation, this is where that recurrence comes into play.

Contrary to the above, processes to detect and prevent quality problems were not adequately established and implemented and corrective actions did not prevent recurrence of this job specific bioassay issue, in that in November of 1995, DOE identified to Westinghouse Savannah River the radiation work permit prescribed bioassay sampling requirements were not effectively implemented and that 23 percent of the workers did not submit bioassay samples as required.

Corrective actions were implemented by Westinghouse Savannah River. However, the corrective actions were not effective to prevent recurrence in that the nonparticipation by radiation workers, a job specific portion of the bioassay program, continued through 1996 and increased to a level of nonparticipation of 79 percent by the second quarter of 1997.

So they were identified with a problem in 1995, implemented corrective actions and it got worse. Okay. So this is what they were fined for.

Now, SC&A in the report indicated that Savannah River had a chronic history of wide noncompliance. Well, the only data we have is November of 1995 to July of 1997. Which is 26 months.

We have three data points. First one is November of 1995, where there is a 77 percent participation rate. April of '97 where there's 33 and July of '97 where there's 21.

So this decrease in my opinion, is why they ended up being fined for procedural and allowing a recurrence to occur.

But this is just the job specific portion of that bioassay surveillance that I was pointing out earlier.

The routine bioassay is what's used to check for, verify effectiveness of the procedural and engineering controls. And to trigger for cause bioassay.

It was requested from workers who have a reasonable potential for intakes but who SRS was confident didn't have intakes in excess of two percent of the annual limit. They were trying to control so that there would be no intakes.

Westinghouse further stated, during the enforcement conference, that the workers themselves were the last line of defense in the worker workplace indicator program, which was the reason why a confirmatory program for workers was conducted.

So this is the expected monitoring that I showed you earlier. Where a worker is signing in on an RWP, participates in a routine program. Data goes to the right. If they were not on a routine program they got job specific.

This is what was actually happening. And I apologize for this slide being so busy, I was going to walk through all the red steps.

But basically, in the limited assessment, this is the only data that we have to date, is there were 3,200 samples. Ninety-five percent of them were routine bioassay, five

percent of them were job specific.

They reported the 95 percent were compliance in this limited assessment. Five percent, the group going down, they had a 33 percent compliance, 67 percent noncompliance. Sixty-seven percent of five percent comes out to 3.35 percent or 107 samples.

Thirty-three percent were compliant for various reasons. Some cases RadCon failed to submit a sample and other cases they failed to notify people.

Anyway, the bottom line here is we ended up with 96.65 percent of 3,200 samples, were actually received during this particular incident.

The full assessment of the bioassay requirements states about 21 percent compliance on the job specific. So that 33 percent compliance drops to 21 percent in that second quarter.

We don't know what that full complement of samples is. That's not in the assessment. It's part of why we requested this

data.

We do know, from the records, that 1997, a total number of samples not received was 256. That we know. That's in the report.

They also, this is because this was the population that they did follow-up on. They went back and got bioassay from all 256 and there were no intakes amongst any of these workers.

So there is three components to the Savannah River surveillance program under the bioassay monitoring. The first was the routine actinide samples. And here is the data that was presented during the enforcement conference.

And you can see that the number of samples in 1997, the number of samples received, is over 9,000. The number that were initially positive were 105. So you can see from a confirmatory standpoint these would be false positives.

The actual number of intakes, two. So you're looking at less than .1 percent of all the people who were being monitored. And this is a large number of samples. So this table indicates

very good radiological control at the facility.

Again, the internal dosimetry stated that this was the final check from a confirmatory standpoint.

The second component was this job specific part, component. And so in this case they estimated 1,500 bioassay samples were under the job specific methodology.

So when you combine these two together you're looking at around 11,000 samples total. For actinides. This is the highest job specific component we've seen anywhere, in any of the records.

We've seen anywhere from 89 percent from our analysis. Here you're looking at, it looks like 14 percent. So 85 percent or greater are routine bioassay at the site.

The final component is the special actinide monitoring that was conducted. And this would be sampling for cause.

CHAIR MELIUS: Excuse me, Tim, you got five minutes.

DR. TAULBEE: Okay. Well, you've got

the data. I want to get to a couple of slides.

CHAIR MELIUS: That's why I told you.

DR. TAULBEE: Okay, thank you. The implications from the dose reconstruction standpoint is we disagree with SC&A's conclusion that this notice of violation would prohibit dose reconstruction for subcontractor construction trades workers.

The job specific bioassay, in conjunction with the routine monitoring, is used for surveillance. The routine or prescheduled bioassay monitoring was the primary method that was used at the site.

In their enforcement action, DOE acknowledged the rigorous radiological control program. The enforcement meeting, they stated that DOE was aware of all radionuclides other than tritium. Westinghouse internal dosimetry does not knowingly permit any worker to be exposed to airborne radioactivity.

Further, it's noted Westinghouse has implemented a rigorous program of comprehensive field indicators during work activities, a signal

for unexpected radiological conditions may have led to potential occupational intakes.

Nonetheless, DOE also appreciates the potential exists to overlook worker exposures to radioactive materials due to unrecognized field conditions or other types of personal error.

This latter statement here by DOE I actually disagree with. And the reason I state that is I think the potential existed when they had this gap of monitoring where people were not complying but they went back and re-sampled everybody.

And so from that standpoint, the 256 workers that didn't need the sample, the re-sample, but did not find intakes, there is no doubt that there's no potential that was missed from this standpoint.

It's important to note that because of the re-sampling there is no missing bioassay data in 1996, regardless of these assessments of the initial participation rate. There's no effect on the coworker model as we have all of the data from the sampling.

The site also evaluated for the potential samples in 1996 concluded that those workers didn't have a potential for an intake.

Next slide. So there's no evidence -- well, actually, let me skip this one. I apologize.

I want to emphasize the significant work place monitoring. An individual monitoring that was available through the surveillance program.

This is the number of actinide bioassay results by year, from 1991 through 2002. And the number of workers that were monitored.

And you'll see that it peaks in 1992 at around 18,000 actinide bioassay samples distributed amongst 10,000 workers. This decreases over time. As you'll see across all of the sites, as people began to be more, reduce their bioassay monitoring program, to where you're down to around 6,000 bioassay samples amongst 2,500 workers in 2002.

So, contrary to what people might be thinking is that when you get into the modern

era, that there is more bioassay data available. What you'll see at Savannah River and other sites is the exact opposite. You will see less in this model.

Next, I want to just briefly touch on, at Savannah River there has been over 1,500 actinide intakes over the course of their history. What you'll see here from this particular graph is that they dramatically drop off after 1991.

Which would be the end of the Cold War as well as implementation of 2-4-80 and the beginning of the RadCon and all of those changes.

This next slide is the actual committed effective dose equivalent for all of these 1,500. And this is quite impressive when you look at it.

From the 1955 time period, the startup of plutonium operations, you'll see more intakes of plutonium. When the transplutonium started in the early 1970's, you'll see a lot more of americium, tritium, californium intakes. But then you get out to 1991 and you see very few

intakes comparably, and the doses are lower.

The green line that just populated here is the monitoring that the DOE talked about, 100 millirem.

Savannah River had a 2 rem administrative limit. As you can see, all of their internal doses were generally below that level. Except two exceptions under this latter time period. And the red line there is the actual regulatory limit.

So you can see they were controlling the actinide exposures quite well with very few exposures, over-exposures.

CHAIR MELIUS: You got one minute.

DR. TAULBEE: So our conclusion is that dose reconstruction is feasible and sufficiently accurate through the use of coworker models for those that did not participate or leave bioassay sample or have internal monitoring.

Individual data can be used to estimate person of dose for missing data in previous years without needing a coworker model.

For those with no internal monitoring data, NIOSH believes that the monitoring data for the 339 internally monitored subcontractor coworkers, could be used to bound the dose to the 32 unmonitored subcontractor workers.

The next slides were all just where we're at with the Work Group but I will --

CHAIR MELIUS: People can read those. We have them. Okay.

DR. TAULBEE: Thank you.

CHAIR MELIUS: Okay, let's get SC&A. We'll save, if we have time, we'll do questions a little bit later. Okay, you got 30 seconds.

MR. FITZGERALD: How much do I have?

(Laughter.)

CHAIR MELIUS: Thirty seconds.

MR. FITZGERALD: Not as many slides.

CHAIR MELIUS: Yes. We'll save LaVon till tomorrow afternoon. What time is your plane?

MR. RUTHERFORD: 2 o'clock. I'll do it like Jim did, and then shut it.

CHAIR MELIUS: Oh, no, we want to hear

the presentation though. We'll tape it. Thank you, Tim, for your presentation by the way. Sorry I had to rush you.

MR. FITZGERALD: Good afternoon, Joe Fitzgerald here. We're going to do a tandem presentation.

Bob Barton is here, he's done a lot of the coworker modeling support work for the Board. He's going to tackle that part. This works great. We know who you are in the Work Group.

Okay, I want to touch on this completeness issue that Tim has spent some time talking about. And just a real quick history.

I mean, we basically went into this doing a broader review, if you recall. There was some concern about maybe the 773A review, basic job plans that he had proposed a year ago. It was only one facility and there was a need to get a more representative sample.

The Board tasked us with a broader review over more timeframe. And like the 773A review, we based it on, instead of construction job plans, something similar, RWPs. That was the

tag that we, or the hook that we used to get to the subcontractors. So that made an RWP based subcontractor review.

Now, the issue, when we got into the RWPs themselves, one, we found only, I think it was 13 over almost 15 years. Obviously, we only had a small sample total. Okay, that was a big concern.

The original intent was to do a individual-by-individual, new client-by-new client match. Pretty similar to what NIOSH did. We couldn't do that, the RWPs were so incomplete.

And the RWPs themselves were inconsistent. There was different flavors and it was pretty remarkable in that timeframe to actually identify that.

And as we later discovered through the notice of violation, that was something that the site had to go through a number of corrective actions to come up with a uniformed RWP system in the late '90's. Which, again, is pretty surprising. So there was some background as to why that happened.

But as a little bit of reasoning why we went to the 30 to 90 day was recognizing these disparities, recognizing the incompleteness of the documents that we are using. In fact, a number of them even had nuclides that were specifically listed. Or they were incomplete.

We decided to go with 30 and 90, specifically to go toward the intermittent subcontractor issue. We were concerned about, in the '90's in particular. Where there was a heavy influx of subcontractors at Westinghouse.

This was a new evolution of work, pay reactor, restart DND, waste management. So you had, unlike the DuPont era, you had a lot of these transient subcontractors coming on, doing a job, leaving.

We were concerned that if in fact you had a RWP written for a job specific bioassay, we were looking to see if there was a bioassay for that subcontractor within the 30 to 90 day timeframe.

Now, hindsight is great. All the research, the thousands of pages that Tim refers

to, we've learned a lot. And I'll grant you, NIOSH has certainly learned, and we have learned from their page, that the way the job is specific bioassay process worked with badging, what have you, we would have been, you know, if we were to do it over again we would have went with 180 days because that 90 day timeframe we were clearly missing some workers.

But as I indicated, and this is on the next one actually. There it is. Yes, it makes a difference. But since it was 20 percent of our total, it probably would raise the upper bound to about 90 percent as opposed to 84 percent. Something like that.

And, again, the issue that still concerns us is, if in fact you had subcontractors on a biannual actinide bioassay basis, you had workers in specific RWP prescribed work that included job specific bioassays. If these workers were in and out, 180 days you might not get them, it would be gone from the site. That would be essentially a lost bioassay.

So, again, yes, we understand that.

It certainly would make a difference in terms of that statistic. Of course our concern is the questioning of the transiency.

And we'll keep going back to this question of the NOV, just for shorthand. We hit upon this NOV almost at the very tail end of this review onsite, going through the noncompliance tracking system.

And we cited it in our report only as, almost a post-script, just to alert the Work Group in NIOSH that, yes, oh by the way, as we were struggling to come up with RWPs to do this survey, here is a situation where Westinghouse actually did self-surveys and were looking at 100 percent of the RWPs and were coming up with percentages that were much worse than what we had come up with.

So that was a, sort of a red flag alert, this is something that would certainly bear further looking down the road. This has a lag.

(Laughter.)

MR. FITZGERALD: Okay, into the notice

of violation. I was a little concerned about the one slide where we're quoted as saying that the NOV would prohibit dose reconstruction. Actually, I went back to double check that because I don't think I used the word prohibit.

Certainly we were concerned and certainly we felt that this really deserved a high level of attention, which I think obviously is the given. But the implications for us, really on the NOV is, less the ins and outs of what the regulatory basis was 10 CFR 120, 835, it was less that.

And the fact that this was an instance where you actually, in terms of the NOV process itself, it was defining that there was a systemic or procedural issue involved.

And I think when Tim pointed out that, hey, we only have three data points, how can these be chronic. Well, '95 was when they identified that there was a issue systemically in terms of the subcontractors not leaving samples.

And this was found by Savannah River, the Field Office. And then of course they did

re-sampling and changes and processes trying to correct this.

But this was not something that began on November '95, okay. And when the DOE looked at this and Savannah River looked at this, this was a persistent issue, as they called it. Something that was clearly was embedded.

And when they did the root cause analysis, it was because the administrative procedures, and I think Tim had mapped out that large flow diagram, the administrative procedures did not hold the managers, the HPs and the workers themselves accountable.

It wasn't an accountability process where they could not work without leaving a sample. It allowed them, in fact, collectively allowed them to defeat the system. So therefore you end up with percentages like 21 percent, 30 percent. It was not a functional system.

So we were concerned about that. That's one reason this was a milestone that we wanted to address.

And certainly DOE heard the

Westinghouse arguments about the strength of our program, the field indicators, the low levels of intake, everything you've heard today. And they did not credit that because in the final analysis, you don't know what you don't know. If you don't have the bioassay data, you don't have any verification.

I mean, you can have a good program, you certainly can have intakes because of a worker error, a failure of equipment, maybe somebody didn't take the suit off right, it happens all the time. And I think DOE had a very balanced review on that.

They basically said, yes, we can't argue with the trends, we can't argue with the intake history, you have a strong program. However, and this is where the violation came in, you can't assure that for job specific bioassays you're not going to have intake. And you won't be able to find it otherwise.

And the other thing that I thought was significant on this was the fact that you had contemporary Westinghouse self-surveys. They

literally, and this was under the gun no less, literally went out and self-surveyed their job specific bioassay program.

And I agree. 1997 they went through, and you can understand given the onus of enforcement action, and scrubbed that thoroughly. Did a re-sampling on all the people that were missed and came up with no intakes for 1997, only.

But the significance of this issue isn't the result for '97 so much as it is a marker for the previous years saying, okay, clearly bioassays were not been collected for RWP prescribed job specific bioassays. I think this was somewhat missed in all the discussion.

We're talking about radiological work permits, we're talking about, not the typical routine work. This is work that was different, involved a different mix of new clients perhaps and it involved source terms that would require a RWP.

And when you're missing your bioassays from that class of work, then I think there is a concern that you're talking about potential

exposures that are out of the norm for what you might see in routine operations.

And I think this is a root of an issue that we'll talk about further. But when we're talking about what do you do about a gap like this. And particularly in the context of coworker model.

I think one thing you have to keep in mind is this is RWP work. Job specific bioassays targeted to new clients that may not be your norm. And whatever you do, you have to come up with an approach, which is going to make that whole.

That's the significance.

MR. BARTON: Okay, I'm going to talk a little bit about representativeness and how it relates to when we actually constructor our co-worker models.

The one thing I wanted to point out from NIOSH's presentation, they said that 91 percent of the subcontractor claims have internal monitoring. We don't disagree with that. There is a lot of data out there. But I want to stress, it is routine data.

The group of workers that we don't have data for are those who were monitored, or were supposed to be monitored, by the job specific bioassay program.

So the key question becomes, does all that data that we have here, which is primarily routine, probably almost all routine, has that data effectively bound the exposures experienced by those workers who weren't routinely monitored, but should have been monitored with the job specific bioassays?

What was the actual exposure potential for some of this off normal transient work and can we relate it to those routinely monitored workers, which includes both subcontractors, regular construction workers, operational workers, can we relate what the people who were purely under the job specific program we're doing to those who were routinely monitored.

More concerns about, why is this a concern for us. Well, when you have interviews with former SRS subcontract workers that indicate they were brought onsite to do more contaminated

work, to save exposure of the onsite construction trades workers. Those are not my words, those are NIOSH's words.

Now, if you have a bunch of these workers who are onsite for a short duration, possibly being brought in to do the heavier more contaminated work, those workers are not going to be on a routine program. If you're only there for a few weeks or a month to come in and do a dirty job and then you're sent offsite, that's why the job specific program existed.

Because you couldn't wait a year or six months to finally sample those people because they're not there anymore. So you put them on a job specific sample related to that specific task that they were supposed to leave. And that system was not working.

From the co-worker criteria, also referred to as the IMP guide today, for routine monitoring programs, now we're talking routine again, you have to review the program, it must be established who was monitored and why they were monitored.

In the evaluation, there must be some demonstration that the monitored population consisted of, one, a representative sample of the exposed population, or two, the workers with the highest exposure potential.

So here's the key question. What is the Class of workers with the highest potential for exposure?

Now, as I said before, NIOSH went in and analyzed NOCTS data for plutonium. From the '50's all the way to the late '80's.

And they found that in certain years in the late '70's and 1980's, at the 95th percentile you would have factored a two to five difference between the monitored subcontractors, which is obviously going to be primarily routine because the job specific program is broken, and the regular construction trades. That gives us a little pause anyway.

And we're not even talking about job specific here because we can't compare them. Which is the last bullet here. Because we have such completeness issues with the job specific

monitoring program, we can't make any meaningful numerical comparison about what the exposure potential was for those workers, to the routinely monitored population.

And that was actually a question raised by Board Members in August. And that was what prompted NIOSH to go and look at that NOCTS data and to do that comparison of the 95th percentile. And NIOSH then concluded that there is no systemic difference between the DuPont constructions and the subcontract constructions.

And the reasoning behind that is when you go in to construct a co-worker model, you fit into a lot of years where your kind of looking at the midpoint and you put an intake regime to that. And so the outlier values way up at the 95th percentile might not have very much of an effect under the final intakes.

While we agree that that's true when you're actually constructing a co-worker model, we disagree that in this context, which is SEC not co-worker construction, that looking at that highest group of exposed workers, determining who

they are and seeing is there another group out there who potentially aren't even covered by those workers, that's where it becomes an SEC potential issue.

And I'm going to show you just a couple of graphs from that NIOSH memo. This is the plutonium graph from the '50's up to the late '80's. It has the DuPont CTWs, subcontract and also operations in there. It's kind of busy.

I looked at it and I said, well, let's just look at the post-SEC period, so roughly 1972 and on, let's get rid of operations. And this is what gave us pause.

The red line with the peaks where you subcontract workers. And again, we're still comparing routine bioassay here because we simply don't have the information to make any numerical comparisons like this for job specific because they really weren't being done.

And I note here that recently NIOSH had identified, one of the peaks there had an error in it. And I'll also note that, while Tim didn't get to it, they're currently doing a re-

analysis using not just NOCTS data, but also log book data to kind of take another look at this issue. Because it is rather concerning to see something like that.

And this is a quote, again, from that same memo. The highlighted portions, subcontractors, CTW, indicated that they were called in for more contaminated work to save the exposure of onsite CTWs. The 95th percentile of the subcontractors CTWs is a factor of two to five higher.

Now again, as of today, because new analysis is in the works, just take this for what it is. It sounds like NIOSH wants to revise it based on a fuller data set. We don't know what that's going to say, but again, the caveat is we're looking at routine monitoring, we're comparing routine monitoring, we don't have a job specific portion.

And really, we don't have a way to meaningfully compare what that exposure potential was to all of those routine workers with the thousands of samples that we do have.

MR. FITZGERALD: Okay. There were a number of implications that Tim touched on at the end of his presentation, I guess, some of them. I don't know if he got to all of them. But I went ahead and addressed each one of them. And I want to go through each of them. But I thought it was a pretty good list. And we think these are pretty significant and relevant to the overall question.

The first one is that there was no effect in the coworker model for 1997, as all the worker data had been collected and evaluated. And we tend to agree with that.

You know, I think it was something we were not aware of this past summer. It was one of these where going back to the site, and establishing that they had done a resampling under the weight of an NOV. They went back and, understandably, resampled every one of the missing 256 workers and did not find any intakes.

However, you know, as I indicate, our concern is, okay, it sort of gets this off the hook for '97, but they did not do that for '96.

It wasn't cost effective. They didn't feel they were going to find anything.

And we're not sure about the previous years, and I think, as Tim indicated, NIOSH is trying to go back now and see if the site did any further surveying.

But our issue, and notwithstanding the comment that the chronic only began in November of '95, which we disagree with, is what are the implications for the previous years? I mean, yes, there was 256 subcontractors that were missed, the jobs that had bioassays were at 21 percent, completeness rate.

Well, what was the situation in '96, '95, '94. This was 100 percent sampled. Do we have anything that would give us any indication that this is typical?

I recall, from the operational history of Savannah River, the heaviest influx of subcontractors was the K reactor re-start in the early '90s, the D&D that came soon after that, waste management.

So, you know, I don't know what we're

talking about in terms of numbers. But certainly the concern would be we have a gap. And there's a need for a co-worker model. And, you know, do we actually know what numbers the jobs, the locations.

You know, I just indicated earlier what really hamstrings us now is the addition of the RWPs. You know, that would give you a record of who was doing what work, what nuclides, what locations. I mean, that would be the roadmap.

But given what we have found, that seems to be missing, by and large. So the concern is, okay, we don't have the bioassays. We don't have a complete set of RWPs.

How would one characterize the, you know, the workers that we're actually talking about, and how would we develop a coworker model that would be founded on bounding whatever dose this group would represent, understanding this group was doing RWP prescribed, you know, work whose exposure potential may not necessarily match that of the routine worker doing typical work. So that's the concern on that one.

Okay, next one. DOE acknowledged rigorous radiological control programs during the enforcement meeting. And it's our responses. That's fine. We don't take issue that Savannah River had a sound radiological control program.

I mean, this is the mid to late 1990s. Post 835 one would expect that. Although I think it was pretty clear the administrative controls, the procedural implementation that led to the deficiencies on the jobs with the bioassays was pretty poor.

I mean, the system was something that wasn't working. It hadn't worked in some time. It's not clear on how long, but certainly whatever procedures were in place weren't accountable to making sure these bioassays were collected and weren't very amenable to corrective action which is one reason I agree with Tim.

I mean, I think it's pretty clear it was getting worse. And the NOV was cited. Now when I say worse, I put quotation marks around that, because I don't know what the sample size was in '95. Certainly it was a lot more limited

in '96, I'm sorry, earlier in '97. So it really sort of depends on what sample you take to what percentage you get.

But we're concerned very, very specifically with the repetitive nature, and I just use word that DOE used, of the nonparticipation by workers who were required to get bioassays by their RWPs at relatively high rates.

And, you know, I find it kind of enlightening that we're, you know, saying that ten percent's fine, 15 percent's not too bad. I go back ten years in this program, and we were excited about five percent, you know, five percent lacking in terms of completeness.

And we went through all kinds of gyrations to try and figure out where that five percent was. So we're up to the double digits, and we're, in some cases, okay with that.

Anyway, that's the concern. And yes, the overriding concern is that the potential does exist to overlook worker exposure and to radioactive material due to these unrecognizable

conditions and other types of personal error.

So I think that was the -- and that's our concern too, that no matter how good the routine program is, and it's very sound, if you don't have a working bioassay program for your RWP bioassays, I think it's a big gap. And it's one that's going to require certainly some attention to a coworker model.

But the other concern is that SC&A has not demonstrated a subcontractor for primarily or only monitored the job specific bioassays that would bias the coworker model.

Actually, I am sympathetic to this particular one and sent a note in to the Work Group about a month and a half ago that said, you know, this is -- and I can't say this was my idea. I think Stu came up with the original reflection that, you know, we don't really know who makes up the so-called job specific bioassays. It probably is a loss of contractors, maybe some in-house staff and other CTWs.

So we really don't know. And I think the notion was, well, we do have the 1997 group

cohort, the 256. And wouldn't it be interesting to know what that makeup is? I agree, I think it would be. And I have recommended that to the Work Group.

So yes, we have not demonstrated it, because we have not had the tasking or opportunity to do so. But I would think that would be a good idea. Now, the only admonition is that's going to give you snapshot of the makeup of 1997.

And that makeup is going to be different every year going back just simply because you always had a different mix of subs doing different kinds of activities. But yet it still would be illustrative of what you're dealing with. Right now we think your subcontractors are making up the most of that. We don't know for sure.

The other concern was even a larger percentage of subcontractors use a job-specific bioassay compared to Westinghouse employees. A larger fraction of subcontractor CTWs were monitored via routine bioassays.

I think that's true, but as we have noted earlier, we take exception that NIOSH has demonstrated there's no systemic difference or systematic difference between the in-house CTWs and the subcontractor CTWs.

And typical routine work and RWP work, now, I think this is where you get down to the rougher question, is are the workers doing RWP work the same as the workers doing typical work. And can you envelope or bound these workers, meaning the RWP workers, the workers that were doing the RWP work, with the routine pre-scheduled bioassay work.

And I think that's a key question which I don't think has been fully answered. And I think that's one that would, I think, resolve some of our concerns. Because I think that's where, you know, one can take care of these gaps and feel confident that whatever data you're applying is in fact, you know, is the bounded data.

Okay, this is almost done. There is no evidence of a workplace exposure nor

indication that there was a mis-intake of radionuclides at Savannah River. This was pretty much Westinghouse's argument with DOE in the enforcement action.

And I'm not going to go back over this, but DOE certainly emphasized that they can't overlook the potential for errors or other unrecognized conditions leading to an intake, okay.

You know, even if you have one or two intakes in the entire complex at Savannah River a year, it doesn't mean you're not going to have one in your RWP program with job specific bioassays, okay. And the rest of this, I think, is pretty clear.

We went back and did a cursory look in the SRDB and NOCTS. And we've identified instances, as did DOE, actually, in the NOV, where you have positive intakes that were only picked up in the bioassays. They were not picked up in the Field Indicator Program. And, you know, we'll be identifying that to NIOSH after the meeting.

But we didn't want to put the Privacy Act information, you know, put it up on the slide. But I think this, again, underscores the fact that, you know, the bioassay program not only is your last resort, but it's a necessary component in terms of actually identifying intakes that might be missed otherwise.

And again to emphasize, we're talking transient subcontractors. Savannah River did not have a fully functional termination bioassay program until the corrective action took place after this NOV.

So if you have in and out subcontractors, transient subcontractors, that missed bioassays as part of their RWPs who left the site, there wasn't an accountable system that would have picked them up, necessarily.

MEMBER BEACH: Jim, can I ask a question?

CHAIR MELIUS: Are you done?

MR. FITZGERALD: I just want to just do the conclusions, and I'm done.

CHAIR MELIUS: Okay.

MR. FITZGERALD: Okay, real quick.

CHAIR MELIUS: Quickly.

MR. FITZGERALD: Real quick. Okay. Again, the Westinghouse self-surveys, in our view, are the most valid reviews of the job-specific bioassay completeness. They were 100 percent re-sampling that was done contemporaneously back 20 years ago, not sort of this, you know, we'll see if we find job plans or RWPs and see where they pan out. This was done contemporaneous with the concerns that were expressed back in the '90s.

And representatives in this is the key, as Bob pointed out, as far as the coworker model is concerned. And I already talked about the RWPs and some of the deficiencies on that.

And at the Work Group meeting, I think NIOSH indicated and showed some raw data in terms of the NOCTS review that they referred to that we'll hopefully see toward the end of the year.

And again, we'll take a look at it. But I think our concern is that this is sort of the cart before the horse. We haven't had a

chance to be convinced that the data sets are truly, you know, similar, that you would be able to apply the coworker data as indicated or proposed. So again, we're still concerned about that particular issue.

Okay, questions?

CHAIR MELIUS: Thank you. Josie?

MEMBER BEACH: I just wanted to -- we might have talked about this, but what are the numbers of the transient workers that we're talking about versus the subcontractors? I'm just curious.

MR. FITZGERALD: We have no idea.

MEMBER BEACH: Are we talking hundreds, or thousands, or just --

MR. FITZGERALD: I think in terms of subcontractors, there were thousands. But as far as the level of transiency, you know, days versus weeks, versus -- some of them worked side by side with CTWs. They were effectively permanent staff that were just simply, in this case, say Bechtel subcontractors in the '90s, you know, back to Savannah River full time. And I think as Tim was

indicating, yes, they were routinely monitored. So in terms of the transiency, that's something that has not been, I think, measured or estimated.

MEMBER BEACH: It's important.

DR. TAULBEE: Can I give a follow-up to that? What we're going to be doing, because this was an issue that came up within the Work Group, we're going to be looking at the NOCTS claimants and looking for where there's breaks of employment.

And those workers we will be calling transients, that they left the site and then came back for whatever reason. And we typically see a two or three-year gap in between their employment.

And we're going to be looking at their bioassay compared to the people who were there during that entire time period that you're calling more routine, if you will. So that's the comparison that we committed to do to the worker. And we're still working on that.

MEMBER BEACH: That's still going to

be kind of a guestimate though, it sounds like.

DR. TAULBEE: It will be -- the only way to do what you're asking is to go through all of the RWPs and compile a name -- compile names to try and determine that.

MEMBER BEACH: And I wasn't asking, I was just --

CHAIR MELIUS: But the RWPs aren't available, right, for some of those time periods or --

DR. TAULBEE: No, actually, and I hadn't had a chance to talk to Joe about this, but I believe we might have found a large number of particular boxes of RWPs --

CHAIR MELIUS: Okay, okay.

MEMBER BEACH: And I want to be clear. I wasn't asking for you to do anything. I just was simply asking if there was a number.

MR. FITZGERALD: It would be an enormous task to try to engage in numbers, you know, what the status of all the subcontractors were. But, you know, again, I think our concern would be more on the transient subcontractors.

I really don't have as much of an issue for the full time subcontractors that work side by side with the other CTWs at the site. And they're doing the same work, they're probably routinely monitored. And I think the data that Tim has talked to is fine.

But I think that doesn't work as well for the ones that are more transient, who fall under the job-specific bioassays, who are doing work that isn't your typical work, isn't your routine work. So that's where, I think, the split is.

MEMBER CLAWSON: Jim, this is Brad. Can I make a comment please?

CHAIR MELIUS: Yes.

MEMBER CLAWSON: One of the things that I just heard from Tim that really bothers me is, in the interviews that we got in there, we have people that have worked for four or five different contractors. They have stayed there at Savannah River, but there are four or five different contractors.

Short term work, they may have a break

in work of only a week or two weeks throughout the whole year. So to be able to do that and be able to say that they're the transient force, this is what I made a comment on so many times that Savannah River is different than all the other sites.

Usually they -- each site usually has their own union or their own workers. These used tradespeople. They could come, and they could go. You'll have ones that are workers for the prime for four or five years. But a big project will come along and be able to make more money. They'll trade and go to it. But they'll still show up as construction trades.

This is why this site is so unique. And I know people don't agree with it, but they really ought to look at it. And this is why I see that what Tim's saying is not going to buy us anything.

CHAIR MELIUS: Well, let's see, okay.

MEMBER CLAWSON: Well --

CHAIR MELIUS: To be fair. I mean, we need to --

MEMBER CLAWSON: That's all well and fine. But also too, I just want to mention how long we have been waiting.

CHAIR MELIUS: Yes, I think we know that. Yes. I just want to say to the Board I think this is an ongoing effort. And I think everybody's working hard, and finding new data, new information that helps to address these questions.

And though there's a, you know, little bit of a rivalry, it's a friendly sort of exchange, I think, in terms of the information and so forth. I think we all get sort of carried away in terms of absolutes. It can be done, or it can't -- well, I think the question's going be done in a coworker model that is satisfactory.

How will it be done? Do you separate out construction workers, do you try to separate out the transient workers? But I'm not sure that's possible, but things like that. So there's some issues to be dealt with here.

But I think both NIOSH and SC&A put a lot of effort into doing this and doing it in a

fair way so that -- and it's hard to talk about here. We're not ready for a conclusion yet.

And we need to -- we have ongoing reports being produced and so forth. So I don't want to spend a lot of time on questions, mainly also because we're running very late. So, Dave, do you have one quick question? And then -- okay.

MEMBER BEACH: One quick. There was a lot of points and questions raised in SC&A slides. And I'm assuming NIOSH will get to those in discussions during your Work Group?

CHAIR MELIUS: Yes. I think where this is going to be resolved is in the Working Group.

MR. FITZGERALD: Yes. And I want to echo that. This is so dynamic that, you know, there's information coming in every week that, you know, it's kind of hard to know exactly where everything is until you actually see the information.

And my problem, of course, is that you have a position. But that position is modified based on new information. And it doesn't mean

it's wrong at the time that it was made, it just happened to be superseded by new information.

So I would say the so-called 30-90 day thing was superseded by new information on how the actinides were addressed. And that's fine. I think, again, we are learning and researching as we go.

MEMBER BEACH: One more quick comment. There was a lot of discussion, and it feels like we are rushed. I didn't have time to ask Tim the questions on his slides. And I won't belabor it, but maybe more time the next time this comes before the Board.

CHAIR MELIUS: Oh, you'll have more time. And if we -- Tim, are you here tomorrow morning? Okay. So during our Board work session, which is where I think we can have time for more Board questions for both Tim and for SC&A. So I'll do that.

But again, recognizing that there are more reports to come, and I don't think, you know, don't expect resolution that easy. I think it's important that we have the Board briefed on this

as we go along. Because if not, you get overwhelmed at the end. And it's very easy to -- we get overwhelmed on the way, let alone on this particular site, do that.

I don't know if the petitioners are on the line and wish to say anything. It's 6:30 back east or close to it, 6:15.

Okay. Hearing no one, I think maybe they'll come on in the public comment period or something, but time for that.

I think what we will do is take our break now. And as I said, I was going to schedule LaVon for tomorrow afternoon. But he said something about wanting to leave. So we'll come back. And we're due back here in about, let's say 20 minutes to be realistic, and then we'll hear from LaVon. We'll go into our Board work session. Then at 5:30, we will hear from LaVon again.

(Whereupon, the above-entitled matter went off the record at 4:20 p.m. and resumed at 4:47 p.m.)

CHAIR MELIUS: So we will start by

hearing from LaVon.

MR. RUTHERFORD: Thank you, Dr. Melius.

CHAIR MELIUS: Chair. Chair Melius.

MR. RUTHERFORD: Dr. Chair Melius.

CHAIR MELIUS: Yes.

MR. RUTHERFORD: I'm going to give NIOSH the SEC update.

CHAIR MELIUS: Still that's like a C+, C- maybe.

SEC Petitions Status Update

MR. RUTHERFORD: I'm working on it. I'm working on it. I'll see if it gets better.

We give this update to the Advisory Board in preparation for future Work Group meetings and --

CHAIR MELIUS: You know, I had to apologize to Dr. Ziemer last time.

(Laughter)

MR. RUTHERFORD: I'm not going to comment on that.

We're going to talk about SEC petitions that are in qualification, under

evaluation, currently under Board review, and potential 83.14s.

Okay, summary petitions, we have up to 245 petitions. We have three petitions that are in the qualification process, two that are in the evaluation process, and nine reports that are with the Advisory Board at some stage, meaning that they haven't reached full disposition.

Okay, Wah Chang, this is 1973 to 2017, Board Members may remember that we actually had another petition for Wah Chang that was up through 2009. We did fully -- that petition was fully dispositioned. The operational period was added and the residual period was denied.

We got this petition that actually goes beyond what was previously evaluated, but no new information or exposure potential was provided by the petitioner. So based on that, that would not affect our DR methodology, so we are not qualifying this petition. And I'll take questions on that in a little bit.

Okay, Y-12, another petition in qualification, this petition is 1981 to present.

And it is -- currently we are responding to the petitioner's response to our proposed finding. And we do expect that qualification determination later this month.

Another Pinellas plant petition is in qualification. This petition covers the entire period as previous ones have. This is for all employees. We are currently -- it indicates we are responding to petitioner's response to our proposed finding.

That's not exactly true. We are actually working on our professional judgement that will provide the proposed finding. We expect that proposed finding letter out to the petitioner later this month. A qualification determination will be finalized between now and early January.

We have two petitions, as I mentioned, that are in the evaluation phase, Sandia National Lab, this is a petition that covered a very broad petition period. We concluded or we added a Class up through 1994, and then this addendum's going to address the remaining years. And we

anticipate the completion of that addendum in March. I'm also going to be providing a little more detailed information later on this afternoon.

Lawrence Livermore National Lab, again, is another petition that covers a broad period of time. We actually have the remaining years of 1990 to 2014 that we are doing addendum to address. This one is going to follow the Sandia petition.

And all three, or I should say I want to remind everyone that all of these, the Sandia addendum, the Lawrence Livermore addendum, the Los Alamos petition -- evaluation I presented at last Board meeting, all cover the 10 CFR 835 time period which I really think needs to be looked at closer by the Board.

So petitions under Advisory Board review, Hanford, this petition will be -- we actually dispositioned the entire period up through 1990. That's what the end-period was for that petition.

However, one of the prime contractors

were left out of that Class. We are fully evaluating the prime contractors for their bioassay to ensure that their bioassay commitments were met. And that's in progress. I think it's covered under my work coordination document a little bit.

We also recently provided the issues matrix, an updated issues matrix. The remaining issues, this petition's gone on for quite some period of time. And so it took some going back between us, SC&A, and working out, and coming up with a good issues matrix that we've just provided to Board not long ago, anyway, and it'll be ready for future work for the meeting.

Savannah River Site, I think we've heard enough on Savannah River today. So Los Alamos National Lab, we wanted the SCS -- we presented -- SC&A presented their review at the last Advisory Board meeting. We are responding to SC&A's review. We're working on that report now.

We're also -- we had requested from the site additional information on NTS report 484

which was identified by SC&A in their review. We did get those documents last week, finally. We've had them in the queue for quite some time. And it took a long time to get them from the site. We will make those available to SC&A and the Work Group in the Advisory Board's folder.

INL, the initial proposed Class is still under review. And the rest of the evaluation as well.

Argonne National Lab West is, again, with the Advisory Board and SC&A.

Area IV, Santa Susana, an update by the Work Group in the SC&A is scheduled for tomorrow. That report was presented at the last meeting.

Metals and Controls was another report that was presented at the last Advisory Board meeting. And it's with SC&A to review at this time. There was some additional interviews and work that was done on Metals and Controls since the last Board meeting.

So these are the petitions that I just went through that have, in the remaining years,

that still need to be addressed or we're working to address with the Advisory Board.

Potential 83.14s, this is the Sandia National Lab at Albuquerque. Again, this is the old Z Division at LANL. The Department of Labor has been processing these cases that come in under the -- it appears that they've been processing them under the LANL SEC. So we have not received at litmus claim to move this 83.14 forward.

CHAIR MELIUS: Come on, spit it out.

MR. RUTHERFORD: Okay. I'm waiting for it to -- I guess, okay, questions. Specific questions on Wah Chang? No questions on Wah Chang?

CHAIR MELIUS: No. You answered them.

MR. RUTHERFORD: All right. I thought that might be something.

CHAIR MELIUS: It was going to be, but it's not now.

MR. RUTHERFORD: Okay.

CHAIR MELIUS: You gave us the answer already.

MR. RUTHERFORD: All right.

CHAIR MELIUS: You explained it.

MR. RUTHERFORD: Okay.

CHAIR MELIUS: Any Board Members with questions for LaVon?

(No audible response.)

CHAIR MELIUS: Saving them up for --

MR. RUTHERFORD: Sandia?

CHAIR MELIUS: Sandia.

MEMBER BEACH: I've got a quick one. Did Monsanto, did that fall off.

MR. RUTHERFORD: Yes, it fell off because --

MEMBER BEACH: It did last week.

MR. RUTHERFORD: Yes.

MEMBER BEACH: At last meeting.

MR. RUTHERFORD: Yes, it fell off. And the reason why it fell off is because of the designation that -- the Department of Labor changed it. Actually, when they changed their designation, I'm not sure of the date, but they changed that designation and ultimately ended up grabbing those six to nine months that we were

missing before. And so everyone was included. That's why it dropped off.

MEMBER BEACH: I thought I remembered that. Thank you.

MR. RUTHERFORD: All right.

CHAIR MELIUS: Thank you, LaVon. You can sit down for a little bit and give Stu some time to gear up for the next one. But we'll do some Board work first.

So I'll try to do a few of these items while we can. But we have the scheduling for our meeting for April 11th and 12th. We need to pick a location. Why we're asking about Wah Chang was whether it was worth going out to Oregon. But I think the --

MEMBER BEACH: Very nice time to be there.

CHAIR MELIUS: Well, I --

(Off the record comments)

CHAIR MELIUS: So we, Ted, you don't like this. I blame this on Ted. Ted said let's go back Chicago in April, Argonne East. And then the other possibility he suggested was

Providence, it's actually Attleboro, Massachusetts, which is near Providence, sort of halfway between Boston and Providence. But that's Metals and Controls. I'm not sure where we'll be with that yet and whether we need more information or whether we may be too early in the information gathering.

MEMBER BEACH: Yes. We might be close to Work Group meeting by then but --

CHAIR MELIUS: Yes.

MEMBER BEACH: -- we'll see.

CHAIR MELIUS: Okay. And then the other suggestion was Oak Ridge.

MEMBER ROESSLER: Yes, Jim, this is Gen. I got a note from Dr. Lara Hughes who's the NIOSH lead on Oak Ridge.

CHAIR MELIUS: Yes.

MEMBER ROESSLER: It looks like they're -- she said the report that we've been looking for is to be released in the near future. It sounds like it's pretty close. And I don't know if that -- maybe Lara is on the phone and can tell you what the status would be for that.

(Off the record comments)

She doesn't give us, you know, any indication if it's months, or weeks, or -- but she does say the initial draft has been reviewed by DCAS, and the report is being finalized. So to me it sounds pretty close.

MR. RUTHERFORD: Yes. Dr. Roessler, this is LaVon Rutherford. Yes, you're correct. That report is going to the Work Group very soon. We actually went through our review. I would expect it out next couple of weeks.

(Off the record comments)

MR. RUTHERFORD: Yes, this is a 200-page report though, I will say.

CHAIR MELIUS: So can the Work Group do a summary for us, you know, like a ten-page CliffsNotes of --

MEMBER ROESSLER: Well, I don't know what the intent was of suggesting Oak Ridge. To me, it seems a bit early. But that's up to you.

CHAIR MELIUS: I think the issue for choosing is that we want information. It would be useful to get information from people there.

And it's the same on Argonne, I think it's between Chicago and Oak Ridge.

MR. RUTHERFORD: I think Oak Ridge would be great for getting some additional information. Because there are some things that we're going to be moving forward with that if we can get some additional information from the work force there it'd be great.

CHAIR MELIUS: Okay. Sounds like Oak Ridge. Yes. But I think if we can get into Oak Ridge, wasn't the last time we were out -- weren't we up in Knoxville or something? And we didn't get almost any turnout from the group.

MR. KATZ: So we want to be in Oak Ridge, is that what you're saying?

CHAIR MELIUS: If we can. I mean, I think there's one choice there that -- at least the last time we were there, it was one that could accommodate the meeting.

MR. KATZ: And if that's the best -- does that mean you don't want to do that or --

CHAIR MELIUS: Well, I -- going up to Knoxville, I think, was the other one.

MR. KATZ: Yes, we didn't -- yes, you're right. We didn't get --

CHAIR MELIUS: Yes.

MR. KATZ: -- participation. But, Tim, go ahead.

DR. TAULBEE: Having been to Oak Ridge quite a bit, you don't necessarily have to go all the way to Knoxville. If you go into the outskirts of Knoxville, in between Knoxville and Oak Ridge, there is a lot of hotels that could probably accommodate you --

MR. KATZ: Oh, okay.

DR. TAULBEE: -- to look at that would be more convenient for the people who work at Oak Ridge.

MR. KATZ: Okay. Thanks a lot, Tim, that's helpful. Okay, then we'll shoot for, if not in Oak Ridge, reasonably close.

CHAIR MELIUS: Yes. Well, Nashville's easier to get to but --

MEMBER ROESSLER: It's not close.

CHAIR MELIUS: So the next item we have is our teleconference for the week of

October 15th or 22nd.

MR. KATZ: Correct. And that's just -- remember, that's just about the right timing. But obviously we can move from those weeks.

CHAIR MELIUS: So don't we get into Health Physics Society? Is that -- or that's spring?

MR. KATZ: No, that's in the summer.

(Off the record comments)

MR. KATZ: Yes, that's summer. So October 15th or 22nd, that week, those weeks next year. So if we do it on a Wednesday, that being, you know, the 17th.

CHAIR MELIUS: The 17th's okay?

MR. KATZ: The 17th work for everyone? And for Board Members on the line too?

MEMBER ROESSLER: Sounds okay with me.

MR. KATZ: The 17th.

MEMBER LEMEN: This is Dick, it's okay with me.

CHAIR MELIUS: All right. We're going to move it now, Dick, because you just busted our --

MEMBER ZIEMER: It's okay with Ziemer.

CHAIR MELIUS: Okay.

MR. KATZ: Thanks, Paul.

CHAIR MELIUS: Okay, you're overruled then. We're back to the 17th.

MR. KATZ: Okay. So we'll say 10/17 for the teleconference. And that'll, as usual, be 11:00 a.m. Eastern time. Okay, and then for full Board meeting, face to face meeting, that's approximately right, December 3rd or 10th, those weeks.

CHAIR MELIUS: And I can tell you I can't do the week of the 3rd.

MR. KATZ: How about the week of the 10th, December 10th?

CHAIR MELIUS: The 10th, I can do.

MR. KATZ: And others, the week of December 10th, next year?

(Off the record comments)

MR. KATZ: Okay. So then 12th and 13th, Wednesday, Thursday, would be the best, if that works for everybody. Okay. And I'm assuming, I'm not hearing any squawks from

online. So folks on the phone, I'm assuming that's okay with you too.

CHAIR MELIUS: And why don't you email those out, because I'm not sure everybody's still on the line.

MR. KATZ: Okay, I'll do that. So anyway, December 12th through 13th.

CHAIR MELIUS: Make a note then lose the document.

MR. KATZ: Huh?

CHAIR MELIUS: Make yourself a note then lose the document.

MR. KATZ: Yes. I could do that.

CHAIR MELIUS: But do you have the list of Work Groups?

MR. KATZ: I do.

CHAIR MELIUS: Okay. I'm going to start going through our Work Groups and updates. Of course, NIOSH and SC&A, if you can be alert on this, so when we ask where are our reports you'll be ready to answer. And we'll start with Ames.

MEMBER KOTELCHUCK: I think we've talked about Ames today.

CHAIR MELIUS: Yes, we've got the Site Profile stuff, right?

MEMBER KOTELCHUCK: Right. But the question is --

MR. KATZ: Dave, can you talk in the mic?

MEMBER KOTELCHUCK: Site Profile has come out. Are we -- since we've already decided on an SEC for that, is it that the Work Group should go over the PER?

No, I don't see -- I'm not sure functionally what we have to do.

MR. KATZ: There's a whole lot of Site Profile work that's about ready to be addressed. That's what the Work Group would deal with, the Site Profile work.

MEMBER KOTELCHUCK: Okay, fine. Then --

CHAIR MELIUS: We have a Site Profile, and the question is do we have an SC&A review of that Site Profile?

MR. KATZ: Yes. And NIOSH is just finishing up with responses to that.

MEMBER KOTELCHUCK: All right. That's fine.

CHAIR MELIUS: And the dates for those responses? We're playing good cop, bad cop here. I'm not sure which is which.

MR. RUTHERFORD: I don't have a good date for the response, because one thing we have to do is we've got to go through and look at what was dispositioned by the Evaluation Report and the Class that came through with it.

I mean, some of those, the recent -- some of the Site Profile issues were the specific reason why we ended up doing the 83.14. And so we've got to see what's left of that and then respond to those.

We also did get additional data that Tom talked about that addresses that 1990 period and beyond. And so we're evaluating that data right now to come up with a good response for SC&A. So I don't have a date right now.

MEMBER KOTELCHUCK: But is there an SEC -- a request for an SEC for 1990 and beyond?

MR. KATZ: No. Not at this time, no.

MEMBER KOTELCHUCK: Right, okay. So we have some activities to do, so we'll schedule a meeting.

CHAIR MELIUS: Well, I think you have to wait for NIOSH to respond.

MEMBER KOTELCHUCK: Yes.

CHAIR MELIUS: So, like, are you not being able to estimate it when in the next three months, or when in the next six months?

MEMBER KOTELCHUCK: I would say about three months but --

CHAIR MELIUS: Okay.

MR. RUTHERFORD: You know --

CHAIR MELIUS: We're going to make you commit here, one way or the other.

MR. RUTHERFORD: I will give you my best estimate, you know. And then I'll get beat up later, but that's fine. I want to say the next three months we'll have an update to the Work Group where we are within -- we should have an update to the Work Group on what's the remaining issues to be addressed and a status on addressing those within the next month, I would

think. And then we should be able to -- Tom's been working on closing those issues out for a while.

MEMBER KOTELCHUCK: I'll be in touch with you.

CHAIR MELIUS: And just for the record, when you say beat up, it's not a physical beating, it's just a, you know, ballfield sort of, you know, we'll remind him what he initially guaranteed to the Board. I don't want anybody to be, you know, get the wrong impression, LaVon.

Argonne East?

No, no. Steal his fishing pole. Okay, Argonne East? Brad, are you on?

(No audible response.)

CHAIR MELIUS: I guess Brad is either -- we'll get back to you, Brad. I think Blockson, I don't think we have any --

Okay. Brookhaven? Josie, that's you?

MEMBER BEACH: Yes. There is actually nothing to report. I believe we're finished. We're waiting for NIOSH, for the last TBD update. And it was pushed back to January of 2018, so

maybe next month. It changes every meeting.

CHAIR MELIUS: Okay. And then it would be a review. So it'd be some time.

MEMBER BEACH: A Work Group --

CHAIR MELIUS: Okay. Carborundum, Gen? Gen may be on mute.

MEMBER ROESSLER: Okay, I'm off mute now.

CHAIR MELIUS: Okay.

MEMBER ROESSLER: My notes say that I should look at the SC&A Board coordination updates to comment here. But maybe SC&A can -- I think there's something there that we should be talking about, but I can't remember what it is.

CHAIR MELIUS: Okay.

MR. RUTHERFORD: Well, I'm not SC&A, but this is LaVon Rutherford. We are actually -- DCAS is providing a response to the Work Group on open issues and a schedule for February.

MEMBER ROESSLER: Thank you, LaVon.

CHAIR MELIUS: Good. So it'll be a few months then, February.

Dose reconstruction review methods

we've really reported on. Fernald, Brad, anything to report.

(No audible response.)

CHAIR MELIUS: Stu, you --

MR. HINNEFELD: Yes, NIOSH fairly recently submitted our most recent approach. There are, like four Site Profile issues remaining. And we submitted our most recent document to the Work Group relatively recently. And I think when SC&A is ready, and the Work Group's ready, we can go ahead with our Work Group meeting.

CHAIR MELIUS: Okay. And has SC&A been tasked on that one?

MR. STIVER: Yeah. We didn't receive formal tasking for that particular thing. It was kind of an ongoing exchange. So once we get a chance to look at it, then our response will probably be a few weeks. We can think about scheduling the Work Group.

MR. KATZ: I actually did send an email, responding to you saying, yes, go forward. So that was tasked.

CHAIR MELIUS: So you're tasked. Grand Junction, anything left to do?

MR. RUTHERFORD: I don't think so.

CHAIR MELIUS: Yes. What?

MR. RUTHERFORD: After the disposition of the SEC, which we completed a Board meeting or two ago, we are now working on changing our methodology into a Technical Basis Document. We don't have a date yet, because that actually is getting laid out into the project plan at this time.

CHAIR MELIUS: Hanford, Joe, do you want to update? Somehow, there's some updating that I didn't get told about, like a matrix.

MR. FITZGERALD: Yes. Anyway, the issues matrix has been an ongoing thing. I think it was mentioned a little earlier where we have spent time going back and forth with NIOSH trying to come up with a consensus matrix.

This has a long history, probably three or four years. So it's actually a good exercise at this stage. And we did complete that. And it's been sent to the Work Group. And that

was going to be the basis for a Work Group meeting, sort of a, again, an index of outstanding issues and the status of issues. So we're waiting on what the next step will be.

CHAIR MELIUS: The Work Group Chair, I don't believe received that.

MR. FITZGERALD: Huh?

CHAIR MELIUS: But I'll --

MR. RUTHERFORD: I was going to say, NIOSH sent it out. I don't know --

CHAIR MELIUS: Well, they --

MR. RUTHERFORD: The distribution should have included --

CHAIR MELIUS: LaVon, LaVon, the one --

I wouldn't kid you, LaVon. We'll track it. I knew that you were working on it.

MR. RUTHERFORD: No. It's, I mean, I checked --

CHAIR MELIUS: Don't worry about it. Just get it to me.

MR. RUTHERFORD: We'll get it to you.

CHAIR MELIUS: Okay. Lots of reasons,

could have got lost in email whatever. But I think, again, for the Board Members, it's mostly focusing now on the production workers and so forth, and some of the issues that we've had with construction workers there and so forth, so pulling it back together --

INL, Argonne West?

MEMBER SCHOFIELD: Actually, Tim's got an update for us on some new information coming out.

CHAIR MELIUS: Oh, so how many boxes this time?

DR. TAULBEE: No, no, no. Not related to boxes. But this is bad news but good news toward the end of this.

(Laughter.)

DR. TAULBEE: The bad news is we started -- this is in follow-up to SC&A's 30 claims to evaluate whether the temporary badge reports -- temporary badge information made it into the indexing that the Department of Energy did last year. And so the Department of Energy responded to 23 of the 30.

And so as we were beginning to get them packaged up to be sent over, we noticed that what we got in the new responses, which were extensive for most of the employees, contained the little cards that we pointed out to both Josie and to Gen when we were up there, that those were all included.

But the actual temporary badge reports that covered from '63 to '67 were not in this group. So we contacted DOE and said why are these not indexed? Why are we not receiving these for these workers?

And they acknowledged that they missed a set for coding purposes. And so they have added that. And this all occurred around the first of October when nobody had any money from Department of Energy headquarters. They've gotten the money now. They had to submit a request.

They have started coding that information. And the expected completion of that additional coding is the end of January. However, it'll take another month to get it into the system and QA'd so make sure everything made it. And

then they can restart that process.

So the bad news is that they started this and identified a very large set of the temporary badge reports that they had not coded. But the good news is they're correcting it.

I apologized for the delay to Phil, giving him an update on this. But I didn't get a date of the completion of January and February until last Friday.

CHAIR MELIUS: Thank you. Well, oh --

MR. RUTHERFORD: I do have a quick -- back to Hanford. It was sent to your CDC email address, I don't know if you didn't get it or not, on November 29th.

CHAIR MELIUS: Okay. And Joe was copied as well as John Stiver, I believe. Yeah, all right.

MR. BARTON: Just one more thing on INL. Tim mentioned that there's going to be some more coding going on. That also affects the V&V activity we're going to put together for the 83.14 period which was '74 to 1980.

What I would suggest, that while that coding is going on, there is an interim report much like the proposal we put together. However, it's not going to be a complete report, obviously. Because all the coding hasn't been done. So we are not in a position to request those records yet.

And also, we came across an issue when we were trying to develop the V&V study. And not all of the temporary badge reports were captured by NIOSH either. So we'll have to discuss what we have there and what options we have for performing V&V activity during that 83.14 period. So I would expect to have an interim report, not a very long one, for the Work Group to consider early January.

CHAIR MELIUS: Just to go a little bit farther, I don't know if this is more for NIOSH, both of you, actually. Like, how would we know that they didn't miss more? This is a little bit worrisome when you tell me that there's lots of data that they didn't -- the data of most interest to us but beyond that --

DR. TAULBEE: That's easy to explain. And you can actually look at the dates to see whether or not you've got them.

CHAIR MELIUS: I believe you.

DR. TAULBEE: So from that standpoint, there's a date on the top of each of those forms. How these were missed was we captured them earlier than the bulk of the other temporary badge reports. We captured these for CPP back when we were trying to address those issues back in April of 2014 or 2015, I guess it was.

And when DOE went to the coding, that was because we had captured them earlier there on a different directory. And so it didn't get included into that group. Now, the new reports that Bob's talking about, I'm actually not sure what that is.

CHAIR MELIUS: Okay.

MR. BARTON: Just to clarify, and you might know a little bit more, it appears that the temporary badge reports that NIOSH captured during their site visits only covered 1975 and 1976. So there's about a three or four-year

period where we don't have temporary badge reports that we could even look through to see if they're missing from the claim files.

And also, even for those years, it appears they were pulling mostly the positive entries. And it's the zero entries that we're really concerned with, because those are the ones that were left out of the claimant files that would really be used to determine any sort of SEC determination.

CHAIR MELIUS: Why don't the two of you talk and sort of -- Tim looks puzzled. And we're not going -- not the best place here to involve all of us in explaining. Two of you can do it better.

Dr. Ziemer, if you're on the line, we have Lawrence Berkeley.

(No audible response.)

CHAIR MELIUS: Dr. Ziemer?

(No audible response.)

CHAIR MELIUS: Okay. LANL?

MEMBER BEACH: We heard a little bit from LaVon. He sent a note out. Thank you for

that, LaVon. The Board Member, the last Board Member or, excuse me, the last Board meeting in August we heard from a lot of individuals that we decided that we would like to interview.

So I hear from LaVon that NIOSH is going to set those up for the early part of January. So hopefully we'll hear something about those interviews soon.

NIOSH expects to have a response to SC&A's addendum. The addendum went out in July of 2017. And that's expected in March. And NIOSH is also preparing a document. We asked them to identify all the petitioners' issues, get them into one format and give us a response on where they are with those petitioners' concerns. And I believe we're expecting to see that in March as LaVon indicated.

And then there's the documents that LaVon mentioned earlier that they just received, I think, a couple of days ago. And how soon do you think -- well, you'll send us a notice when they're ready for the Work Group to look at. So I expect we'll see that shortly.

MR. RUTHERFORD: Yes. The only clarification is we're going to start scheduling the interviews in January. I don't know if they'll occur in January, because we've got to get everybody's -- we've got to figure out Work Group members that want to attend. And everybody that's --

MEMBER BEACH: Got you. And one more question while you're up there. The county workers, it wasn't part of your note, is that something that's --

MR. RUTHERFORD: I got it on there. I didn't have it on -- I didn't send it in the note, but it is part of our --

MEMBER BEACH: It is part of what you're looking at?

MR. RUTHERFORD: Yes.

MEMBER BEACH: Perfect, okay. Then I have nothing else on that except waiting to hear from NIOSH.

CHAIR MELIUS: Joe?

MEMBER ZIEMER: Okay, LaVon, this is Ziemer. I hit the disconnect button instead of

the mute button and got off the line. But you asked about Lawrence Berkeley.

CHAIR MELIUS: Yes, okay. Go ahead.

MEMBER ZIEMER: Yes. So NIOSH issued an internal dosimetry dose reconstruction methodology document late this fall. And SC&A is currently reviewing that. And my understanding from the SC&A report is that they expect to have comments on this by March of 2018, at which point the Work Group can take a look at where we are on that.

CHAIR MELIUS: Okay. Thank you. I think Joe was just about to brief us on that. But your timing was very good.

MEMBER ZIEMER: Well, yes. Maybe Joe has some additional updates on that.

CHAIR MELIUS: No, he says no. He was going to say the same thing you just did. So that's great.

MEMBER ZIEMER: Okay. He's sticking to the March 2018 date then. Is that what you're saying?

CHAIR MELIUS: Yes, yes.

MEMBER ZIEMER: Okay, sounds good.

CHAIR MELIUS: It's in the transcript.

MEMBER ZIEMER: Okay, thanks.

CHAIR MELIUS: Thank you, Paul. Okay, metals and controls, Josie?

MEMBER BEACH: Okay. So you heard a little bit from LaVon. He keeps stealing everything. The Work Group was formed after the August Board meeting.

NIOSH, DCAS, and SC&A went out and conducted worker interviews in October, the 24th through the 26th. There were some questions from those interviews. SC&A had a technical call in November to clarify some of the information that they gathered during the interviews. And I think SC&A has what they needed now and knows where to find the information.

I'm expecting to schedule a Work Group meeting sometime next year. I'm going to be very vague on that, because I'm not sure when -- I believe SC&A's -- we're waiting for a response from SC&A before we can move forward. And I don't know what the timeline of that is yet. I was

going to ask John, thank you.

MR. STIVER: Yes, we're on schedule for a February 2018 delivery.

MEMBER BEACH: Okay. And then, while you're up there, there's going to be some more worker interviews. Do you know when that's going to get scheduled? I think it was just phone interviews.

MR. STIVER: Yes. John Mauro was kind of leading that up. I'll have to talk with him and get back with you. But it's coming up pretty soon.

MEMBER BEACH: Okay, thank you.

CHAIR MELIUS: Good, okay. Josie, Mound?

MEMBER BEACH: Yes. Okay, so we are complete with Mound except for the external TBD. We completed all the internals. And from what I understand on the DCAS' website, that TBD is expected in April. Once the TBD is out, of course, we'll have a Work Group meeting and a follow-up.

CHAIR MELIUS: Great. Brad, I don't

know if you're on. Nevada Test Site?

(No audible response.)

CHAIR MELIUS: Okay. I think Brad has disappeared. And why don't we finish up here with -- go ahead.

DR. NETON: I think I can add a little information on the Nevada Test Site. We were -- if I remember, I think we were trying to close out the Site Profile review. And an issue arose about the sufficient accuracy of the reconstruction of the external doses. Oh no, I'm sorry, that's Pacific Proving Grounds. Wrong site.

Nevada Test Site had to do with -- No, not the beta dose. It had to do with --

MEMBER BEACH: Photon to photon?

DR. NETON: No. Beta gamma ratios, right. Yes. And I really can't add anything to that. I got that mixed up with the Pacific Proving Grounds, sorry.

MR. KATZ: John, I think you can add to it, though. Because SC&A has a deliverable waiting on --

MR. STIVER: Yes, Lin Anspaugh has reviewed that document. And he has a -- we have a technical commentary that is in internal review now.

CHAIR MELIUS: See, Jim, be careful when you volunteer, right. But thanks for that. And let's finish up with Oak Ridge National Laboratory, X-10. Gen?

MEMBER ROESSLER: Yes, am I off mute?

CHAIR MELIUS: Yes, we can hear you.

MEMBER ROESSLER: Okay, good. Okay, well we already know that a report is expected out in a couple weeks and I think LaVon said it's 250 pages.

This will be the report that they have been talking about on the exotic radionuclides and added to that will be two White Papers on iodine and plutonium-241 and these were operations that were actually at Y-12.

Dr. Hughes says the first draft will be looking at all the radionuclides from the isotope production facilities and comparing the years of production with internal monitoring

capability.

So we expect that very soon, and I will mention that Work Group consists of me as Chair, Bill Field, Loretta, Dr. Lemen, so somewhere along the line we'll need to begin our Work Group meetings.

Board Work Session

CHAIR MELIUS: Okay. Great, thank you, Gen. So we will come back to the other Work Groups and Subcommittees tomorrow during our work session, do that, and I want to move on now to Sandia.

For those of you that, I noticed a number people just came in, how we will work this is we will have a presentation from NIOSH, from LaVon Rutherford about the work on the SEC petition and an update from him.

Mainly when that is over we will -- and the Board Members had a chance to ask questions about his presentation then we'll go into the public comment period, and so we'll open that up.

It helps that if we ask you to, if you

wish to make a public comment to go to the, and sign up out front to do that because we work off that list, but it's not exclusive, so as we're going through public comments and we go through that list and you still have questions that came up or you want to add to or something we do let people comment on that.

And then just before the public comment period Ted Katz will give the instructions and so forth, from Ted. So let's start now with LaVon.

Sandia SEC Petition (1995-2011; Albuquerque, NM) Update

MR. RUTHERFORD: Thank you, Chair. All right, I am going to give an update on SEC-188. This is LaVon Rutherford. I am a Special Exposure Cohort Health Physics Team Leader.

I am not the lead for Sandia, Chuck Nelson is, but he was unable to make it to this meeting.

Okay. The petitioner petitioned for, and you'll catch a theme throughout this Class, all security inspectors, security clerks,

fireman, non-regular recurrent security inspectors, basically all security officers at Sandia from January 1, 1963, through May 21, 2011.

The petitioner's basis was a lack of monitoring data. We went back and we looked at it and we determined that that lack of monitoring data actually was an issue for all personnel, not just security inspectors and so on.

So the Class evaluated was all employees from January 1, 1963, through May 21, 2011.

You may remember SEC-162, we actually added a Class at Sandia that, and it was from January 1, 1949, through December 31, 1962, and it was for all employees, and this had that same theme of a lack of monitoring data.

Okay, come on. Okay, under SEC-188, which is this petition, we actually added a Class in 2012. So they had petitioned from 1963 to 2011 and we added from 1963 to 1994 because of a lack of available monitoring data.

So our addendum, which is scheduled to be completed in March of this year, is going to

look at internal monitoring program completeness, is this data available to us to reconstruct dose and sufficiency, and it's going to look at all workers from 1995 to May 21, 2011, with an emphasis on security guards because that was the, we got a lot of input from the security guards and our emphasis is going to be evaluating their potential exposure, whether the site took that into consideration, because we have a lack of monitoring data for security officers.

So we looked at internal and external assessments of the radiological program. We are reviewing again the monitoring data completeness, sufficiency, and compliance with 10 CFR 835, again recognizing the fact that if the site makes a determination that exposure would not exceed 100 millirem they did not have to do personal monitoring, they would rely on area monitoring or BZ data.

So since our last designation we have actually had seven data capture efforts that included 20 trips to the site. We have captured 761 relevant documents since the last SEC, this

includes now over 4,000 documents for Sandia.

We have conduced 17 interviews with 15 people, and so we obviously interviewed a couple people twice. We also actually met again with the security guards last night at their union hall, a few of the security guards, and they reemphasized the same thing that they had previously told us.

On our data captures we have captured radiological documents, program, you know, radiation protection program, policies, procedures, internal memos.

Some of those internal memos associated with actual concerns by the security guards of their lack of monitoring in 1992/'93 timeframe.

Radiation work permits, we've captured quite a sum of radiation work permits over the period. Radiological surveys, contamination surveys, incident reports, air monitoring data, internal dosimetry records, breathing zone monitoring, and DAC air tracking, which is basically your tracking of your breathing zone

data as it measures up against the DAC, or derived air concentration.

So we are looking at fitness of the monitoring program, data collection and availability, and program compliance with 10 CFR 835.

Just as we did with LANL we pulled non-compliance tracking system reports. We are looking for 10 CFR 835 violations, site responses, and corrective actions.

We have also looked at the current supporting process, or current supporting system. We have had worker interviews by security workers, and, again, we talked with them again last night.

We talked to health physics personnel, we wanted to understand their program, how their program changed from prior to, from the 1994 period on.

We have talked to dosimetry, including dosimetry staff members, industrial hygienists, database manager, how is the data contained now, how is it in the system, as well as a researcher.

So in conclusion we have done all of our data capture efforts, everything, we have compiled it together. We have made one more request to the site for information.

They have indicated that they will have that to us in a time period enough for us to evaluate that data to complete our report in time for March.

However, that is a critical element of making our determination, and so, as I said, we have talked with Greg Lewis on this as well, we told him the importance of that, and we've talked with site personnel there as well.

So, again, we are on track for completing the report in March and presenting that at the April meeting. Have questions?

CHAIR MELIUS: Questions from the Board Members?

(No audible response.)

CHAIR MELIUS: Okay. I would just add for those in the audience maybe involved in Sandia is that what would happen if the report comes out in March, the Board is having its next meeting

April 11th and 12th, and so if the recommendation is for an SEC the general, the Board would review it at that time and it may very well recommend it at that point, but there is some questions that could hold it up a little bit longer.

If they do not recommend an SEC then we would put that report into review by our contractor most likely and then would bring it back to the Board for final action hopefully sometime within a few months.

So, again, it depends how big the report is and what the issues are and if more information is needed, but we should be able to -- we'll know in March and then by our April Board Meeting where it will be presented to us, and so there will be additional discussion at that point in time. Anybody else, any questions, comments from the Board?

MEMBER ROESSLER: Jim, this is Gen.

CHAIR MELIUS: Okay, go ahead.

MEMBER ROESSLER: Yes, I would like to convey my compliments to the hotel sound group there. For those of us who have to participate

by phone it makes a huge difference to be able to hear everything and it has really been good this time.

CHAIR MELIUS: Yes. Thank you. Yes, they get the 2017 award or something for best telephone, maybe the best one of the decade, I don't know. It's good.

MR. KATZ: It's been great, but I hate for people to be counting their chickens before they hatch, so, please, hang on to that thought.

Public Comment

CHAIR MELIUS: Yes. So I think we can move into our public comment period if there is no more comments or questions. I'll go out and get the list from you.

MR. KATZ: Okay. So while Dr. Melius is getting the roster of who signed up just let me explain how this works.

For people giving public comment, whether they are in the room or on the line, it's very simple, but you may not all realize it but this meeting, the court reporter right here, James, these meetings are all transcribed and

published on the NIOSH website for the whole, for everyone in the public.

So everything you say gets captured and reported out, so if you have very private things to say about yourself those will get published, so you just should know that.

And also understand though on the other hand if you have very private things to say about other people who are not yourself, anybody, even family, that information does get redacted to protect their privacy because they are not here to tell us that they want this information out in the public domain. So that's just a basic understanding you should have in giving comments for us. Thanks.

CHAIR MELIUS: And to start with, I understand that the petitioner, Sandia petitioner is here, and wished to make comments now. Mr. Giron, is that -- Hi, and welcome. Thank you.

MR. GIRON: Hello, Chairman, and Members of this Board, thank you for allowing me to speak tonight.

CHAIR MELIUS: Yes.

MR. GIRON: I spoke with you guys last year in December in Santa Fe and I am going to go ahead and just touch on some of the points that I did because I have some other things I have here.

CHAIR MELIUS: Okay, go ahead.

MR. GIRON: Okay. Sandia SPOs were treated different than any other Sandians. The security policy and protection of SNL was given more priority than the safety and conditions of our workplace.

Sandia SPOs routinely patrolled all areas of the Sandia National Laboratory. Their areas contained hazards to include S&M, radioactive material, radioactive waste, radiological producing machines, hazardous chemicals, biological hazards.

SPOs manned temporary S&M projects, to include Tonopah Test Range, 6580 Hot Cell, New Cable Site, Old Cable Site, 6505, 6536, and due to the temporary nature of some of these projects there were no built in safety precautions.

SPOs manned permanent 24/7 posts in

radiological areas of Building 6597 and 6590. The areas that were supposed manned were not designated for a safe work environment for them, they were just incorporated in the current testing facilities.

SPOs, we could never leave these areas. We had to eat and use the restroom in these facilities just due to our security posture.

Radiological monitors routinely went off in these areas. When these alarms went off they did not evacuate. So that goes to what you just said about the fitness for the monitoring.

These alarms often went off during non-operational hours. During these hours there was no RAD techs on duty to assess these alarms. Testing personnel and reactor operators evacuated the areas immediately during the shots, SPOs remained in place.

SPOs were only given a TLD to wear with no procedures in place to make sure the TLDs were worn. SPOs were never given any internal monitoring and operating personnel for these

areas were given internal monitoring and other external monitoring devices to wear.

I have worked at Sandia for 30 years, I have been blessed, I had a good job, I have been able to provide for my family. I am not here to point fingers at my management or nothing like that.

I believe in the 30 years all of my managers there that made us work in these conditions I believe they had no ill will towards us.

They just didn't understand how to do the -- I mean all of a sudden we get 835 thrown at us and it reminds me of that little yellow rope that was going to save us from everything.

I was 20-something at the time and I didn't have any courage to I guess understand that, you know, this probably isn't a good idea, but you guys right now sit and you guys could have that courage to do something and go forward with.

There is people that call me still. I have a friend, I graduated high school with him,

he died, he was 40-something years old, lung cancer. Never smoked. He was a state champion wrestler.

His wife calls and I still have no answers. I believe, I mean I have worked at Sandia for a long time and I have worked on the labor side and I understand they are going to drag their feet when giving you this information, that's just the way it is.

835 was implemented and it showed, it told Sandia, it told you how we were going to do things, but that's not the way it happened on the shop floor.

I mean I wish I would have the courage to stand up and do the right thing. You guys can make a difference for all the people's lives right now.

I would like to submit this just for the record just so I can make sure you guys have it.

CHAIR MELIUS: Okay, yes.

MR. GIRON: Last year in December I asked what else can we do on our side of the house

to get this thing going forward. That was December 2016, now we are December 2017 and we are still waiting for the same information. What else can we do at our end of the house?

CHAIR MELIUS: I don't think there is anything that you can do at your end. I think it is at our end, at NIOSH, the Department of Energy, and Sandia to make sure the information gets to us in time for the March release of the report and that will, we have had, according to LaVon we have assurances, reassurance that that will take place.

If it doesn't NIOSH will complain, we will complain, and we may just have to go ahead anyway. If the information is not available then, you know, we'll have to decide based on what information we have.

MR. GIRON: That's what I wanted to hear.

CHAIR MELIUS: Yes, yes. And, again, and then if -- I am not predicting this, but if there are parts of it that NIOSH says no on or doesn't believe that SEC is warranted then the

Board, with our contractor, we do a very thorough review and question that and we have overturned a lot of their recommendations, so it's not over then either.

But hopefully in March, by that time they'll have the information, the report will be out, and by April we can move ahead.

MR. GIRON: Thank you, Chairman and Members of the Board.

CHAIR MELIUS: Okay. Okay, anybody else from Sandia that is in the audience that wishes to make comments? Yes? Just identify yourself when you get to the mic and --

MS. ALLEN: Hi. My name is Kelley Allen and I was the President of OPEIU Local 251 for seven years, and I don't know if this pertains to what we are talking about, but I want to make you guys aware that for seven years I sat in Building 803 and I just found out that that building has been cleaned out and no one is allowed to be in it because it is being abated, basically gutted for all of the asbestos that was in it and Sandia never notified me of anything,

they never said, oh, gee, sorry, or, you know, you shouldn't have been in there, or you need to be aware, or anything.

I found out from, you know, coworkers that 803 has been deemed uninhabitable and I sat there for seven years while I was at Sandia, so I just wanted to make that comment.

CHAIR MELIUS: Thank you. This program doesn't cover the asbestos but the other Department of Labor program does cover asbestos-related diseases and so forth.

MS. ALLEN: Okay.

CHAIR MELIUS: And I know they have a separate Advisory Board and they are addressing the issues with asbestos right now.

MS. ALLEN: Okay.

CHAIR MELIUS: And if you could give me your name and information I can forward it to that Board for --

MS. ALLEN: Okay. I signed in, so --

CHAIR MELIUS: You signed in?

MS. ALLEN: Yes.

CHAIR MELIUS: Okay, I've got your --

MS. ALLEN: I don't know if I am on the public comment sheet or the regular sign-in, Kelley Allen was my name.

CHAIR MELIUS: Okay, Kelley Allen. And do you have an email or something?

MS. ALLEN: I do.

CHAIR MELIUS: Just give it to outside, whoever is sitting at the table out there, that would be helpful.

MS. ALLEN: Okay. Thank you.

CHAIR MELIUS: Or give it to Stu. And the reason I bring that up is just that the asbestos issue, they are trying to decide a cutoff date and so I want to make sure that they have the information on an issue like that.

Anybody else related to Sandia in terms of making public comments?

(No audible response.)

CHAIR MELIUS: Okay. And then Andrew you are here?

MR. EVASKOVICH: Thank you, Dr. Melius and Board Members. My name is Andrew Evaskovich. I am the Petitioner for LANL and I have some

comments concerning post-'95 and gross alpha assessment.

The Department of Labor issued an EEOICPA Circular Number 15-06, December 17 of 2014, and it concerned post-1995 occupational toxic exposure guidance.

Basically they said that post-'95 would be considered, that it would be considered in compliance and they rescinded this circular using Circular Number 17-04, February 2, 2017, and that was under the recommendation of the other Advisory Board, the Advisory Board on Toxic Substance and Workers Health.

Now to the response to a White Paper, Method to Assess Internal Dose Using Gross Alpha, Beta, and Gamma Bioassay and Air Monitoring at the Lawrence Berkeley National Laboratory.

I was sent this Paper by Josh Kinman so I am assuming it is going to be referenced as far as LANL goes. Before the advent of whole body counting radiation protection policy for mixed fission products was open to the collection of bioassay samples for gross beta and assigned

a dose to the most limiting radionuclide.

For this reason bioassay results for our spectrum of radionuclides from this source term are not expected. From the RCT study guide discussing air sampling silicon semiconductor detectors are used to obtain good energy resolution but the resolution is limited by the energy loss of alpha particles emerging from the filter.

Alphas emitted by the radionuclides embedded deeper in the filter have to pass through more filter material than those near the surface, hence they'll lose more energy.

This energy loss produces a long tail of low energy on the side of the peak. The EPA issued a guidance on -- let's see. The evaluation of gross alpha and uranium measurements for MCL compliance.

To understand why GAA of some samples can change substantially with time one must know what the radiological composition of the sample residue is at the time that the sample is prepared and how the activities of the radionuclides

evolve with time.

In this effort it is necessary to consider the three important points in time. One, the sample collection time, two, the sample preparation time, which is the time at which the residue is heated over a flame and radon is quantitatively lost, and, three, the sample analysis time, at which time the alpha particle emission rate of the residue is measured with a gas proportional counter.

And further it goes on, it can be difficult to accurately determine the efficiencies and actual sample residues. First, geometries of such residues are highly variable and difficult to characterize which would cause the uncertainties in the efficiencies to be unacceptably large.

Second, the radionuclide of interest is often part of the decay chain. Where it is apparent in a series of its progeny it would be difficult to measure the efficiency for one radionuclide when there are many present simultaneously.

For larger numbers of radioactive atoms the number of possible outcomes increases and the number of counts detected increases. If one had two samples that were identical in every aspect, or respect, if one were to count both samples for equal periods of time, the two count totals would usually differ, sometimes significantly.

The degree of uniformity of one radial distribution may depend on a particular analyst's technique and may vary from one analyst to another.

There is no guarantee that the sample residue is homogeneous or that an alpha emitter is homogeneously distributed throughout the sample residue.

And from the Handbook of Radioactivity Analysis by Michael F. L'Annunziata, systems intended to detect airborne releases by the use of air samplers introduce complex techniques, if early warning is required, because of the presence of natural decay products of radon and thoron.

However, if time can be allowed for these to decay, a simple measurement of gross alpha- or gross beta-activity will indicate whether conditions are seriously abnormal, although it must be remembered that gross activity results cannot be interpreted in terms of hazard to man.

And finally, the gross activity method is considered to be a screening activity at best. For example, Oural et al (1988) have shown that gross-alpha activity can underestimate actual activity because of partial volatilization of radon, short-lived radon daughters and polonium during the evaporation on the planchet.

So basically my argument is by using the gross alpha, beta, and gamma assessments in order to determine dose, will not work. And those are my comments. Thank you.

CHAIR MELIUS: Okay. Thank you, Andrew. We'll ask NIOSH to respond to that comment.

(Off microphone comments)

MR. RUTHERFORD: I want to respond

only in that we have no intentions of using that Lawrence Berkeley National Lab White Paper. I am not sure why Andrew got it in that situation, but --

CHAIR MELIUS: Okay. I noticed a few more people coming in. Is there anybody else that wishes to speak regarding the New Mexico sites? If not we're going to move on to probably some other sites.

(No audible answer)

CHAIR MELIUS: Okay. Anybody else sign up out there?

(Off microphone comment)

CHAIR MELIUS: Okay. I am a little confused. D'Lanie Blaze, aren't you going to speak tomorrow for the petition presentation?

MS. BLAZE: Yes.

CHAIR MELIUS: So what's --

MS. BLAZE: This is about something else.

CHAIR MELIUS: Okay.

MS. BLAZE: Thank you, Dr. Melius and the Advisory Board. I am D'Lanie Blaze of Core

Advocacy for Nuclear and Aerospace Workers, representing Santa Susana Field Laboratories and its associated sites.

There are two topics that I will address today. Over a decade ago the World Health Organization and the American and European Lymphoma Classification Schemes accepted that chronic lymphocytic leukemia is a radiogenic cancer, analogous with small lymphocytic lymphoma, SLL.

The global scientific and medical community acknowledged that chronic lymphocytic leukemia, or CLL, is not only a disease that is caused by exposure to ionizing radiation, but that it's the same as SLL.

So both conditions were reclassified and became referenced singularly as CLL/SLL. That reclassification was acknowledged by the Department of Labor even back in 2008 when they were denying a claimant based on his diagnosis with CLL.

As we are aware SLL has resided on the list of specified cancers recognized as a

radiogenic cancer since the beginning, but those suffering from CLL were summarily disqualified from EEOICPA based on nothing more than a consonant in their medical record.

In 2011, a good ten years behind relevant science, the Department of Labor acknowledged that CLL can be caused by exposure to ionizing radiation, but it still has not been added to the list and those with CLL must undergo dose reconstruction while those with SLL qualify for the SEC.

NIOSH claimed that more organ-specific dose reconstruction would be required before it could acknowledge the findings of the global scientific community and reconcile CLL's addition to the list.

It has been about seven years. 20 CFR 30.5 (dd)(6) defines a specified cancer as quote, the physiological condition or conditions that are recognized by the National Cancer Institute under those names or nomenclature or under any previously accepted or commonly used name or nomenclature, end quote.

NCI defines the condition as a singular disease referring to it as chronic lymphocytic leukemia/small lymphocytic lymphoma, and further specifies, quote, chronic lymphocytic leukemia and small lymphocytic lymphoma are the same disease. CLL/SLL is a type of non-Hodgkin's lymphoma that is also called CLL/SLL.

Pursuant to 20 CFR 30.5 (dd)(6) I respectfully request an update to the list of specified cancers to include CLL alongside SLL reflective of the accepted nomenclature and the statute.

The second topic pertains to Santa Susana's SEC-156 from 1959 to '64. Upon its initiation NIOSH saw the need to initiate SEC-168 for De Soto Facility to cover the same time period.

That decision was based on Santa Susana and De Soto's shared contractor operations and employees, as NIOSH recognized that both facilities jointly participated in concert and in support of the same Department of Energy programs resulting in shared work processes, poorly

documented worker rotation between the sites, shared materials and handling practices, the same health physics oversight program and records keeping procedures, and ultimately the same data limitations in dose reconstruction.

NIOSH relies on the same Site Profile and Technical Basis Documents, or TBDs, to conduct dose reconstruction for workers at both sites. Excuse me one moment.

(Off the record comments)

MEMBER KOTELCHUCK: De Soto site and which site?

MS. BLAZE: I'm sorry?

MEMBER KOTELCHUCK: De Soto site and which?

MS. BLAZE: Santa Susana Area 4.

MEMBER KOTELCHUCK: Okay.

MS. BLAZE: So predictably, when NIOSH initiated SEC-234 for Santa Susana to cover 1988 many wondered why a similar Class was not initiated for the De Soto Facility.

In response to my request for clarification NIOSH confirmed that Santa Susana

and De Soto Facility, quote, really represent a single entity when it comes to operating contractor and employment, end quote, citing all the similarities that I just went over.

But NIOSH specified that SEC-234 had been initiated at Santa Susana based on an inability to reconstruct dose for americium and thorium and NIOSH stated that it decided there would be no need for a similar SEC at De Soto Facility because De Soto Facility did not use americium or thorium.

NIOSH TBD-4, ETEC's Occupational Environmental Dose, considered to be part of the Site Profile and used in dose reconstruction for Santa Susana and De Soto confirms the presence of americium and thorium in stack effluent between 1955 and 1999 at both sites.

Since NIOSH has not demonstrated that it can reconstruct dose for americium and thorium after 1988, there are concerns about Santa Susana site remediation workers that are likely to encounter these materials during the remediation period, but, further, there is clearly a need to

more closely examine the operations of the De Soto Facility.

The ORAU internal coworker dosimetry data for Santa Susana Area IV and De Soto Facility in 2014 specifically describes thorium grinding processes at De Soto Facility Building 001 in 1979 and it includes a citation to historical facility documentation confirming that process.

Further, in 1999 the Boeing Company's radiological survey of De Soto Building 104 confirmed the presence of thorium products. So this information certainly prompted a deeper look into the site's history beginning with the contractor special nuclear materials licenses issued by the Atomic Energy Commission and later the Nuclear Regulatory Commission.

North American Aviation and its corporate successors maintained current licenses that specified the storage and use of special nuclear materials, including americium and thorium at De Soto Facility and at Area 4.

Considered to be headquarters, the De Soto Facility received the shipments of the

special nuclear materials and stored them at the Building 1 SS vault prior to transporting them to Santa Susana Area 4, Building 64, Special Nuclear Materials Storage Facility.

Rockwell International renewed these licenses in 1995 and modified them to include the D&D and site remediation activities at both De Soto and Santa Susana.

NIOSH is in possession of the Boeing incident report database and De Soto Facility logbook, both of which contain detailed reports that document incidents with and the use of storage of americium and thorium at De Soto Facility well into the site remediation period and chronicle routine shipments to and from Santa Susana's Building 64.

So considering the potential for cross-contamination of locations in personnel a look at Santa Susana's Building 64 shows that it was built to handle, store and repackage fissionable material and special nuclear materials, including normal and depleted uranium, plutonium, thorium and U-233.

It housed special fuel casks and radioactive waste that was generated by all DOE Area 4 programs and routinely transferred spent sodium reactor experiment, or SRE, uranium/thorium fuel to De Soto Facility where the uranium/thorium elements were extracted.

In 1988 Rockwell surveyed Building 64 at Area 4 and found it to be contaminated with uranium and thorium thought to have been generated by dust resulting from the handling of bare metallic pieces.

The De Soto Facility also maintained dedicated areas for fuel fabrication and analysis of spent fuel associated with the SNAP program. In 2009 EPA's radiological study of Santa Susana Area 4 identified americium and thorium to be among the radionuclides of concern at every location associated with SNAP operations.

EPA also identified those materials at approximately 60 Area 4 locations, the majority of which shared processes, materials and employees with De Soto Facility, including D&D and site remediation workers, well after 1988,

and most of those locations are not included in the Site Profile.

Historical documentation shows that, in the 1990s, Santa Susana and De Soto Facility were jointly involved in the Transuranic Management through Pyropartitioning Program.

The TBDs list this process as pro-partitioning and that is incorrect, it is pyropartitioning program, otherwise known as the TRUMP-S, which is quite unfortunate.

Not only is it clear that transuranic materials were taken to De Soto Facility, but questions are now raised about the integrity of environmental data that has been provided to NIOSH which has been based on the premise that no incineration of radioactive waste ever occurred at Santa Susana.

TRUMP-S and the Molten Salt Coal Gasification programs were in part based on researching combustion of transuranic materials as a potential waste disposal method.

Now the combustion of transuranic waste at Santa Susana and the presence of

transuranic materials at De Soto Facility call into question the current Site Profile and all TBDs as well as NIOSH's assertions about dose reconstruction accuracy.

The process, the program, the materials, the practices, the facilities, and the associated environmental data are all missing from the Site Profile. Records show that ETEC facilities --

CHAIR MELIUS: You need to wrap up in the next minute.

MS. BLAZE: Yes, sir. ETEC facilities involved in these processes existed at Area 1, Area 4 and De Soto. The former worker interview final report contains employees' consistent descriptions of shared processes, worker rotation between the sites for all years of site operations.

I respectfully submit a new SEC petition for De Soto Facility, 1965 to '95, along with the supporting documentation that I have just addressed, and I also request that all evidence submitted for Santa Susana and its

related sites is considered as relevant to all pending SEC petitions based on the established contractor and operational relationship between the sites.

As NIOSH has stated, these sites represent a single entity when it comes to operations and employment. I thank you for your time and your review of the information.

CHAIR MELIUS: Okay. Thank you. I don't think we have anyone else signed up.

Do we have anybody on the phone who wishes to make public comments?

MS. CARROLL: I would like to make a comment.

CHAIR MELIUS: Please identify yourself.

MS. CARROLL: My name is Stephanie Carroll. I am a professional authorized for claimants under EEOICPA and can be reached at atomicworkeradvocacy@gmail.com. I don't mind if that is in the record.

I have three concerns that I would like to address today, the first being regarding

my comments on the Savannah River SEC. I represent the lead scientist of the Critical Mass Lab at Rocky Flats.

During the interviews by NIOSH for the Rocky Flats SEC, the lead scientist site expert insisted that neutron flux and fission product count was impossible to determine for the reactor fuel later sent -- transferred to the Savannah River Site.

The evaluation by the Board until the time of the vote to deny the SEC for Rocky Flats concentrated the evaluation on the Pu production time period which ended in 1989.

In 1995/1996 -- we still aren't sure of the exact time, but it was in one of those two years or both -- reactor fuel from the tank farm at the Critical Mass Lab was sent to the Savannah River Site.

FL-10s were used for transport and a variance was needed to use these out-of-date containers to deliver the reactor fuel. If the lead scientist to this day contends that he cannot characterize the fuel, then we should assume it

was not well characterized at the time of packaging, processing, transporting or disposal.

During the Board review of the Rocky Flats petition, LaVon Rutherford committed to reviewing the waste characterization of the transferred Critical Mass Lab reactor fuel to Savannah River to try to determine neutron flux and fission products.

The offer by NIOSH to review the record at Savannah River was never followed up on and the vote to close the CML issues was done and the SEC expansion was denied.

I would suggest to the petitioner of the Savannah River SEC that they request NIOSH to follow through with the offer to characterize the fuel that was delivered in out-of-date containers without proper characterization.

I assume that the material was not referred to as reactor fuel because it was not until the 2000s that DOE even admitted that there were four reactors onsite at Rocky Flats.

My second concern is with regards to the CATI that was discussed earlier today and the

claimant reports of incidents that were referenced earlier.

The Board questioned how the reported incidents are reflected in the dose reconstruction. The answer was it was done by taking information into account of the reported incident and searching personal dose with the assumption that all incidents are characterized by personal dose records.

Mark Griffon gave an example of a reported californium-242 incident. The CATI reported this incident, the worker did. Monitoring was searched and not found and the dose reconstruction added dose for californium-242 to reflect the dose from the incident of this particular worker in his dose reconstruction, his or her.

It seems that this CATI should have led to a possible SEC issue, being exposure to californium-242 without any monitoring. Was this ever done? If not, why wasn't it done and can we get that done?

I think that is something that the

Board should look into is this exposure to californium.

And then one last very small comment, concern over the extensive -- I have concern over the extensive conversation today by the Board on the number of potential claims for the Ames Lab SEC.

I believe that the Board was not mandated nor did Congress intend for the Board to consider number of claimants in their evaluation of the SEC petitions.

Considering that the petitioners are held to ten-minute presentations any valuable time spent on this issue should be reevaluated. I thank you for your accepting my comments and thank you very much for your work.

CHAIR MELIUS: Okay. Thank you. Anybody else on the phone that wishes to make public comments?

MS. HAND: Yes, this is Donna Hand.

CHAIR MELIUS: Okay. Go ahead, Donna.

MS. HAND: Okay. I am sure you all remember your description of your duties is to

develop the guidelines and the methods and the scientific validity and quality of the dose reconstruction as well as SEC members.

The professional judgments that keep on coming up must be within the four corners of the statute and the regulations. So, yes, you have discretion to make professional judgments but you still have to be inside that statute and the regulations.

The methodology is in 42 CFR 82 and when NIOSH, I think, had said we're changing our methodology, you cannot change the methodology without putting it into a notice and comments. You could change your application of your methodology but you can't change the methodology.

Guidelines are in 42 CFR 81. You can change the application of your guidelines but you cannot change the guidelines again without public comments, notice and comments.

When they do the internal dose they only do the inhalation and ingestion. They forget the skin dose, the skin absorption dose, and that's usually 50 percent of the inhalation dose,

specifically with tritium, everybody, and that's not calculated at all for everybody, they leave that out completely.

You all also have been sent an email requesting the scientific validation of the metal tritides dose and the sufficiency of data for internal dose.

That was sent to the Board on December the 12th and requesting their answers, because you are supposed to be uniformed that can the Board state with scientific validity that metal tritides dose can be sufficiently accurate for the internal dose to the workers by using the tritium urine bioassay alone.

And the reason why this question is to the Board is because a lot of sites do have metal tritides and they are saying that they can calculate with the tritium bioassay whenever DOE and the other scientist says he cannot use that to calculate.

Again, thank you for your time and the other issues will be brought as per email. Thank you.

CHAIR MELIUS: Thank you. Anybody else on the telephone who wishes to make public comment?

(No response.)

CHAIR MELIUS: Okay. Anybody else in the audience that wishes to make public comment?

(No response.)

CHAIR MELIUS: Okay. Identify yourself, please.

MR. IRWIN: Hi, I am Peter Irwin. I am with Sandia.

CHAIR MELIUS: Okay.

MR. IRWIN: Based on earlier comments we are confused as to what exactly they are waiting on, which paperwork, and we are requesting in writing the specifics of what paperwork they are waiting on Sandia to provide.

We have heard since this petition was first put out that Sandia has paperwork that they could maybe extend the petition or stop it there, and to this day we still do not know what paperwork they are waiting on.

CHAIR MELIUS: Jim Neton, LaVon is out

of the room, I don't --

(Off-microphone comment)

MR. IRWIN: But we would like it in writing.

CHAIR MELIUS: Yes, okay, I know. I'm trying to give you both, so --

(Off microphone comment)

CHAIR MELIUS: Okay, we will get it in writing to you, but if LaVon comes back in, I don't know if there are security issues regarding the data. I don't want to say anything directly. Would somebody else like to speak?

MS. JACQUEZ-ORTIZ: Dr. Melius and Members of the Board, the congressional offices here in New Mexico want to ensure that we are supporting the petitioners to the extent possible and also as appropriate.

We are also confused as to the delay on this petition. Obviously, the claimants here have waited a long time, they are very eager for some decision, some resolution.

If we were to initiate a communication to the agencies, I think it is unclear as to what

really is holding this up, and so that clarity I think would be helpful not only to the petitioners but to the advocates, especially the congressional offices.

CHAIR MELIUS: Yes, I think we will, we can get that to you.

MS. JACQUEZ-ORTIZ: Thank you.

CHAIR MELIUS: I just don't know the specifics myself and it wasn't mentioned, and LaVon is not here. Is --

(Off-mic comment.)

CHAIR MELIUS: Yes, go get him. He was out talking to D'Lanie.

MALE PARTICIPANT: Yes.

CHAIR MELIUS: If you can just wait a second, we'll see if we can find LaVon.

MEMBER BEACH: Dr. Lemen is the Chair of that Work Group. I don't know if he would know.

CHAIR MELIUS: He wouldn't. So did Jim fill you in on the request?

MR. RUTHERFORD: He briefly did. What information we are waiting for for Sandia, is

that correct?

CHAIR MELIUS: Yes.

MR. RUTHERFORD: We are waiting for updated dosimetry information. They provided us electronic database in the past; we want an updated one.

We're looking to see if that updated information includes specific internal data that we found.

CHAIR MELIUS: Okay.

MR. RUTHERFORD: And it is critical because it's the data that we would get from the Department of Energy. We are ensuring that we are getting from DOE all the internal data for dose reconstruction, you know, because we had indications we weren't getting it in the past.

CHAIR MELIUS: Right.

MR. RUTHERFORD: Okay.

CHAIR MELIUS: So and then I think the request is -- can we put that in writing, Stu, to them?

MR. HINNEFELD: Yes.

CHAIR MELIUS: So we'll have that on

record. And as I said earlier, and I think LaVon has said also, if there is some delay beyond what's been promised or whatever you want to call it, assured we will let everybody know also.

Any other, anybody else wish to make public comment?

(No response.)

CHAIR MELIUS: Ted, you have one --

MR. KATZ: Do you want to do it or you want me to do it?

(Off-microphone comments.)

MR. KATZ: So I have a comment in writing from Dr. McKeel that he asked that I read for him into the record, and he has an additional couple of spreadsheets related to this public comment which will be appended to the transcript as he has requested, as written submissions.

Good evening. I am Dr. McKeel, SEC co-petitioner for the General Steel Industries and Dow Chemical Illinois and Texas City Chemicals AWE sites.

My comments address NIOSH PER-80 Rev 0 issued by NIOSH on 08/30/2017. NIOSH redacted

dose reconstruction development reports based on Appendix BB Revs 2 and 3 for 71 GSI cases indicated six cases had PER-80 PoCs, that's Probability of Causation, greater than 50 percent, the compensation limit for part B.

My analysis confirmed that six GSI PER-80 cases had probably-compensable PER PoCs of 50.8 percent, 53.09 percent, a GSI and Dow dual employee, 54.77 percent, 70.93 percent, 73.81 percent and 81.91 percent.

The dose reconstruction development report process has not been described by DCAS on the NIOSH website to my knowledge. I obtained these 71 DRDR by a CDC FOIA request and created a spreadsheet that DFO Ted Katz circulated to all Board and TBD-6000 Work Group members this past week.

The fact that 12 cases were GSI and Dow in Illinois dual employees was a major impetus. The reason is that, to my knowledge, this Board, DCAS, SC&A and ORAU have never explicitly outlined any procedures for assessing claims and cases with dual employment at EEOICPA-

covered sites and the dose-reconstruction complexity that fact introduces.

Of the 12 dual GSI plus Dow Illinois dual employment cases the PER-80 PoC percentage for one was 53.09 percent, an increase from 37.2 percent.

Nine other GSI-Dow dual employment cases fell short of 50 percent under PER-80 even though the average PoC increased from 24.5 percent pre-PER-80 to 35.74 percent post-PER based on PER-80.

The remaining two GSI dual employment cases actually suffered losses of PER PoCs: 31.82 percent pre-PER loss to PER-80 equals 21.37 percent for one, and a loss from pre-PER 35.5 percent to a major PER-80 loss equal to 7.99 percent for another.

The redaction of all personal identifying information, including some doses and job titles and years worked, made further analysis of why these DRDR pre- and post-PER-80 values changed as they did.

The DRDR reports failed to state which

Appendix C revision was used for Dow total dose and PoC calculations. Clearly, these unredacted data need to be examined by SC&A and/or ORAU to assess the accuracy and validity of the NIOSH DRDR reports, all of which were formulated by a single DCAS individual.

Six additional GSI employees experienced losses of PER-80 PoC percentages compared to pre-PER PoCs. The term, quote, internal and external doses were prorated, unquote, was introduced in many of the 71 PER-80 DRDR reports.

NIOSH needs to define what this prorated terminology indicates in terms of specific methodology used to make this determination.

Finally, and extremely important, 15 PER-80 cases had PER PoCs that fell between 40 percent and 49.99 percent. My strong recommendation is that each of these cases merits individual methodologic analysis by SC&A.

The present scheme of making thousands of iterations of IREP is scientifically

inadequate to this necessary data analysis and quality control work of the ABRWH.

Cases 52, 68 and 70 are particularly pertinent in this regard, as follows, in Case 52, the pre-PER PoC was 49.02 percent, just under the compensation limit.

It is concerning the PER-80 PoC percentage only increased to 49.52 percent. The average pre/post PER-80 PoC increase was from 18.56 percent to 45.44 percent for these 15 cases, including Case 52.

In Case 68, the pre-PER PoC of 46.75 percent dropped slightly to a PER-80 PoC of 45.65 percent, again a paradoxical PoC loss.

In Case 70 the pre-PoC loss was 49.33 percent, extremely close to the compensation limit and PER-80 DRDR PoC value decreased to 44.27 percent.

Very clearly, Quality Assurance and being fair to claimants, that is claimant-favorability, considerations demand that SC&A conduct a thorough analysis, including preferably a blind review, of at least three of these GSI

cases using Appendix BB Rev 2/3 as primary DR guidance.

In conclusion, on Comment 1 the PER-80 spreadsheet analyses I have just described is the third such detailed PER DRDR data analysis I have performed.

I also conducted similar analyses and reported the results to the Board for GSI PER-57, where 100 new cases were flagged with PoCs greater than 50 percent, and for Dow Madison Ill., PER-58.

For all three PERs, I experienced great difficulty in getting information about SC&A, the TBD-6000 Work Group and the ABRWH Subcommittees being tasked to review my spreadsheet analyses of the DRDR reports obtained by the FOIA process in all the cases.

In the case of PER-80, I had to make five requests to the DFO, Board Chair, TBD-6000 Chair and the Procedures Review Subcommittee Chair before the DFO informed me that SC&A had already been tasked by the Procedures Review Subcommittee.

CHAIR MELIUS: The ten minutes are almost up.

MR. KATZ: Okay. I'll hurry. Subcommittee to request to obtain further information about the timing of the release of SC&A's review of PER-80 to the public is pending.

My analyses were limited in scope by the heavy redaction of the DRDR reports imposed by the CDC FOIA Office. I judged some of these redactions to be unnecessary according to the Privacy Act of 1974.

I should mention that all three DRDR I have examined from GSI and Dow sites and PERs 57, 58, and 80 are the work product of a single person at DCAS.

Only one or two persons at SC&A have reviewed the GSI material. For that reason I believe PER-80 needs to be analyzed by different scientists at SC&A and DCAS under the auspices of the full ABRWH.

Let me see if I can -- okay. Continue?

CHAIR MELIUS: No.

MR. KATZ: Oh, yes, so let me just --

CHAIR MELIUS: The Board has received all this.

MR. KATZ: Okay. Well, the Board has, this letter goes on, second comment, but the Board has this letter and the rest of the written comment can be included in writing in the transcript for the rest of the public.

CHAIR MELIUS: Yes.

MR. KATZ: Okay, that concludes that comment.

Adjourn

CHAIR MELIUS: And I believe this concludes our public comment session.

(Whereupon, the above-entitled matter went off the record at 6:27 p.m.)

The remainder of Dr. McKeel's public comment that was to be added in the transcript is as follows:

My second comment is brief. The SINEW Steering Committee and representatives from several Congressional offices, including then Illinois Senators Obama and Durbin, searched for information about truckload quantities of

magnesium-thorium, mag-thor, alloy plates from Dow Madison Illinois site to the U.S. DOE Rocky Flats Nuclear weapons plant, RFP, beginning in earnest in 2006.

See 46 pages of mag-thor affidavits under the Dow Illinois SEC Docket 113 of the NIOSH website www.cdc.gov/niosh/ocas/. Both the RF 3 Work Group and DCAS and SC&A have searched for proof that RFP actually received and used the mag-thor alloy plates from Dow Chemical in Illinois.

More recently, the names of multiple, almost a dozen, RFP workers at the Building 440 Mod Center and knowledgeable RFP shipping and materials records personnel who could be interviewed have been garnered by the efforts of the SEC co-petitioners at Dow in Illinois and RFP working in concert with RFP worker advocates.

We question why these new mag-thor information sources at RFP have not been interviewed. The results achieved to date from 2006 by the Board and RF Work Group in learning about mag-thor activity at RFP have been minimal

and are not confirmatory of information the RF/Dow IL team has gathered.

Both co-petitioners believe that relevant RFP records were transferred from RFP following plant closure in 2006 to Los Alamos National Laboratory (LANL) here in New Mexico.

These records are now controlled by NNSA. I filed a FOIA request in 2013 with NNSA that yielded no, zero, responsive RFP records. I then appealed and was told that 127 out of 400 RFP LANL boxes were examined.

NNSA said this was a "sufficient search" under FOIA rules. I strongly disagreed with NNSA because I believe all of the RFP records at LANL under NNSA's stewardship need to be searched.

The RFP SEC-192 co-petitioner wants to search the same RFP/LANLnnsa records for information beyond the mag-thor issue that may be pertinent to an administrative review related to SEC-192.

She was recently informed by DCAS that an index of the LANL RFP records had been created.

The Director of the U.S. DOE Office of Worker Screening and Compensation Support further informed her the total number of RFP records actually at LANL is 5,000, not 400 or 900 as I have been told.

This particular point needs to be clarified for the official record with solid written proof. Thank you for your attention. Dan McKeel.