CENTERS FOR DISEASE CONTROL AND PREVENTION

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

ADVISORY BOARD ON RADIATION AND WORKER HEALTH

MEETING #159

WEDNESDAY, AUGUST 7, 2024

The meeting convened at 11:00 EDT

via teleconference/videoconference

Dr. Henry Anderson, Chair, presiding.

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Members Present:

Henry Anderson, Chair

Josie Beach, Member

Bradley Clawson, Member

Arthur Frank, Member

David Kotelchuck, Member

James Lockey, Member

Nicole Martinez, Member

David Pompa, Member

Paul L. Ziemer, Member

Registered and/or Public Comment Participants:

Rashaun Roberts, Designated Federal Official

Nancy Adams, NIOSH contractor

Bob Barton, SC&A

Kathy Behling, SC&A

Elizabeth Brackett

Ron Buchanan, SC&A

Grady Calhoun, NIOSH

John Cardarelli, NIOSH

Madeline Cook

Kristen Dietz, DOL

Joe Fitzgerald, SC&A

Registered and/or Public Comment Participants Continued:

Rose Gogliotti, SC&A

Joe Guido, ORAUT

John Hawkinson

J. Hoff

Malia Holzberger, HHS

L. Hughes, NIOSH

Alek Kranbuhl

Megan Lobaugh, NIOSH

Sarah Lovell-Pamperin

Amy Mangel

Lori Marlon-Moss, SC&A

Pat McCloskey

Steve Ostrow

Angie Palau

Michael Rafky, HHS

Judith Ryan

Matty Sharfi

Matthew Smith

Tim Taulbee, NIOSH

Zachariah Tribbett

John Vance

Kevin Vanoli

J. Zach

Registered Members of the Public:

Donna DGarmo

Donna Hand

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PROCEEDINGS

(11:00 EDT)

WELCOME AND ROLL CALL

DR. ROBERTS: So, good morning everybody. I'm Rashaun Roberts. I'm The designated federal official for the Advisory Board on Radiation and Worker Health and welcome you to Board Meeting 159.

As most of, you know, all of the materials for the meeting today and tomorrow, including the agenda, presentations, and other documents are posted on the NIOSH website under schedule of public meetings for the program. You can go to calendar year 2024 and click on the tab for August to find those materials. If you are participating by telephone, you can go to the website to access all the materials, and you can follow along with them. And the materials were provided to Board Members and to staff prior to the meeting.

As you know, the meeting is being conducted by telephone and by Zoom. On the website, there is a Zoom link, which will enable you to hear and watch the presentations through Zoom. If you've chosen to receive audio through Zoom, you should be able to speak to the group and hear the presentations. But if you're not speaking, please be sure to select and stay on mute by muting the microphone, which is typically on the lower left-hand corner of your screen, although that might be different depending.

Also, if you're a Board Member or staff member on Zoom, please make sure that your name is showing rather than your user ID so that you can be identified. If you've dialed in, you'll only be able to speak and hear the

presentations through the telephone line. So, please make sure that your phone stays muted unless you're speaking. If you don't have a mute button, press star six to mute. If you need to take yourself off, press star six again. Also, if you're only participating by telephone or are unable to see your name, so please identify yourself before providing comments or questions.

I do want everyone to be aware that there is a public comment period starting at 5:00 p.m. today. If you are a member of the public and plan to comment, please be prepared to do so at 5:00 p.m. I also want to advise everyone that the public comment period will conclude at 6:00 p.m. or following the final call -- filing -- following the final public comment, whichever comes first. So, that could be before 6:00 p.m.

Before I move into the roll call, I wanted to remind Board and staff members that they should state any conflicts of interest they might have as they register their attendance. I will note that there are presentations and discussions on the agenda for Idaho National Laboratory/Argonne National Laboratory-West, and for Pinellas Plant. So, if a Board Member is conflicted for either of these sites, they should make sure the conflict -- they state the conflict during the roll call. And when the time comes, Members should recuse themselves from these particular discussions.

So, let's go ahead and move into the roll call and starting with the Board Members in alphabetical order. So, let's start with Anderson.

CHAIR ANDERSON: Present.

DR. ROBERTS: Any conflicts?

CHAIR ANDERSON: No. No conflict.

DR. ROBERTS: Beach?

MEMBER BEACH: Beach, I'm here, and I'm conflicted at Hanford.

DR. ROBERTS: Clawson?

MEMBER CLAWSON: I'm here, and I'm conflicted at INL.

DR. ROBERTS: Frank?

MEMBER FRANK: Here and conflicted at Pantex.

DR. ROBERTS: Kotelchuck?

MEMBER KOTELCHUCK: Here, and I have no conflicts.

DR. ROBERTS: Lockey?

MEMBER LOCKEY: Here, no conflicts.

DR. ROBERTS: Martinez?

MEMBER MARTINEZ: I'm here, and I'm conflicted at Savannah River Site and Oak Ridge X-10.

DR. ROBERTS: Pompa?

MEMBER POMPA: Yes, ma'am. I'm here, and I'm conflicted at Pantex.

DR. ROBERTS: Okay. Thank you. Valerio? Not hearing Valerio. Ziemer? Can you speak?

MEMBER ZIEMER: I'm sorry. I didn't hear anything. I'm here, and I'm conflicted at Oak Ridge X-10.

DR. ROBERTS: Okay. And just to circle back to you, Lockey, can you state your conflicts?

MEMBER LOCKEY: I'm not conflicted today. I'm conflicted at Fernald, Portsmouth, and K – K-12, Oak Ridge.

DR. ROBERTS: Okay. Thank you. Okay. So, we do have a quorum today. I do want to note that Nicole Martinez, Arthur Frank, and David

Pompa are joining the meeting today in listen only mode for as long as possible. Okay. So, let's go on to NIOSH.

MR. CALHOUN: This is Grady Calhoun. I am conflicted at Fernald.

DR. TAULBEE: This is Tim Taulbee. I'm conflicted at Mound.

DR. LOBAUGH: This is Megan Lobaugh, and I'm conflicted at Lawrence Livermore National Lab.

DR. CARDARELLI: Okay. This is John Cardarelli. I'm conflicted at Fernald.

MS. COOK: This is Madeline Cook. No conflicts.

DR. ROBERTS: Anyone else for DCAS/ORAUT? Anyone else for DCAS?

(Whereupon, the court reporter lost connection.)

NIOSH PROGRAM UPDATE

MR. CALHOUN: All right. Thank you. Let's see if I can get this going here. All right. Can you all see that?

MEMBER BEACH: Yes.

MR. CALHOUN: You don't see that panel with everybody's name on the right side, do you?

MEMBER BEACH: I do.

MR. CALHOUN: Ah. Let's see if I can get rid of that. Is it gone?

MEMBER BEACH: No.

MR. CALHOUN: So, my name is still up there and everybody's picture?

MEMBER BEACH: No pictures, just names --

MR. CALHOUN: Okay.

MEMBER BEACH: -- on the right.

MR. CALHOUN: I just see your name now, so let's see if I can move it up to the top. All right. Is that okay?

MEMBER BEACH: Yeah. We can -- the slides are fine.

MR. CALHOUN: Okay. Thank you.

MEMBER BEACH: It looks like you updated them, too. They look good.

MR. CALHOUN: Well, I can't claim credit for that. It's our communication folks told me that that's how it should be, so they did it for me. So, I appreciate that. All right. Okay. Let's see. Page down. Okay. All right.

All right.

Contracts and staffing. This is like the -- the big whammy that we're going to get here today. Peifen was our management analyst. She -- oh, I spelled her name wrong. It's Z H A N G. She retired, and she's basically the one who was our budget person who dealt with all of contracting and everything else, so that's -- that's very sad, very, very big loss, but I'm happy that she's -- she's retiring. Anyway, the interviews have been held to fill that position. We actually selected somebody, but we're waiting for the final offer to come out.

Also, my position, the -- we're doing, what we call, an understudy, and so there'll be six months of somebody serving an understudy position until I retire at the end of January. A tentative offer has been made and accepted, but I'm not going to give -- give the name out until the final offer has been accepted. And then that -- that person will be working for -- for us for six months. Just a little hint, it's not going to be a big surprise.

Also, the other one, this is kind of new, Tim Taulbee, our associate director for science, is going to be retiring at the end of March of 2025. This position has been posted and is now closed. We're planning interviews for next week. That's what happens when everybody started at the same time, and we all have 10 or 12 or 14 years' experience before that, so that's why you're getting this gullet.

So, we still need to recruit for and fill LaVon's previous position. He was the health physics supervisor before he became deputy director, and so that position is still open, and that's over both of our health physics teams. And so, we still need to recruit and hire for that position.

That said, the only other thing related to contracts is that the ORAUT contract had been extended for six months while the one-year bridge contract is finalized. That is just about done. The six-month contract is over at the end of September. The one-year bridge will get us through the end of September for the next 12 months, and then we'll put another big contract out for -- it's typically a one plus four contract.

IT update. We continue to process all cases manually. We've basically, this is a statement that I've been reporting. We achieved steady state, and our goal of -- or our definition of steady state is that 90 percent of all the dose reconstructions are completed within five months of receiving -- receiving the last data required for data for -- for the completion.

The site research database has been restored on ORAUT's space. DCAS, SC&A, and Board Members are connecting through CyberArk. I know that our friends at ORAUT have been working with anybody who needs access, so if you do, I recommend contacting, maybe, Lori first, Lori Marion-

Moss, and then she'll get you hooked up, or even I know Rose Gogliotti's been helping us as well. So, evidently -- I gave them a bunch of names of people I thought would require access, and we're up to 50 percent, and it's not because they haven't gotten to the other 50 percent, it's just the other 50 percent have not yet asked for access. So, all reports that I'm hearing is that it's working relatively well.

The board review system is -- oh, it's done. And it's not next on the list.

That's done. And I know that some people are working on that as well. I think we have -- that one going quite as smooth as the site research database, but then the SEC viewer is what's going to be next on our list, and then ultimately, NOCTS will be last, as it's most complicated. But I can assure you that people are diligently working on all of those right now. It's not an in a series kind of thing. We're doing a lot of work in parallel.

Okay. Workshops, town halls, and outreach meetings. We completed some outreach events in Kansas City on -- May and Idaho Falls in May, and Chicago in July. So, we're -- we're getting out there again. We're talking to people. We're promoting the program.

DOL believes, and we've seen it, that this is actually resulting in a slight uptick in claims -- in new claims. So, DOL's getting more claims, and ORAUT's getting more claims from DOL, and then we're getting more to -- to -- to process. It's not a huge amount, but it's -- it's -- it's noticeable.

We still have events tentatively scheduled for Cincinnati, Ohio in September. That's an authorized rep workshop, and then we're going back out to kind of the Four Corners area in September of 2024. As you may

recall, we did that last year, and that was pretty -- pretty successful. Our only wish is that the Department of Justice could go out there with us to actually discuss the changes with RECA, as that's probably going to be a hot topic.

Okay. This is something that we started tracking since the pause happened back in May of -- of 2021. Hard to believe it's been over three years, and obviously, we saw a big spike because we couldn't process claims, and then it's kind of been up and down a little bit. But we did see a big spike of -- of cases that were six to nine months, as you'd expect. Those are going to be the younger they are, the higher they are, but those are starting to trend back down, and the cases that are greater than 12 months are starting to trend back down, and the nine to 12 is kind of our working population of cases.

As far as records requests go, we have two hundred -- as of July 26th, we have 298 outstanding cases to DOE. This, again, does not mean these are late. Six -- between 61 and 120 days old, but zero over 120 days.

Case status report. We have 58,055 cases sent to NIOSH from labor. Of those, 50,145 have been returned to DOL with dose reconstruction. 957 have been administratively closed for some reason. 3,669 have been pulled by DOL for special exposure cohort. 1,931 have been pulled from DO -- from dose reconstruction by DOL for some other reason. And we currently have 1,353 in our queues for dose reconstruction review and approval.

As far as probability of causation summary of the 50,145 DRs sent, three thousand -- or 36,982 are less than 50 percent. That's about 74 percent of our total. 13,163 are greater than 50 percent. So, that's the

remainder, about 26 percent of our total. And these percentages have remained relatively consistent over time.

Active cases. Of the 1,353 cases I mentioned earlier that are active with us for dose reconstruction, 413 are in the dose reconstruction process. 248 are in the hands of claimants. They're being reviewed, and then we'll go through the closeout interview. And 692 cases are at ORAUT getting prepped for dose reconstruction.

And that is all I got. So, I will gladly answer any questions that you might have. Anyone?

MEMBER BEACH: Grady, you answered my only question. It was going to be on the BRS, but your slide was incorrect, so...

MR. CALHOUN: It was. It was incorrect. I missed that. So, I know that that's working out there.

CHAIR ANDERSON: I'm on it (indiscernible) --

MR. CALHOUN: I'm not going to say it's working like it was before, but it is.

MEMBER BEACH: Yeah.

MR. CALHOUN: So, that's good. Yeah. Okay. All right. Well, I'm going to stop sharing here, and I'm going to go back because I think I'm going to have to do DOL and DOE's next. Let me see.

CHAIR ANDERSON: DOE I think is next.

MEMBER BEACH: No. It says DOL.

CHAIR ANDERSON: That's correct.

DOL PROGRAM UPDATE

MR. CALHOUN: DOL. All right.

CHAIR ANDERSON: There she is.

MS. DIETZ: Here I am. Here I am.

MR. CALHOUN: Okay. Do you want me to share these slides for you, or are you going to do it?

MS. DIETZ: Oh, sure. I -- I can do it, but if you can do it, that's great, too.

MR. CALHOUN: All right. Let's see. Oh, wait. Hold on. Hold on.

MS. DIETZ: Oh, there we go. Well, maybe.

MR. CALHOUN: Is it up there?

MS. DIETZ: Your screen is up there.

MR. CALHOUN: Okay. But the program update is not, so...

MS. DIETZ: I can try if you want me to try to share for -- mine?

MR. CALHOUN: Yeah, it would be easier. I'm going to stop sharing.

MS. DIETZ: Yes. Let me see if I can... Oh, my gosh. We better... Document... Oh, my gosh. Let's try that. How's that?

MEMBER BEACH: Yep. It's on there.

MS. DIETZ: All right. Great. Well, one-one for today. All right. So, I'm Kristen Dietz. I'm here to present for the Department of Labor, and I will just get into it. How about that?

Our first slide here is our claim intake. This is for this fiscal year starting in October. And I think that the, sort of, salient feature here is that, you know, we're getting a lot of claims. 13,364 claims. We have 3,221

referred to NIOSH. And as you can see, we're just continuing to -- to have a really robust level of -- of claims being submitted. So, I think that that's what this slide conveys. There's going to be a little more detail in the following slides.

Okay. This is the information on our combined comprehensive program statistics. This information is also -- you can find it on our website, but I think what's really important here is that we have this $11 billion -- is that what that says -- in medical bills, and it's closely sort of creeping up to our total compensation dollars paid. You can see that, and we're going to talk about this on a later slide as well -- that medical bills continue to be a huge expense and a huge part of our program costs. We're getting lots of new claims, and we're paying lots of medical bills. And -- and I think that that is going -- we have one slide at the end here that's going to talk about how many medical program employees we have now. And it's -- it's pretty impressive.

So, here we go. Oops. One at a time. Our quarterly payment summary information, we left the second quarter information in there just to compare and contrast. The numbers kind of go up and down from quarter to quarter, but again, the medical bill amounts are increasing, and the total compensation went from $659 million, approximately, to $724 million, approximately. So, you can kind of -- I think everyone gets a copy of these slides. I won't read out every single number, but -- but there -- there it is. I think again, the most important -- or not the most important, but the, sort of, biggest point of -- oh, my gosh. It's early here. I might mention, I'm in Seattle, and it's eight o'clock in the morning. It's -- the medical billing, it

just keeps -- it just keeps increasing, so there's that.

Let's see. Outreach. Grady talked a little bit about these same outreach events, more or less the -- the New Mexico ones in September. We also have a -- an outreach event in Livermore, California in August. I know that our outreach group is starting to develop their 2025 in person outreach plan. I think that they're doing some research right now on venues and areas that would be well served by outreach and, you know, looking into the various groups that they belong to kind of find out where people think that they should go and where other agencies are having outreach events that could be joined in and -- and stuff like that. And so, I think that the 2025 schedule will be coming out in the coming months, and that can all be found on our webpage under outreach.

Let's see here. Webinars. The webinars, in general, have been pretty successful. We get lots of participants. We get lots of positive commentary about them. And the -- after every webinar is a survey. The survey is used to develop future webinars. Often, as well, webinars come from those outreach events where people, you know, if -- if people are asking about the same thing over and over, then a webinar sometimes is developed from that as well. That information about the current webinars and about future webinars can also be found on our outreach and events webpage.

It looks like we have -- this says we have three left for the remainder of 2024. Learn about who you're working with at DEEOIC, covered conditions, and an overview of the claims process. So, it looks like that's going to take us through to the end of the calendar year.

Let's see. Okay. This one, the beryllium sensitivity criteria update.

The -- I I know -- I'm sure -- I don't know because I haven't been in these meetings, but I'm sure this has all been pretty well discussed. The kind of we released our Bulletin 2401 in January to update our procedures to align with this new statutory provision. And we started to go through all of our previously denied claims to see if any of them were potentially affected by this change to the law. So, that's currently in process. 76 percent of the claims have been reviewed in light of this -- this new process. And seven claims so far have been found that need to -- to be reexamined, reopened. And I think that, you know, considering the vast amount of 1,153, seven isn't so many, but it is -- you know, it is a process that we're going through and that we are making every effort to get through as quickly as possible. And hopefully that will wrap up soon. It looks like, you know, we're 76 percent done.

Our last slide -- well, almost last slide, are these, sort of, little program updates. The NIOSH IREP version upgraded to 6.0. We -- our current form for medical expense -- or, you know, travel and medical travel and mileage is being divided into two forms, which is just a little bit more convenient and allows people to submit their mileage in a slightly different, more efficient way. So, that's happening. The OMB has cleared the EE-1A claim for consequential illness benefits. That's going to be implemented in the upcoming months, and it's going to allow us to track consequential claims in a much more robust way. So, we'll be able to actually come up with a little bit better of an idea of what kinds of consequential illness claims and how many and what it's for, and that should help us a lot as we -- as we work to make, you know, our program the best it can be.

Oh, and here's what we were talking about at the beginning. Medical benefit management continues to be a focus of the program with 56 MBEs and four supervisors handling claims for ancillary medical benefits. And that is -- relates back to the slides where we talked about how -- how many medical claims we're getting and how much, you know, medical billing -- or how much medical claims we're paying.

So, I think we have a couple -- we have, like, one slide here at the end that I think is just DEEOIC resources. I'm sure this is the same probably from the last time you guys saw this presentation. These are all essentially on our website and can be found there using these links.

And that's it. So, questions? I know I kind of ran through that fast, but.

CHAIR ANDERSON: I -- I have one question. Do you have -- I mean, as you pointed out, the medical costs have gone up significantly. Do you have that cost broken out by medical condition? I mean, are you -- is this just that the cost of medical care has gone up, or are you seeing different distribution of conditions that you're compensating for?

MS. DIETZ: No, we don't we don't keep track of it by condition. It's just, you know, medical expenses and compensation expenses.

CHAIR ANDERSON: Okay.

MS. DIETZ: Yeah.

MEMBER CLAWSON: Christine (sic), this is -- this is Brad. What's changed in the IREP version -- revision? What's gone on with that?

MS. DIETZ: Well, yeah, I -- John was just texting me that it's a question for Grady. I think it is a question for Grady. I know that I got a

big new user guide that tells me what the update is for, and I can't -- I have to be completely honest and say I have not read through that. So, I'm not sure what every single update is, but maybe Grady can help us with that.

MR. CALHOUN: I would prefer to send that over to Dr. Taulbee.

MS. DIETZ: Okay.

DR. TAULBEE: Yes. This is the change that I talked to the Advisory Board about last August where we are increasing the number of iterations from 2,000 to 20,000. That new scheme, we have finally gotten everything in line to implement that, and so that's the change.

MEMBER CLAWSON: Oh. Oh, nothing in -- it's just the reps; it's nothing within it that has changed?

DR. TAULBEE: That is correct. Yes. It's just the number of iterations that we do to get a more precise probability of causation value at the 99th percentile.

MEMBER CLAWSON: This is the one you were talking about with the tail?

DR. TAULBEE: That's correct. Yes, sir.

MEMBER CLAWSON: Okay. That I understand. Thank you.

MS. DIETZ: Any other question? Okay. Well, thank you for letting me talk to you this morning. I appreciate it.

CHAIR ANDERSON: Thanks, Kristen. Next is going to be Greg Lewis with the DOE update.

DOE PROGRAM UPDATE

MR. CALHOUN: Greg, do you want me to try this again?

DR. LEWIS: Yeah, if you could, because, actually, I'm not going to be able do it, but Gina's on, so if you can't, she may be -- she can share her screen. But if you could do it, that would be preferable.

MR. CALHOUN: Okay. Hold on. Let's see.

DR. LEWIS: Yeah, that looks about right.

MR. CALHOUN: All right, then. Good deal.

DR. LEWIS: All right. Well, again, I'm Greg Lewis with the U.S. Department of Energy. I'm --

Go on to the next slide, Grady.

MR. CALHOUN: Okay.

DR. LEWIS: I'm going to provide you with the program update. First, a little bit of news. I think the survey was on there last time, but we left it on here because we're continuing to make some updates. We rolled out our -- our big update, we made a few smaller ones, and we have received some - some feedback both from the Department of Labor and from a number of our sites that changes -- most of the changes had to do with, kind of, how we communicate back and forth, particularly with DOL and NIOSH. There's a smaller number of contacts that we go through, so it's just a lot easier to communicate back and forth.

But with Department of Labor, when they made the change to nationwide claims versus certain district offices handling certain DOE sites, this was years ago, it caused kind of a lot of friction with the SERT system,

you know, and as far as communication between our sites and a particular claims examiner, we've made -- made some changes with the SERT, and then DOL has also made some changes with how they handle that communication. I think over the last three or four months, it's -- it's been a lot better. We've gotten positive reviews from both sides, so we think that that's helped streamline things.

Probably the biggest piece of news, and I'll actually echo what both Grady and Kristen had said, with the number of claims on their end and on our end, that shows up as the number of records requests, so you'll see there FY '23, we had 18,500 records requests. This is combined for DOL and NIOSH. And I should also say that these are not individual people. We count our requests a little bit differently than both DOL and NIOSH because for one claim, Department of Labor is going to make an employment verification request and then what we call a DAR request for the rest of the exposure information, and then NIOSH, if they're performing a dose reconstruction, they're going to request the -- the radiological monitoring information. So, we could have three requests for one individual, and if that individual has worked at multiple sites, we could have, you know, six or nine individual requests -- sorry -- requests related to a single individual. So, it's not one to one, but the bottom line is in FY '23, we had 18,500.

And that, in and of itself, was a big rebound from COVID because we had been much, much lower. So, the 18,500 was actually the most requests we had had in a single year in any of the past 10 years, going back to FY '13. Now, in FY '24, we're not finished with the year, but through three quarters, if we project that out to the full year, we're looking at close to

22,000 records requests. So, you know, again, an increase of roughly 15 percent from last year, which was an increase of 15 percent or 20 percent from -- from the prior year.

So, the number of requests that really -- you know, increased substantially on our end, which has been a bit of a challenge both in terms of -- of responding, but also with -- with budget. It's really stretched us thin budget wise, so I know recently we have had to slow down a little bit on a few of the requests from NIOSH and DEEOL on the projects, you know, like the SEC research or SEM research. That's just in the last month or two we've had to kind of slow those down. For the most part, we aren't fully stopping. We're just stretching it out a little bit so we can get through to the next fiscal year.

MEMBER BEACH: Hey, Greg, this is -- Greg, this is Josie. Can I ask a question here on that?

DR. LEWIS: Sure. Sure.

MEMBER BEACH: Since you're -- since you're on it. What do you attribute that to, that increase? Anything?

DR. LEWIS: Well, I mean, you know, that would maybe be a better question for -- for DOL, maybe, or -- not as much to ask for -- but for DOL, I think that there are more claims. Maybe because a single claim, instead of having you know, instead of being, you know, one to one for us, if they worked at two or three sites and it's a dose reconstruction claim, you know, we could be getting six or nine, you know, separate requests for one individual. And we could, you know, get -- if three different sites are fully performing the work, that -- that's three different requests. You know, I

think it -- it's mostly to do with the number of requests. Maybe if it's more recent workers, they're less likely to be in an SEC, so maybe there's more dose reconstruction requests. I mean, that -- that's really just speculation. I honestly don't know, but I -- I think it's just an increase in the number of claims that Department of Labor's seeing.

MEMBER BEACH: Okay, great. Thanks.

DR. LEWIS: Sorry. And -- and if there are any other questions, I mean, I'm absolutely going to take questions at the end, but if -- you know, if it's something related to a particular slide, I'm happy to take questions during, too. That's fine.

Next slide.

So, this is just our -- our standard slide about our responsibilities. We respond to the individual requests. We also support the records research projects for both DOL and NIOSH, and then we also do research into covered facility designations.

And I guess I will say that we have been particularly active in the last two or three months on covered facility issues. I mean, there's always a few going on, but it seems like there -- there are more than -- than usual for whatever reason. And actually, we're in the process of bringing on some additional help as far as, you know, records research. They can help us do the research. Not a lead researcher, but someone that can assist with running down some of these questions, particularly with -- with open-source literature and some of the online DOE resources like OpenNet and -- and the Nuclear Testing Archive.

Next slide.

And then with individual records, and again, this is -- this is sort of a standard slide, but we often have to go to multiple different places. I know there's a few new Board Members on who are listening in, so as far as our records requests go, claimants often worked at multiple sites, as I was mentioning earlier. And then even within that site, if it's a long-term employee, they may have worked in multiple divisions, multiple buildings, multiple areas for multiple contractors through the years, so their records could be in a number of different locations and -- and also a number of different formats. So, hard copy paper records or microfilm, microfiche, different databases, because sometimes these things were changed as contractors came in and out, they brought their own systems.

So, you know, with our sites that check 20, 30, 40, or 50 different individual sources for one worker's records. And again, most of the time we don't just run down and check all of them. We kind of look at what years the person worked for, what jobs they did, and we're able to kind of determine which particular databases and boxes of records we need to check. But it is not a straightforward process. It is not a one individual, one folder type of search. It's really -- kind of involves some detective work to find those records for these claims.

Next slide.

And we also have a number of -- and I say research projects, but really we're just assisting the Department of Labor and NIOSH with their data capture projects, and so you can see there's -- there's probably 15-plus listed there, but we've been -- been fairly active supporting these efforts. Most of the time now, whereas in the past, a lot of these were actually site

visits and on the ground research -- there is some of that now, but -- but the vast majority of these listed are, you know, talking with the sites, making either a request via keyword, or either describing the records that are needed, or even potentially tapping into online site databases, or -- or having search tools made available to -- to the NIOSH or DOL researcher. But we are still supporting all of those sites on the screen, which has been pretty -- pretty busy the last three months, I'd say.

Next slide.

And then with those record -- those research projects come document reviews for classification. A lot of the stuff that goes out the door, we have to review. That really depends on what's being requested and -- and whether it was on, you know, the high side, as they say, or the low side, if it was classified, or even if it was a vault that potentially has classified, or oftentimes older records, the classification guidance and requirements have changed, so they need to be re-reviewed. So, we review the source documents that are recommended -- or that are requested. We review those out at the sites.

And then the final NIOSH reports, we review at headquarters. For the headquarters final NIOSH reports, our headquarters office of classification has been incredibly supportive of the program, and they're usually able to turn those documents around in eight -- eight days -- eight days or less.

Next slide.

And then the facility research, I -- I mentioned that before. There's been quite a bit of that recently, and we've -- you know, we're in the process of bringing on an additional staff member to kind of help us out with

that, probably part time staff, but just somebody to help with that research.

Next slide.

And then here's some -- some stats. And again, this is -- we haven't closed the books on '24 yet, so we have a partial estimate. But our percent on time response, I had in my notes 94.6. I don't know if we rounded down here for -- for that chart, but we're between 94 and 95 percent on time response rate through the first -- through the first three quarters of the year. And again, given the increase that we've seen, it's -- it's been a real challenge to stay up with that, particularly because the -- you know, when I say we've increased by 15 percent and up to 22,000 total, that increase is not even throughout the complex.

You know, there are actually certain sites, particularly obviously, the closure sites, as you might imagine, that are steady or even down, and then there are certain sites that are really up substantially over the last year. I mean, some that come to mind, I think Los Alamos, the Nevada National Security site, Y 12 I think is up. I'm try -- you know, there -- there -- there's probably five or six sites that are up significantly, and then the -- the majority of the other sites are roughly flat or maybe up a little bit, and then some are even down.

So, those sites that have seen a significant increase have really struggled to -- to hit that 60 days of ties, but we are still at a 94 to 95 percent on time response rate.

Next slide.

And then I'll just quickly, as I always mention, our former worker medical screening program. It's -- it's another program that's run out of our

office here at DOE. It is not directly related to the EEOIPA program, but it can be a precursor to the EEOIPA program and serves many of the same populations. So, for any of you listening out there, you know, please, if you've talked to workers or claimants out there that have not participated in the program, you know, you should please refer them over to us.

It's a medical screening program that serves all former workers or is available to all former workers from all DOE sites. We do these screenings close to the residents, and when we do find results that -- you know, that could be caused by occupational exposure, we do our best to tie that exposure to the illness or to our findings, write up a nice results letter that the individual can use, both for follow up care with their doctor, but then also potentially as part of an EEOIPA claim with -- with the Department of Labor.

And with one note for the former worker medical screening program, this year we are significantly expanding the program in New Mexico for the Los Alamos and Sandia workers. They were already eligible, and we had been screening Los Alamos and Sandia workers, but we've -- you know, both of those sites have grown considerably. In fact, in particular, over the last five or so years, and with that, we are kind of changing the way the program is implemented down there, and we're going to significantly increase the number of people we're screening down there and are also offering a low dose CT scan for eligible workers screening for -- for lung cancer. So, that's one change to that program I wanted to make you aware of.

And I think that is my last slide. With that, I will take questions.

MEMBER ZIEMER: Greg, this is Paul Ziemer. And I -- I -- I think

earlier you mentioned you had some budgetary restrictions recently. Can you tell us how your staffing situation is at the moment?

DR. LEWIS: Well, that's a little bit tricky. So, the -- our funding goes to the DOE field sites that actually respond to these requests. In terms of staffing in, you know, my office, the office of worker screening and compensation support, our staff is -- is steady. You know, we -- we have four feds and two contractors that support us, so we're a very small office. But our staffing has been steady, and obviously, you know, the number of claims and the budget issues do kind of impact us. They pull us in different -- different directions. But the real challenge with the budget is funding the 20 plus DOE field sites that actually hold the records and respond to the requests from the Department of Labor and NIOSH. So, that -- that's been the real challenge with budgets.

You know, we have the same -- we have funding, you know, that essentially was set to complete that 18,500, or thereabouts, on the high end, and the numbers this year have -- have exceeded our -- what we were expecting by -- by about a 15 percent margin, which is pretty substantial. So, that's caused our -- our budget issues.

MEMBER ZIEMER: As a follow up, with the federal fiscal year kind of coming, is it likely that that will change, or does it -- is it not likely to change for next year?

DR. LEWIS: Well, our budget is -- our budget set for next year. I mean, the amount we're expecting to get -- you know, the request, as you know, has to be in a few years ahead of time, and then of course, we'll also likely be under a CR for, you know, for -- the continuing resolution for the

first number of months. I mean, that can vary from a couple to -- to a whole year. You know, I don't have any insight into that.

But the -- the good thing is, you know, by the time we realized the numbers were up that high, we were already through the year. Knowing that the numbers have been up, and we're monitoring it closely, we'll see if they continue to be up over the fourth quarter of this year and the first quarter of next year. We have a lot more flexibility to kind of request more funding internally from DOE. You know, there may be programs that can be pulled from other areas to redirect, but, you know, of course, the later in the year you get, the more funding is committed, and the less you're likely to be able to -- to get any additional funding.

So, you know, the fact that we're aware going into this year with our eyes open certainly helps, although our budget on paper, you know, is about the same as last year.

MEMBER ZIEMER: Thank you.

MEMBER BEACH: Greg, I have a question about the COVID years, and are all the offices back up and running and open, and are you retrieving records from all outer offices? I -- I know San -- we had some trouble with Santa Susanna. Is everything back?

DR. LEWIS: Yes. You know, although Santa Susanna can be -- can be challenging because they're a little bit -- you know, they're a little bit different than your typical DOE contractor. But no, they are fully functioning. And in fact, I mean, all of our sites were functioning even throughout COVID, although they had, you know, tremendous challenges in some cases with off-site records and staffing and, you know, how many

people could be in and out of the buildings. But no, I would say we have been fully functioning for -- you know, for -- for a couple years now, I would say, without any kind of direct --

MEMBER BEACH: Okay.

DR. LEWIS: -- you know, duplication (indiscernible).

MEMBER BEACH: And it sounds like we're getting records from them now, although it's been slow. But I was just curious if there was any holdouts. Thank you.

DR. LEWIS: Yeah. And I think with -- with -- last I checked, we actually had none over 60 days with Santa Susanna, and in fact, we might have cleared the decks, at least last time I heard, and had -- had none outstanding. But I could -- that could have changed, obviously, by now. It's been a month or so since I've checked, but as far as I know, we've had, you know, no recent issues with Santa Susanna.

MEMBER BEACH: Thank you.

MEMBER CLAWSON: Greg, this is Brad. I've just got a question for you.

As -- as much problem, and this is kind of more the Legacy Management, are -- has DOE kind of seeing what's happened when these sites shut down and records go every which way? Is there more of a sense of where we -- where we can put them so that they can be retrieved instead of from all over the country, or?

DR. LEWIS: Well, so, I mean, I would imagine -- are -- are you -- I mean, Pinellas would -- would be one site that comes to mind where, you know, when it was closed down, and that was in the '80s, the records

were -- were transferred in a number of different places. Essentially followed the mission as the mission from Pinellas was -- you know, different parts of it were moved to different sites. Some of those records went to -- to those different sites, at least as far as I understand it. Because over the last, you know, 10-plus years, with both DOL and NIOSH were looking for information on Pinellas, it was hard to find. Legacy Management at some, Sandia had some, Kansas City at some, some other NSA sites that had some.

I mean, I don't know. I guess, in terms of recent closures, and this is certainly something I can talk to LM about, but I do think it's, you know, where those records go. I mean, primarily, it's -- it's LM, I think, for the most part. And they are very organized, we've been -- have a very good relationship with Legacy Management. But if there are -- if you have more specifics, you know, about other sites or certain issues, I'd be happy to answer. But I do know Pinellas, exactly what you said, Pinellas has been a has been a challenge figuring out exactly where all of the records went for sure.

MEMBER CLAWSON: Well, I just -- I just -- you know, in the future, we're going to lose some more DOE sites, you know, that some of them are slated to shut down or whatever, and it just -- just from what we've learned with this program and stuff like that, I'm glad to hear that Legacy Management is on top of that. But, you know, I was -- I was thinking the earlier ones, like Pantex, Pinellas, you know, Fernald, a lot of these that we've seen, Mound, and everything else like that, it seems like the records -- and I understand that they follow the mission, but, boy, that -- that takes

them all over the place. So, I'm just wondering if we put anything in place to kind of control where -- where they go, so we can read them.

DR. LEWIS: Well, I mean, and that's something I can definitely talk with LM about. But I will say -- you know, I'm glad you brought up Mound and Fernald, because my understanding with those two is almost everything, you know, maybe some -- some program records may have went to, you know, other places that assumed the mission, but almost all health and safety records, all, you know, worker-related records -- I mean, pretty much all records for Mound and Fernald went to LM, as far as I know. And I know in all of the research that NIOSH and SC&A and Department of Labor have done in -- you know, done with regard to Mound and Fernald, I think those records have been very accessible. You know, again, it -- it -- you're also at the mercy of how they were managed at these sites, you know, particularly going way back in -- in history, so they're not always organized as well as as we would like. And LM, you know, tries to do the best they can to -- to get them organized well. But I do believe for Mound and Fernald, everything or certainly almost everything is -- is with the Office of Legacy Management. I think the research there has been very successful.

MEMBER CLAWSON: Okay. Well, and I appreciate that. I was just -- just curious. You know, we've been at this for quite a few years and seen a lot of changes, and -- and I -- I actually have to commend a lot of your sites. I've seen a lot of information coming in for Pinellas and where it came from and stuff, and I was -- I was quite impressed with their responsiveness. So, I appreciate that.

DR. LEWIS: I'm happy to hear that. And thank you, Brad.

CHAIR ANDERSON: Any other questions? With that, thank -- thanks a lot, Greg. Great update for us.

SC&A REVIEW OF ORAUT REPORT 0097 FOR BREATHING ZONE TO GENERAL AREA AIR CONCENTRATION RATIOS IN SMALL WORKROOM

CHAIR ANDERSON: Next we're going to move to Josie. (Indiscernible) a review of the of the documents --

MEMBER BEACH: Yes. Yeah.

CHAIR ANDERSON: -- procedure reviews?

MEMBER BEACH: Yes. Yeah. Bar -- oh, goodness. Bob Barton is actually going to present this. This was a report that was presented in November to the subcommittee, and I'm sure throughout his presentation it will explain why it's being presented today.

And with that, Bob, if you're ready, I'll let you take over.

MR. BARTON: Yep. Josie, I'm ready to go. Can everybody see --

MEMBER BEACH: Great.

MR. BARTON: -- the title screen and hear me clearly?

MEMBER BEACH: Yes.

MR. BARTON: Excellent. All right. Yeah. Before I really get started, it's probably going to be helpful to give a bit of background or history to sort of tee this thing up.

What we'll be looking at, as you can probably surmise, is using air sampling data to reconstruct internal doses. Specifically, how you can use what's known as general area or general air sampling for workers who don't have actual bioassay data to use for the various contaminants of interest.

This - the issue really developed out of the SEC deliberations for INL and ANL West, which you'll note is the next agenda item being presented by Dr. Lobaugh. And that was for SEC-224.

So, back in 2016, SC&A had produced a report as part of its SEC review regarding this very issue. And it's actually posted on the website under the INL and ANL West worksite page. And it's titled -- and this is somewhat of a mouthful, could have been a shorter title, but Review of Petition Evaluation Report for SEC-00224 Argonne National Laboratory-West Regarding the Use of General Area Air Sampling for Internal Dose Assessment. It's on the website, like I said. It's sometimes tough to find since there are so many documents that have been produced related to this area. But I'd be happy to forward the link to anyone who is interested and has trouble finding it.

But the gist of that document was that there are studies that had previously been conducted outside of this program that show that the actual air contamination levels directly in front of a worker, say a glove box worker or a worker using a lab hood, etc., that might be decidedly different than what an air monitor somewhere else in the room might be measuring. This is just because how -- any sort of release of contamination will naturally be mixing throughout the room and so logically the contamination level is right next to the release point where the worker is likely to be located are going to be higher than the levels on a fixed air sampler somewhere, located further away from the release point.

So, the question that arose -- because it was proposed per ANL West to use general air sampler data, such as like a continuous air monitor or a

cam, to derive intakes of radioactive material, again, in the absence of actual bioassay data that could be applied to the worker. And of course, bioassay always takes precedence when developing any dose reconstruction methods. So, again, the question is how can we use the data we have from general air samplers to more accurately reflect what a worker was actually breathing in in his work location.

So, fast forward from 2016 to 2021, and NIOSH released Report-97, Breathing Zones General Area Air Concentration Ratios in Small Workrooms. That's also available online and is, obviously, the subject of this presentation. So, with that sort of preamble, and moving on, as you'll probably note on this title slide that my name is not on this presentation.

But due to scheduling, it was just easier for me to give a presentation. But the true credit goes to Dr. Naeem, who headed up the review and really did all that heavy -- heavy lifting on it. And I also want to give a shout out to Rose Gogliotti and Kathy Behling who were involved as internal peer reviewers on the -- on the effort. Also, I'll note that this is basically a carbon copy of the presentation that was given to the subcommittee on procedures back last November. So, if it looks familiar, that's the reason. Okay. So, a little bit of the background on the actual report. As I intimated, NIOSH had done a literature search because this -- the general air monitoring versus actual breathing zone air contamination has been of interest to other entities for some time. Report-97 provides a summary of those studies and also a statistical analysis of the datasets so that a proper ratio essentially of general air to breathing zone could be developed.

Again, the goal was that when you had situations where there's no

bioassay, but you did have general air samples, can you convert them to a value that would reflect what the worker potentially inhaled? I've already mentioned a lot of the narrative on this slide, but I -- I think the takeaway is that ideally the breathing zone for a worker, what they're -- what's actually -- what they're actually inhaling, would be the same as what the air sampler in the room is picking up. But again, that -- that would be under only ideal circumstances, and it's really probably not realistic. And perhaps more importantly is the follow on that. Since the ratio is not going to be one, that is it's not going to be the same for the breathing zone and the air sampler, there are numerous factors, which we'll go over, and are really on a case by case basis. So, even though Report-97 looked at some impressive studies to try and quantify what the ratio might be, for this program, it really needs to be evaluated again on a case by case basis.

So, some of the parameters of interest when trying to tackle this problem, you have the size of the room. It's obviously going to affect how the contaminated air from the release points and the clean air in the room are mixing over time. And some basic characteristics of the airborne contaminant, for example, only certain sized particles will actually be inhaled and make it to the respiratory tract. You know, the larger ones will actually be -- even if they entered the body, they would basically be ingested and have vastly different effect from a radiological standpoint.

The ventilation of the room. This is also referred to as air exchange rate, basically from your HVAC system or ventilation of the hoods, glove boxes, etc. And but also not just the rate at which the air is changing but also the direction of the airflow relative to the -- the release point where the

worker could be and the sampler. Is it -- is the release heading towards the sampler, away from the sampler, neutral, that sort of thing.

You have the complexity of the room. This would be the actual geometry. And if there are obstructions between the release point, the worker, and where the air sampler is, which we have the measured data from the air sampler, and we're just trying to figure out how it affects the worker.

And this last one, which is interesting, the low number of concentrations of dominant aerosol particles. This basically refers to situations where, quote, the number of radioactive particles is rather low. However, maybe their specific activity, or essentially how hot they are, is significant. This may not sound like necessarily a bad thing. I mean, the low levels of the actual number of radioactive particles sounds like a good thing, but it does pose problems from a measurement standpoint.

Because really two types of errors can arise. One is where a worker actually inhales that particle, but because of the low number of particles in the air, the monitoring device, the air monitor in the room, doesn't actually register that it was there. So, applying the data from the air monitor would logically underestimate the actual dose to the worker. The second error is where the monitoring device does register the particle, but the worker doesn't actually inhale any of them, again, because they're low in number. So, applying the air monitoring data would overestimate the dose. And we'll get into this a bit later.

So, the methods employed in Report 97. NIOSH looked at five separate studies that had previously been done on this breathing zone to

general air ratio. These actually occurred in 1974, '79, 1987, and then the early 2000s. Some were done by LANL, which were the ones in the 1970s, and actually LANL also did the study -- the latest study, which was in 2002. It was actually conducted at the Savannah River site in one of the plutonium labs. I think it was C Lab.

The 1980s study was actually a French study of their own plutonium labs, and it actually was presented at a DOE workshop that -- that was directly related to this issue. And then the last one in 2002 was done by ANL East, and it was related to D&D efforts for several glove boxes. I mean, tens and tens, I think it was maybe 60 or so glove boxes that they were planning to D&D.

97 -- Report-97 develops two distinct scenarios from these studies. The first one assumes a worker and a release point are essentially at the same location, and the air sampler is at the same location. So, this would likely reflect, like, in an acute intake scenario where there's perhaps a breach of the glove box, and a worker is at the glove box. So, this is sort of your worst-case scenario with regard to developing the ratio, because the ratio is likely to be quite high.

And the second scenario is where the worker's location, the actual release points, are more variable. This would be like a worker who isn't in one location within the room, and so he's moving around, so the breathing zone contamination levels will have different and constantly changing distances between the actual release point and where the fixed-air measurements are being taken. So it's -- again, it's more variable. So, you're going to see the ratio is going to be lower than scenario one.

As far as how this data was analyzed, basically it just -- it developed the breathing zone to general air measurement ratios and fit them to lognormal distributions using regression on order statistics, or ROS, which is pretty common in this program.

Okay. So, this gives us the range of workspaces, or room sizes, across the five studies, and notes that only respirable particles were considered. Again, with the scenarios we just discussed on the previous slide, again, scenario one can be thought of as a worker at a specific location, and the worker is basically at the release point, and scenario two is a more general scenario where the worker is chronically exposed, but at different distances through their work from the release point, and obviously, different distances from the air monitor.

A bit more on the statistical analysis. Since there were multiple studies, five, to consider, but what we really wanted was to pare it down so that we could have distinct ratios that could apply in dose reconstruction for this program. So, the data were parsed into the two scenarios, and Monte Carlo simulations were used to mine the data from these studies to get singular values, obviously a mean and a GSD. Scenario one was also further broken down considering room -- room obstructions, the effect of room obstructions. So, what I mean by that is, you know, maybe there are lab benches or other obstructions that would affect the level of mixing within the space. You know, maybe there was a row of file cabinets in the middle or something. Could be anything. So, that's what I mean when I say obstructions.

So this slide provides the results of report-97, which developed three

values for scenario one. The wide-open scenario, in other words, none of those obstructions between the worker and the release point location, and the - and the monitor location. So, the worker is at the release point, and it's basically a clear path to the air monitor. And obstructed is where there is something between the worker/release point and the monitor. And as you can see, there is a significant difference in ratios between obstructed and open. And then the third is basically a conglomeration of the two.

And then you have scenario two, which again, is pretty close to a ratio of one. And again, that's because you -- scenario two is where our worker is moving around the workspace, and so all the sort of distances between the release, the monitor, where the worker is, sort of average each other out to some extent. But it's still greater than one.

So, a bit on the application. This describes the instructions or begs the question, how can this be applied? As I said at the outset, the application of these ratios will require significant professional judgment and really requires adequate justification. The whole case by case basis notion regarding this entire effort. So, for any particular site, workroom, or energy employee, there are multiple things in play, and so it does require professional judgment, and that just really needs to be documented, which is really in one of our observations, which again, we'll get to at the end of this presentation.

But once a determination has been made and verified that you can use a ratio to convert the general air monitoring sample to essentially what will become an intake rate is really simple. You take the general area sample, multiply it by the appropriate ratio to convert it to the breathing zone, and

then, you know, you have breathing rate, and time, exposure time, you can get to an intake of radioactive material from there.

So, some of the Report-97 conclusions regarding the obstructions. We talked about this, again, a slide or two back. For the open rooms in scenario one, the ratios developed didn't indicate really significant variability when they're analyzed. However, when you start throwing obstructions in the way, the ratios could vary widely, obviously depending on the nature of the obstruction. And -- and logically, they could be quite a bit higher than the open-space scenario. And then clearly when you combine open and obstructed, you'll get somewhere in the middle. So, it was recommended in Report-97 that the obstructed calculated values are likely more appropriate and claimant favorable for use.

So, moving along. Obstructions were also analyzed for scenario two, but here really didn't appear to be a significant difference whether there were obstructions or not. So, obviously, if you have a worker moving around the room, the obstruction will either be there or not. So, again, it's sort of an averaging effect. This is really why the final ratios developed for scenario two did not break out obstructed and unobstructed because there was really little difference in the two. So, and again, it's just logically, if you have a worker moving around the room, they might be right next to the sampler, they might be far away from the sampler, the release point might be closer to the sampler than the worker. All those factors, again, sort of average out.

Regarding the ventilation rates, which I mentioned earlier, you can see that on this slide, the reported ventilation rates for the five studies, and they

vary pretty significantly. I mean, 90 air changes per hour versus 6 air changes per hour is quite -- quite the range. Surprisingly, did not -- they didn't have a significant effect on the breathing zone to general air distributions that were developed based on the various studies. And again, this was -- this was surprising to me, but I'm guessing it just means that the higher contaminated air near the release point is generally to being removed from the workspace at a similar rate as the lower contaminated air near the monitor. That's just a guess, so don't quote me on it, but it's one possible reason why the -- the ventilation rates really didn't make a difference when the data was analyzed.

Okay. So, on to SC&A's review. We found that the sampling of data from the five studies is reasonable. We also agree with splitting the data into the two scenarios and also further breaking it out for scenario one based on whether there were obstructions present when -- when you were analyzing what was available in those five studies.

We found that the statistical methods were sound. And sort of as an aside, we didn't run into any issues tracing the documentation that underlies Report-97. We felt it's a good report. The review approach, again, we -- we agree with the selection of the five cases directly related to characterizing the potential differences between the contamination experienced by a hypothetical worker and the general area concentrations in a workspace or the room where the worker is located.

And just a note here, again, that this whole approach applies to small workrooms. Now, so back on slide five -- get back there real quick -- you can see the ranges there are 190 square feet to just over 1,100 square feet.

So, basically, you -- you have about the size of a college dorm room. I guess depending on how expensive your school was. It's the footprint of a smaller-type house.

Again, on statistics, I -- as I echoed before on a few of the previous slides, SC&A agrees with the statistical approach, and our review of the methods and results, we determined it was sound and appropriate.

So, to our observations. We did have two observations, really unrelated to the data analysis, but rather to the actual implementation of the resulting ratios. Report-97 doesn't really address what happens when information is insufficient to be able to select one of these two scenarios. Again, this goes to evaluating on a case by case basis. Basically, in our experience with individual dose reconstructions, information is really rarely available to put a worker in a specific workspace. So, exceptional care, really selecting a given ratio, if it's even appropriate to do so in any given case. So, basically, when in doubt, the most claimant's favorable value should be selected or, in essence, the bounding ratio. So, that was observation one.

And as a follow-on to observation one, observation two is in a similar vein. We felt it be explicitly stated in the report that dose reconstructors specifically and thoroughly document the rationale behind any professional judgments that would be made regarding the selection of a (indiscernible), and then this would be contained in the actual reconstruction documentation.

So, in summary, SC&A found that the sampling approach, the literature review, the statistical analysis, the scenario development, and the

associated documentation to be valid as contained in Report-97. As I said, we think it's a good report. We had the two observations regarding implementation, which were echoed to some extent in the original report, again, by noting that the use of this information must be evaluated on a case by case basis and fully documented. During the discussions back in November when this review was presented to the procedure subcommittee, agreement was reached on the proper implementation of this document, or at least the proper documentation of how it's being used, and the observations, I believe, were closed. Now, this was further codified, actually, in a recent memo from Dr. Taulbee to the procedure subcommittee, which summarized and documented those discussions.

So, again, in summary, this presentation was really meant to set the stage for, what I believe, is the first example application of this ratio concept, that's the general air-to-breathing zone, which I think is being presented in the next session by Dr. Lobaugh. So, that -- that ends my presentation. I'd be happy to try to answer any questions, and certainly, if I can't, I can reach out to the original author and get any -- any concerns or clarifications answered.

MEMBER CLAWSON: Hey, Bob, this is Brad. I -- I have a couple of questions on this. Now, you're saying this is for CAMs and constant air monitors, so -- is that correct?

MR. BARTON: Yes. So, the method looked at fixed air samplers within a room, such as a CAM or any other such of -- air monitor, and then we're back extrapolating it to what the worker would have to actually experienced, for example, if they were at a glove box with a leak and it's picked up by the

air monitor, what would their breathing zone actually be so that we can then calculate an intake. So, yeah, it's based on fixed in-room air monitors that aren't necessarily, you know, next to the worker.

Okay. Because -- because my question on this, one of the things I wanted to know is -- because I've got to go back to my past and stuff like that, a lot of these CAMs and air monitoring systems in these large, large rooms were not -- they -- they actually were a vacuum with a filter stuck on the end. So, they don't have a set flow rate of air through them like a CAM or a constant air monitor. Are you still going to be able to use that kind of information or -- because it wasn't until ninety -- '94 that we actually got what they called a silver bullet that -- that was a calibrated air monitoring system for the remote -- because -- well, the issue that I'm getting into is we had areas the size of a football field with four CAMs and three or four constant air monitors, but the work was being done away from quite a bit of those. And I'm just wondering how -- you know, I'm hearing small rooms. How would this work in a -- in a large room like this?

MR. BARTON: That's a great question. Actually, it is specified, and that's why the small room designation was given, because NIOSH fully admits that once you get into large situations like what you're -- you're referring to, this analysis really just doesn't apply. So, I mean, we had the smallest one, which was like a dorm room, and then the larger one, which was like the footprint of a smaller house. Anything beyond that, this sort of rationale and the numbers derived here really aren't applicable, and they -- they admit that in Report-97. And that goes back to the whole notion that this is basically a literature review on what numbers and studies we have on

this this issue, but that use of it has to be justified in each case, each site, each, you know, individual worker, and that it's not just to pull -- pull a value from a table. You have to relate the value from the table to the worker's actual experience. So, it was restricted to the smaller areas because of just what you said, you know, if you have a football-field-sized area, it may not be reflective of anything. But as you get smaller -- smaller spaces, it gets more relevant.

MEMBER CLAWSON: And these actually have to be a -- a -- a calibrated flow instrument that you're using for monitor, correct?

MR. BARTON: Yeah. Well, I mean, you have to be able to justify the air monitoring program, how it operated, and say that the measurement numbers you're looking at are valid. I mean, it's really the same concept as with when we evaluate bioassay data. You have to first determine whether the numbers you have are even worth anything. Are they adequate is the term used for bioassay. So, the same thing, I would think, would apply to this -- this whole process. But again, it has to be case by case. And really, our concerns with it were, you know, we'd like to see how it's -- how it will be implemented because it's a very good treatment of what studies have been done thus far. But how -- how it works in practice really needs to be seen. And I think we might --

MEMBER CLAWSON: Okay.

MR. BARTON: -- at least a first iteration of it in the next session, although I don't want to --

MEMBER CLAWSON: Okay. Well, yeah, and I'm sure you'll take into consideration if it was a calibrated flow system or anything else like that,

because I -- I know for a lot of years all they used was a filter on the end of a vacuum, which was not calibrated or anything else. Now, our CAMs and everything else, I know that those were at a continuous airflow. And so, you know, the information from those that you'd get would be better.

But I did worry about the large -- large area. So, okay. Thank you.

MEMBER BEACH: So, and Bob, this is -- this is Josie. Just a little comment on that. So, we are -- we are going to track it. However, I think we discussed taking it out of the subcommittee and moving it to the individual work groups. And so our first one will be at Argonne West. And one of the things -- I'm on that workgroup also. So, it's -- so, tracking is going to be a little bit interesting on this. I'm sure Bob will be all over that, keeping track of when we do these individually. And then I'm not -- I don't remember, Bob, do you, if we were going to report back on it to the subcommittee or just within the INL Argonne-West work group?

MR. BARTON: I'm not sure if we actually came to a conclusion on that particular thing. I mean, it's certainly -- it's certainly possible to be able to report from work group to the subcommittee. And I -- I think that's appropriate, certainly. But since it --

MEMBER BEACH: Yeah, I think that's something I just made a note of that we probably do need to, at least after the first one, come back to the subcommittee and then determine where to go from there, so. Because it seems like --

MR. BARTON: I'm in agreement. It's lucky that you're also on the ANL West work group, so you'll at least get to see the first one. But I do think it's important to keep the subcommittee apprised of the first few

iterations on how this is being applied. But, you know, as far as it goes, again, this is sort of a generic site-wide thing -- a program-wide thing and will be taken up by, I assume, the various work groups where it's going to be put into application and put into, say, a TBD based on, you know, what they have at a specific site, the actual configuration of the workrooms they're looking at and -- and that sort of information.

So, in a general sense, this is, obviously, the Report-97 was appropriate for the subcommittee, but as you get it to its use at specific sites, it's probably appropriate to first handle it in the work group for that site but keep the subcommittee apprised of how it's being implemented.

MEMBER BEACH: Yeah, I agree with that and made a note of that also, so.

MEMBER ZIEMER: Well, Bob and -- Bob and Josie, -- this is Paul -- could I ask, it sounds like there's no findings here. Is this officially approved by the sub -- or by the work group, or what -- what status does it have within the work group?

MEMBER BEACH: Well, if you -- if you remember, Paul, during the subcommittee mem -- meeting, we actually first heard about it in November, and then at the last meeting, we talked about it a little bit more, too. We decided to move it to the INL work group, because that's where the -- it's going to be first implemented, and that's as far as we went, that I recall, with -- during the subcommittee meeting.

MEMBER ZIEMER: Yeah, well, --

MEMBER BEACH: So, --

MEMBER ZIEMER: -- I was trying to determine, --

MEMBER BEACH: -- we --

MEMBER ZIEMER: -- are we waiting for another group to approve it, or for the Board to approve it, or --

MEMBER BEACH: No. No, we --

MEMBER ZIEMER: -- I mean, --

MEMBER BEACH: Sorry, Paul. No, we closed the two observations with the caveat that we wanted to see it in play, so.

MEMBER ZIEMER: Well, I'm trying to remember if we had the Board approve that.

MEMBER BEACH: No.

MEMBER ZIEMER: No, okay.

MEMBER BEACH: No, we did not.

MEMBER ZIEMER: Yeah.

MEMBER BEACH: Because that just occurred.

MEMBER ZIEMER: Yeah.

MEMBER BEACH: Yeah. So, no. I -- and I don't think -- if I -- Tim, if you can let us know, I -- I know that your -- your -- your words for 097, that memo, just came out, and I thought maybe we needed to read that into the record at the next subcommittee meeting, but I -- I don't believe that was done. Is that correct?

DR. TAULBEE: That's correct, because we --

MEMBER BEACH: Just to --

DR. TAULBEE: -- haven't -- we haven't met yet --

MEMBER BEACH: Yeah.

DR. TAULBEE: -- from that standpoint, but really it was just a

summary of the previous discussions, which, as Bob was pointing out here, that, you know, Report-97 was effectively closed by the subcommittee, but you guys wanted to see how it was being implemented. And the first implementation is ANL West, which is using this as part of the SEC closeout. So, the two do go hand in hand, and certainly I agree with, you know, the subcommittee can look at this after, you know, Dr. Lobaugh here presents, you know. But really it's with the INL work group at this time, because this is part of that SEC closeout. So, you know, see how that work group handles this, and it is good that you're on that particular work group as well, Josie, so that you've got some, you know, crossover there between the two. But yeah, it will be -- our plan is to use this at multiple sites and to see how we're implementing this, and, you know, we welcome feedback as to, you know, what else you guys might want to see from this standpoint. But this is -- this was planned to be presented to the INL work group, and --

MEMBER BEACH: Right.

DR. TAULBEE: -- you know, we've added it here, and asked Bob to present here, such that you guys have some background to understand what Megan's going to be going through here shortly.

MEMBER BEACH: Thanks.

MEMBER ZIEMER: Tim, this is Paul again. Could I -- could you remind us, and maybe this was asked before, but the five studies that were used, is that pretty exhaustive, or are we aware of any studies done in a larger facility? I had the same question Brad had, is for the very large -- not large facility so much as large work area, you know, complex, are we aware of any studies that have been done on other situations like that?

DR. TAULBEE: We did not go into that level of detailing in the literature review. We really --

MEMBER ZIEMER: (Indiscernible.)

DR. TAULBEE: -- limited it to small workrooms, because that's the immediate need at Argonne-West --

MEMBER ZIEMER: Okay.

DR. TAULBEE: -- where we have some small workrooms, and we wanted to see, can we use the air sampling data?

MEMBER ZIEMER: Good, thank you.

MEMBER KOTELCHUCK: Dave. I just wanted to say I recognize, and it was pointed out, the difficulties of applying this practically speaking. But I would like to comment just to say that it is -- was a very interesting study, and I think represents some progress by giving us a range of how that ratio BZ to GA might vary. I can't help but think if we have the situation where there are many areas that are relatively similar, we might be able to stratify the calculation itself, by Dr. Syed, I think it is, and do it for size rooms and obstructions that we can specify.

So, this doesn't need to be the end. It can be a very nice start technically to let us see what we're doing. The fact that in the work in the most complex scenario one, you know, the ratio goes up to 12. Well, then, you know, we might be able to look at adjusted scenarios on -- on scenario one, for example, and see. That may be -- it may involve too much work, it may not. It may tax the resources of the -- of the Board, and we may choose not to do it, but I think it leaves open the possibility of that being done in the future. So, I think it's a very nice job.

If I may just ask one question on -- on -- to Bob. On slide 15, we talk about the statistical methods, the lognormal, and then there -- you mentioned the lognormal model using ROS. I'm afraid I don't know what ROS means. Could you just tell me? Is that a -- is that a -- a computational program, or?

MR. BARTON: It's a statistical method for fitting dataset to a given distribution, in this case lognormal. ROS stands for regression on order of statistics.

MEMBER KOTELCHUCK: Okay. Very good. Thank you.

MEMBER CLAWSON: I've got -- I've got one more question, and -- and I'm - I'm glad to see that we're going to try to put this into -- to practical use, and I'm not -- I'm not calling out any other place or anything else like that. But one of the things that as we go into this, I hope that we look -- because I'm thinking of Pantex, because they had air samplers by the disassembly area, and it -- it sounded really good and everything until we actually went there. And come to find out that the way it was set up with the fan systems, the only thing these air samplers would have picked up is a catastrophic event. So, as the Board goes into this, the placement of these RAMS, CAM -- well not RAMS, but CAMs and constant air monitors and stuff like that, placement of that, and especially with ventilation and stuff, plays a big part into that, so -- but like Dr. Kotelchuck said, this is a good start and we can go from there, but I hope that we look into that, too.

MEMBER LOCKEY: Bob? Jim Lockey.

CHAIR ANDERSON: Go ahead.

MEMBER LOCKEY: Yeah, I enjoyed your presentation. The literature

you refer to here, was that radiological literature that you're using for modeling?

MR. BARTON: They were done at radiological facilities, but, you know, they're not actually going to simulate a release of plutonium from a glove box, so they basically had surrogates that they would simulate the release points and then have the monitor pick it up purely to get this ratio. Basically, the mixing effect on the release point and where your monitor is placed, what's in the way, all that sort of thing. So, while they were done at radiological facilities, they didn't actually involve radiological releases, but rather particle releases or aerosol releases.

DR. LOBAUGH: This is Megan Lobaugh. I wanted to step in there. One of the studies actually was during actual work, so that would have been right after material is measured.

MR. BARTON: My apologies. Thank -- thank you, Megan.

MEMBER LOCKEY: So, Jim Lockey here. I'm not a -- I'm not an industrial hygienist, so I'm really out of my field here. But in the general industrial hygiene profession, area versus personal sampling is commonplace. Is that is the nonradiological literature helpful here or not?

MEMBER KOTELCHUCK: Hmmm.

DR. LOBAUGH: So, I'm --

MR. BARTON: Well, I -- go --

DR. LOBAUGH: Sorry, Bob.

MR. BARTON: -- ahead, Megan.

DR. LOBAUGH: I'll talk about just our literature search a little bit here on that end. We did look at a few industrial hygiene studies for this but

ruled them out for different reasons. For example, setups in the room or application to RAD. So, we really focused our literature search to RAD applications that would have similar setups to what we saw at ANL-West, but we did look at some of those during that literature search.

MEMBER LOCKEY: So, I guess my -- my question is if you're working in a small room, say with isocyanates, which is an example of something that's dangerous in a small room versus large room, and you do personal versus area sampling. Is that -- is that model not also useful for a radiological model, or is there some innate difference between the two situations? That's what I'm not -- I don't know the answer to that. That's what I'm inquiring.

DR. LOBAUGH: Yeah, I don't know that there would be an innate difference on the surface, but based on the -- the literature review that we did, the studies that we found, we ruled out of being applicable here. But I think that is a good -- good point. Industrial hygiene does -- uses area sampling a lot for personnel exposures.

MEMBER KOTELCHUCK: Certainly, conceptually they are similar.

MEMBER LOCKEY: Is it --

MEMBER KOTELCHUCK: There's nothing inherently different, but I don't

MEMBER LOCKEY: -- similar --

MEMBER KOTELCHUCK: -- know the leading literature in the industrial hygiene area. I -- I don't have specific citations that come to mind anyway.

MEMBER LOCKEY: And I guess that was my question, so --

MEMBER KOTELCHUCK: Yeah.

MEMBER LOCKEY: -- this is not a new science area versus personal sampling is used --

MEMBER KOTELCHUCK: Right.

MEMBER LOCKEY: -- from a regulatory perspective too, so I think there is a lot of literature out there that would help inform us as to what models are appropriate, unless you can identify an innate difference in the circumstances in radiological work versus nonradiological work.

MEMBER KOTELCHUCK: Yeah.

CHAIR ANDERSON: Other questions?

MEMBER BEACH: I have one, if everybody is good? Just on the tasking, does SC&A need to be tasked through the INL work group to -- to look at that study? I think that would be a Henry or Rashaun question. It's a Rashaun question.

CHAIR ANDERSON: It's a Rashaun question.

DR. ROBERTS: Okay. Yeah, that -- typically that would be tasked by the work group.

MEMBER BEACH: So, is -- is that something we can do after this report since our work groups have gotten postponed, or do we have to wait?

DR. ROBERTS: Yeah. I would say wait until those -- the meeting is rescheduled.

MEMBER BEACH: Okay. Okay. That was a logistic question. Thank you.

CHAIR ANDERSON: I -- I've been waiting quietly here. I have a couple of couple of questions. It seems to me this is really, as far as application, is targeted for individuals where you have air monitoring in the

room, but the individual has no personal air monitoring or any biomonitoring having been done. So, you know, I think it will be helpful for -- for the various groups to know what is going to be the criteria for when this would be potentially used for individuals. So, that's one.

The second, it seems to me, the issue of air exchanges is really another issue is the air flow within a room. Without knowing the description of these various rooms and how many point sources are there, if this is a room that has six glove boxes in it and people move in and out to work with specific things, or if it has hoods. The flow of the air within the room while it's being then discharged where you're going to measure the exchange rates, you could potentially have an area sampler in one part of the room and the air is really flowing from that area into where there's a -- a box that's exiting the or, you know, has a hood over it that's sucking the air out and discharging it, so you'll have an air flow different in the room than general mixing. So, I think those are the kind of things you really have to look at. What's the worker doing, and, you know, what are the multiple sources and how many people are in the room and those kind of things. So, it's kind of a front end decision of when is NIOSH going to apply this. I think that's --and maybe we'll get some examples of that information, but I think that's where it's -- it's going to be broader -- not broader, but a more focused generation on is it appropriate for these specific types of individuals versus this method to do a ratio. Certainly one could do it that way. It's just is it appropriate in a given area.

And then these are all simulated studies as I understand it, so that it's -- you know, is it simulated within, you know, the existing equipment and

activities in a room that they just introduced instead of -- if it's in a -- in a hood or a glove box they would use another particulate generator than you estimate what the escape of things were.

MR. BARTON: Well, I'll quickly try to answer this and hand it over to Megan who can talk about the studies a little -- a little bit better than I can. But yes, you're correct. This would be used in a situation where you -- the worker has no breathing zone apparatus, first of all, and no bioassay. All you have is the -- the -- the fixed air sampler. But also consider that this would be a situation which co exposure intakes couldn't be developed by other methods, such as the bioassay for other workers. So, it's a fairly unique situation, but I'll let Megan or perhaps Tim can comment on the extent to which this, what I'll call, the general framework, the extent to which it's planned to be applied.

CHAIR ANDERSON: Because it would seem to me the most common circumstance that we're describing would potentially be in, you know, residual periods where, you know, there's activity going on and there might be a source at some point, but be different, so.

IDAHO NATIONAL LAB/ARGONNE NATIONAL LAB-WEST UPDATE AND USE GENERAL AIR SAMPLING FOR INTERNAL DOSE ASSESSMENT

CHAIR ANDERSON: I mean, if there's no other questions, the next one up is Idaho and really, I would say what we -- maybe want to have more of the discussion after we hear from Megan, if that's okay with everybody. We can move on, and as you know, we're in a transition period

for the INL work group chair, and rather than have no chair I agreed to step in on an interim basis, which is really for -- for this particular session because the committee wasn't able to meet. And so, there will be a new chair and isn't going to be me going forward. So, I'm just going to help keep things moving here.

So, Megan, do you want to go through your presentation?

DR. LOBAUGH: Yeah, let me open it up here and share. Whoops, sorry. I didn't mean to -- I just want to make sure you guys can see the full screen, right? You can see the whole slide.

MEMBER BEACH: Great.

DR. TAULBEE: Yes.

DR. LOBAUGH: So, I want to start out by thanking my ORAUT team counterparts who really did the majority of this work. Brian Gleckler (ph) who developed both reports, Report-89 and Report-97, and Tom Lebone (ph) who did a lot of the statistics for Report-97, and any others who worked on these efforts.

As Bob laid out the context for how this document came about, I'll probably skip through some of this intro stuff rather quickly, but if you guys have any more specific questions on the context or history, I can answer those later.

So, for this presentation, I'm going to go over a quick overview of the ANL West site, the SEC-224 petition information and evaluation report, information that's pertinent to this air sampling proposal that we have in the ER. I'll quickly summarize the areas of concerns, and then I'll -- from the SC&A review of the report of the -- of the evaluation report for the SEC, and

then I'll go into the specific summary of Report-89 where we're doing the application of Report-97, and then I'll answer the specific concerns that SC&A have.

So, first, the ANL West site background. It operated from 1949 to 2005 by the University of Chicago. In February of 2005, they merged with INL. So, it's on the INL site, the Idaho National Lab site, and the remaining operational facilities became known as the Materials and Fuels Complex.

The mission was reactor testing, including breeder reactor theory and experimental measurements.

So, a picture here of the state of Idaho and then kind of a zoom in on the Idaho National Lab site, and you'll see two red circles here that are circling the two EBR complexes. So EBR Complex -- EBR I complex and EBR II complex, which are really the ANL West sites.

So, the EBR 1 complex is made up of four different buildings or facilities that you'll see some of these acronyms later. The important one is the EBR I and BORAX and ZPPR, the zero-power reactor.

The EBR II complex has more facilities, and again, I just want to point out some of these specific acronyms to be aware of. The fuel assembly and storage -- let me get on my laser pointer so I can point it out. The fuel assembly and storage building, the fuel cycle facility, the inspection and test facility are kind of important acronyms in addition to ZPPR, the zero-power plutonium reactor. So, this is -- gives you a little bit of layout of what it -- how the buildings were organized during the time of the SEC class that we evaluated.

So, more specifics about the SEC-224 petition. We received it in

December of 2014, and it had a requested class for all workers in any area at ANL West for the time period January 1, 1949, through December 31, 1995. The basis was inadequate monitoring for plutonium, neptunium, and fission products.

We qualified this petition in March of 2015 with a modified class for evaluation, which was all workers who worked in any location from April 10, 1951, through December 31, 1979. And the change in dates was based on our preliminary research. The start date was based on the first radiologically related operation at EBR I. That was when the building was completed and the fuel -- the reactor fuel assembly began. The end date was modified because starting in 1980, we had a large number of plutonium bioassay analyze -- bioassay results available to us. We sent the evaluation report to the Advisory Board in February of 2016.

So, I want to talk about a summary of the evaluation report findings and how we started talking about air sampling data. So, just as a reminder, NIOSH proposed adding a class to the SEC and HHS designated this class. And that class was for all employees who worked at ANL West between April 10, 1951, and December 31, 1957. And for this class, we found it was not feasible to estimate internal and external exposure -- exposures for the class due to the lack of personnel monitoring. So, we found that there was personnel monitoring beginning in 1958, so that's how that end date was -- was determined.

I will want to -- I do want to say the ER looked at other potential exposures, namely the actinide exposures, and so that's how we're going to be talking about actinides today. In the evaluation report, NIOSH proposes

methods for bounding doses when we -- for the time periods when we do not add an SEC class. So, in this case, we proposed continuing our current method with -- for bounding internal doses for actinides when mixed fission products are present. So, in the current INL/ANL West TBD Section 552, we provide a methodology for estimating actinide doses from mixed fission products.

So, this approach uses Strontium 90 or Cesium 137 bioassay measurements to calculate an intake. And then we apply ratios of the actinides for specific fuel types. We have a -- tables 522 and 523 in the internal dose TBD that provides those ratios for different fuel types on site. What we found in the ER, though, is that there are some areas at ANL West where they only worked with actinides. We termed these actinide only areas.

And in the ER, we proposed bounding these internal doses using the air sampling data, and specifically what I'll call a control-limit approach, which would be using the 10 percent maximum permissible concentration that the site was reviewing air sample data to. So, you'll see these locations listed here, the years that they're applicable, and the exposure. These are coming out of the ER. I don't want to focus too closely on this, because Report-89 actually changed some of this, so I'll kind of skip ahead, but I just wanted to make sure you guys were aware of what we proposed in the ER.

I will say, we came up with this control-limit approach because we did do a review of the air sampling data and found that a large fraction of the air sample results were less than that 10 percent MPC that they were typically reviewing air sample results against.

Okay. So, once we submitted the ER, SC&A did their review of that ER, the evaluation report, for SEC-224, and their review was broken up into a few different documents. As Bob said, this is a very long title for this document review, but this document focused specifically on that proposed method of bounding internal doses using the general area air sampling results.

And SC&A had two areas of concern. I'm going to quickly go through this because I'll go into in more detail later when I actually give NIOSH's responses to these concerns. But the first area of concern is what we term sample dilution. So, for general area air samples, generally, they're running for more than one day, and that means they're going to be running during nonoperational times. So, that air concentration -- you know, the reasonable assumption is the air concentration could be drastically different during operating hours versus nonoperating hours. So, if we do a calculation for an average air concentration for that sample, we could be diluting the signal, basically.

And the second concern had to do with what Bob talked about previously, which is a lack of parity between air concentration results measured by general area air samples and those measured by lapel samples or breathing zone samples. In SC&A's review of SEC-224, they actually recommend using a factor of 10 to resolve this parity based on two -- two studies that they quoted. So, I just wanted to give the -- SC&A areas of concern as a background so that as we're talking about Report-89, you can have a better idea of what we're -- what we are trying to review.

So, in response to SC&A's review of the ER, specifically their document

covering the general area air sampling, we developed Report-89. And as we're terming it, it's the first implementation of Report-97, but that's just one part of it. So, I'll talk about the purpose -- the full purpose of Report 89.

So, No. 1, or -- you know, pretty much parallel with both -- both of these are equal priorities. One was to address the concerns raised in the review of the ER specific to the general area air sampling, and the other purpose was to provide the additional details. So, if you'll remember or recall, our evaluation reports, we generally provide these proposed methods for bounding, but they don't give the details into how we actually do those calculations and how we do the data review for, basically, input in the TBD. So, Report-89 is going to be -- is that document where we documented our full basic evaluation of the air sampling data and provides the potential intake periods. There were some dates defined in the ER that we saw on that table earlier, but we further refined those based on our research after the ER.

And another main purpose here is to provide basis for any deviations from what we proposed in the ER. So, we had additional data captures after the ER and our research, you know, is really what is being presented in Report 89.

So, the first thing we did with Report-89 was actually review the exposure potential locations and time periods. So, I want to show one of the maps that's given in Report-89. This -- well, let's turn on my laser pointer again. Here on the right side is the EBR I complex. And here I zoomed in so you can see the -- more specific in the main part of the EBR I complex. In

red you'll see the actinide only areas that we identified at this site. So, to -- or, you know, a small footprint based on the size of the facilities there. And for EBR I, we're talking about uranium exposures after 1957 is what we put in the ER. So, we looked at the documents we had available to us, the additional data captures to kind of hone in on that exposure potential. For EBR II, again, here we have a map of the EBR II complex with some specific facilities marked. And in red, you'll see the actinide only areas identified within those facilities.

The first facility I'll talk about is FCF. And in that facility, there were areas that used thorium, uranium, and plutonium. One thing I want to point out here is that each of these areas were distinct, separate airspaces, so only one actinide was present. We're not talking about mixes of these actinides. We're talking about either thorium, uranium, or plutonium in those area in the areas where they were used. So, this means that a worker couldn't be simultaneously exposed to all of them in one work activity. For ITF, we're talking about uranium, and then for ZPPR, it's plutonium.

So, I'm going to go on to the next slide. There's the pointer, so I'm not making everyone sick.

The next slide here is a summary of that exposure potential by area and years. So, you'll notice there are some changes to the years from the ER. I'll just step through each of these rows individually, just provide a little bit more information about what changes we saw and why, the bases for those changes.

Starting with EBR I uranium, we -- we changed the end date here from what was proposed in the ER to make it the end of D&D of EBR I. This was -

- this information was included in the ER, but not directly in the exposure potential discussion. So, the dates here are very similar to what was in the ER, but directly written out.

EBR II, ZPPR uranium, if you remember the previous table, there was an entry for EBR II ZPPR uranium. That was removed from the list because we determined that the exposure potential was really only during breach of the fuel, in which case the uranium dose would be negligible compared to the plutonium dose. That's why we removed that from the exposure potential list. EBR II uranium, you'll notice that there's one less facility listed here. We only have FCF and ITF. Originally, we included FASB as well. And FASB was removed from the list because our data captures and reviews afterward determined that only encapsulated uranium was used as FASB. So, we found documents of safety assessments and the firefight -- specifically, the firefighting plan that showed that only encapsulated uranium was used. So, that removed that as a source of exposure potential, which also ended up changing the end date of that exposure potential. So, this decreased our exposure period to June 1976 from what we originally proposed.

There were no changes for the EBR II thorium exposure potential. They're the same as what we proposed in the ER. And EBR II ZPPR plutonium, the ER didn't provide a specific exposure time frame. We really only said after 1957, so our further research honed in on an end date and beginning date for that. So, the beginning date was based on a documented contamination incident, and the end date was based on the start of the plutonium bioassay program.

Lastly, the EBR II FCF plutonium, we actually found information that extended the exposure period from December 1972 through April 1973. We found additional information in that, specifically additional air sampling, air monitoring data for this room that showed work continued through April 1973. So, it's a little bit of a mouthful, but that's how we -- basically our review of the available literature and air monitoring data led to these years for exposure potential and locations.

So, next after determining exposure potential by area and year, we looked more closely at the air sampling data. So, the air sampling available for ANL West included four different types of sampling. We had fixed general area sampling, portable general area sampling, fixed breathing zone, and portable breathing zone. The program measured actinides by gross alpha, and generally they recounted the sample until results dropped below the level of concern, and this was due to radon. So, it's a common kind of approach for handling radon signal on air samples. And I'll talk more about this specifically later, but there were three types of data sheets over the time period that we were looking at.

So, after doing our literature search that looked at the exposure information, so the work that was being done, what exposures were there, and time frames, we again reviewed our bounding method. So, in the ER, we proposed using 10 percent of the maximum principal concentration for all locations, but in this review of the air sampling data, we actually said that we would bound three areas with the measured air concentrations themselves, because in our more detailed review, we found that 10 percent of the maximum permissible concentration was probably not applicable. So,

I'll start talking about the two that remained 10 percent maximum permissible concentration, and then I'll go into more details about how we actually evaluated the measured air concentrations.

So, the two that remained with the same intake assessment method are the two shaded rows here. So, EBR I uranium and EBR II ZPPR plutonium. So, I call these the control-limit approach. We're using that 10 percent MPC that the site used to review their air sampling data against, basically. And for these two areas, we're comfortable continuing with that 10 percent as a bounding method, because of the low potential for intakes due to the source term. So, actually, in both locations, they're working with coated fuel plates. We looked at survey, like contamination results, and see trivial levels of contamination, and in reviewing the air concentration data that we have for these two locations, generally, they're less than 1 percent of the MPC. So, we feel that the 10 percent MPC is really bounding.

So, we're going to step more into these three other locations, the EBR II uranium, thorium, and plutonium, where we did a more full -- what I'll call the full evaluation of the measured air sample data, because our initial review found that the 10 percent MPC may not be bounding. So, we took four steps -- or I broke this down into four steps to kind of talk about the different areas. Step one, when we went to evaluating the measured data, was compiling the air sample data. So, let's look at some of these data sheet types.

So, I mentioned earlier there are three different types of air sample data sheets. The first one is type -- I'll coin Type 1. It has a single air sample on one sheet of paper. So, this provides a significant amount of

sample collection and analysis information. So, some things I want to point out. Up at top is the sampler information, so the date, the time on/off, the run time. Down below is the measurement information. Another thing I want to point out here is the self absorption factor, because you'll hear me talk about that a little bit later. And here is where they're comparing to the fraction of the MPC. So, we have the actual measurement result, and then we also have this comparison to the MPC.

The next air sample data type is Type 2. And this was started in about November of 1973 is where we see this sheet was modified. And on this sheet, we actually have more than one sample, multiple samples on a single sheet. And the focus really became, or seems to be, on the sample analysis.

So, again, you'll see the measured activity, you see dates here. What we don't have for all samples is the sample on and off time in terms of the actual -- when the filter was on the sampler and how long it was on the sampler. That's a major difference here. Again, you'll see this here coins the RC -- the RCG, the -- excuse me -- Radiation Concentration Guide. Same -- very similar to the MPC, just different term, kind of changed throughout time there.

The third type of data is more of summary data. And this is kind of limited to the EBR II uranium dataset. This is information that we found in monthly, either routine or nonroutine health physics reports. It's more in terms of reported number of samples above, below, or at a given percentage of the MPC. So, while we don't have additional information, we wanted to make sure -- about these air samples besides what's in these reports, we wanted to make sure we included them. Okay. So, that's about the --

compiling the data. So, we had these different data sheets that we are pulling data from for the air sample, the measured air sample data. We ended up with four datasets, and I'll talk about those later.

From there we started on data adjustments. So, we were compiling the air sample data. Now we need to figure out what adjustments need to happen. So, the -- the first adjustment is the one that I mentioned before, the self-absorption factor. So, when you're measuring alpha activity, it is very easily self-absorbed, meaning the alphas will not escape the sample to get to the detector and be detected. So, in an air sample, it's -- it's a common thing to have to adjust for that. So, as you can see on the air sample sheet that lists the Type 1, it was clear that the self-absorption factor for the site was applied. And the site self-absorption factor is 1.3. So, we applied it, except when it was explicitly documented that it was already accounted for. So, for Type 1 and Type 2, if there was no -- if it was not clear if it had been applied, then we applied it. So, we may be applying it again, but that's better than not applying it. For Type 3 data, we always applied it because that information was not included in those summary reports.

The next initial adjustment was actually for the potential sample dilution. As you'll recall, that was one of the concerns -- area of concerns that SC&A brought up in this methodology. So, we applied potential sample dilution adjustment for all samples, except those considered short-duration samples. And for that, short duration is 16 hours. So, I'll talk a little bit more specifically about how we did those sample dilution adjustments.

There's a lot more details in Report-89. I'm just trying to give a high-

level summary here. So, if you have any specific questions on how we actually did these calculations, Report-89 is a good thing to look at.

So, but for sample dilution Type 1, as you recall, we had the available sampler on and off times. So, what we did to adjust for sample dilution here is actually adjust our average air concentration using only the operational time during the sampling period. So, as you recall, you know, the sampler could be running for four days straight. Operational period would only be, you know, 16 hours out of each of those days. So, that's how we made that calculation or adjusted for sample dilution would be assuming that all of the activity that was sampled on that filter was from operations and only used in the operational period which equates to the volume sampled for that calculation. This inherently assumes that the airborne radioactivity drops to zero when there is nonoperational times.

Type 2 data, this is where we didn't have the on and off times for the sampler. So, what we do here is actually adjust the intake. So, we calculate the average air concentration as you normally would do or generally would do, which would be taking the total sampler run time, equating that to volume, and calculating an air concentration that way. Here, what we do then instead to count -- to account for a sample dilution is assuming the workers were exposed to these average air concentrations around the clock. So, basically, assuming a worker was there the entire time the sampler was running. Type 3 data we assumed were short-duration samples, and they weren't adjusted for sample dilution. And this is because the type of information we were seeing in the reports, they were, you know, support of specific operations. The specific operations we saw

were generally 16 hours or less. So, that's why those results were assumed to be for short-duration samples.

Okay. So, we've compiled the data, we've adjusted it for the -- the adjustments that we need to take into account at this time. Now, for the measured air sample data, we're going to determine a general area air concentration distribution. So, we did a full statistical evaluation using, again, regression on order statistics when -- for all of the data available for the exposure scenarios I talked about previously.

So, we found that the -- we found that ANL-West reported zeroes, so we evaluated these with a censoring level of less than 0.01. As you may remember, I said that the Type 3 data generally reported less than the MPC, a certain number of samples less than the MPC, so we had other censoring levels that were actually imposed by the site, and so those are actually in the data as well. And then we used weighted linear regression with the sampling time as weight, and we found that this was appropriate for all except for the May 1975 through the June 1976 uranium data.

So, I'll step through what we found for these distributions. So remember, we have three scenario locations or three scenario location time chunks, I guess, of exposure potential. The first is EBR II uranium. And this is where we ended up splitting the data into two datasets, so we have a distribution for 1967 to 1973 -- use my laser pointer again -- and then 1975 to 1976. These are quantile quantile plots of all the data available for each of those datasets, and then they give up in the left-hand corner the GM, the geometric mean, geometric standard deviation, the total number of samples that were included, and the total number of samples that were not censored.

So, that information is on the top left-hand corner of each of these quantile quantile plots.

So, I'll just step through these rather quickly. This is the uranium, two uranium datasets for EBR II. Here's the EBR II thorium dataset, and the EBR II non-ZPPR plutonium.

So, in summary, what we've gotten so far, we have our general area air concentration distributions for the three exposure scenarios where we looked at all the measured data. We also have now two exposure scenarios where we're using that controlled-limit approach, the 10 percent of the MPC. So, how did we get to air concentration from that? It's a straightforward calculation going from percent MPC to air concentration because we know the maximum permissible concentration from the available air sampling data sheets. So, like I said, this is something that the site compared the measured results against, so we know what MPC was used, and we just did a straightforward conversion from percent MPC to air concentration for those samples.

So, now we have all of our general area air concentrations, the ones from the measured data and the ones from the controlled-limit approach. This is where we apply Report-97. And remember, Report-97 is what helps us go from general area air concentration to an equivalent breathing zone air concentration.

So, for ANL-West, we're assuming all these air measurements are general area. Sorry, something just flashed up on my screen. I think everyone's still connected though. So, here we're assuming all air measurements are general area, and we're going to convert all of them to

breathing zone equivalent air concentrations, and we are using those factors in Report-97.

So, I'll kind of take a step back and talk about Report 97 a little bit. Bob did a great intro to this for me, so I'll hit the -- the high points again. But Report-97 found that general area air concentrations in most small workrooms should be adjusted to make them equivalent to breathing zone air concentration. This finding was based on our initial premise when we started that document, which is that when the median of the breathing zone to GA ratio distribution becomes significantly -- significantly greater than one or the uncertainty of that distribution, geometric standard deviation, becomes large, then we need to adjust the general area air concentration to account for that increased uncertainty in the breathing zone air concentration.

So, basically, we went into this with a research question of is the BZ to GA ratio significantly different than one, or is there large uncertainty about that ratio. And what we found in our review of the literature and the data analysis we did is that yes, most small work groups do need to be corrected. And so, that's why we're applying it here at ANL West. As Bob said, whenever we use these adjustment factors, we need to do a justification of that. And Report-97 actually provided five criteria that we need to consider, so that's what I'm going to step through now.

One thing I do want to say here is Report-97 lays out a methodology. So, if a site would have enough information to look at their own GA to BZ ratio with the data that the site has, then we could take that approach. At ANL West, we do not have that. So, here, we're actually trying to justify the

use of these adjustment factors from Report-97 to our data at ANL West.

And here, as you'll see in this application, we're doing it in an approach where it's going to be documented in the technical basis document, or here, Report-89, and then referenced in the technical basis document. So, it's not going to be something that a DR is doing on a case-by-case basis at the DR level. It's something here, an unmonitored dose approach that's going to be documented in a controlled document. So, I just wanted to make sure since that was some of the questions I know that I was hearing before.

So, take a step back to Report-89, and I'm going to talk about how we justify the application of Report-97 adjustment factors for ANL West. So, the first criterion that Report-97 talks about is room size, and we had a lot of discussion about this in the last talk. It's applicable to small rooms. And here, I list in square meters, not square feet, so different units, so that's why you see different numbers here. But our room size that we looked at in Report-97 was 24 to 105 square meters. And that's what we're generally going to call a small room.

And so, in Report-89, we have Table 6-1 that shows the actinide-only areas at ANL West where we are looking at the general area air data. And as you can see, generally, there are less than 92 square meters -- 92.3 square meters. There are two exceptions, and that would be ZPPR with the room size of about 154.4 square meters in the low-bay area where it's unknown, but we assume it's likely less than 160 square meters. So, while these are outside the range of Report-97, we believe that it's still generally a small room, right. So, we're still within the qualitative bounds of what we

consider a small room. And the fact that most of these rooms are definitely within that range, we think that this is applicable and an okay application of Report 97 adjustment factors.

Oops, sorry. The next criterion is the particle size distribution. And so, in Report-97, we only looked at respirable particles. This is an important distinction because non respirable particles are not going to impact significantly the internal dose, right. The lung will remove non respirable particles, and they will not have time to impact vary -- the dose calculation. So, for Report-97, we focus on respirable particles and sample -- sorry -- research papers, the -- the literature review for respirable particles.

So, at ANL West, we have no indication of the particle size measurements, and we don't have any indication that the samplers removed nonrespirable particles. So, what this means is that we're pretty sure ANL West air filters have both respirable and nonrespirable particles on there. So, what that's going to lead to is an overestimate of the actual intake and dose in the end. So, we're okay with that overestimate, which includes the nonrespirable particles.

So, the next criterion, which we talked a little bit about already too, is the ventilation rate. This is a large or a broad range, 6 to 90 air changes per hour. But our -- our statistical evaluation of the study showed that there was little effect on the change -- on the district -- on the BZ to GA distribution. So, while we don't specifically know the ventilation rate at ANL West or any of these particular rooms, it's unlikely the air change rate would fall outside this range. And the conclusion of Report-97 is that it's really applicable in all ventilation rates except for the most extreme. So, we are

okay with this application of Report-97 for that.

Room complexity. So, we have available floor plans for ANL West, and they're included in Report-89 as attachment B. And our review of them shows that they're comparable to the room complexity and ventilation flow patterns that we -- of the studies used in Report-97.

The last one is these dominant particles. Dominant particles are -- like Bob talked about, are interesting anomalies because they are one or two particles that land on the air filter that could be -- would be providing the total activity for that filter. Generally, we assume that the activity is dispersed throughout the air, right. So, if we have dominant particles, that's one or two particles, and there is some sort of uncertainty about whether an individual would have breathed in the air, like Bob said and all that.

So, Report-97 did not look at any studies affected by dominant particles. So, the big thing here is whether there are dominant particles at ANL West. And from our review of the literature and information we have for ANL West, there's no indication that there are dominant particle issue at ANL West.

So, that's our -- a high-level summary of our justification of why the Report 97 adjustment factors are applicable to ANL West.

Now we need to determine which scenario of those adjustment factors would be applicable to ANL West. As Bob said before, there's two scenarios. Scenario 1 where the worker is always at the same location as the release, and Scenario 2 where the worker is moving about the room and not necessarily in the same location as the release. So, for ANL West, we determined that Scenario 2 is most appropriate because what we're trying to

calculate here is an unmonitored intake as a chronic exposure. So, as Bob, I think, mentioned in his talk, is that what we're applying here is we have an unmonitored -- we have an unmonitored worker group that we're trying to use the air sample data for an activity or a room to calculate that unmonitored intake. So, it's inherently a chronic exposure that we're trying to model. And Scenario 2 is the chronic exposure setup. Scenario 1 would be applicable for an incident that an individual might be in. For example, a group of workers might be a part of a specific incident, and that's where Scenario 1 makes sense.

Some other additional things that we considered here is the actinide-only workrooms have multiple workstations, so an individual is likely going to be working at different workstations throughout the chronic period that we're assessing the exposure for. We also looked at the image -- at the -- the work -- the nature of the work itself, and it tends to be intermittent, so we assumed that the worker would have moved around. So, that's how we determined Scenario 2 was the most appropriate.

One thing I want to mention here is Report-97 shows how to do the actual adjustment calculation. So, the BZ to GA ratio is a distribution. We have a geometric mean and a GSD. Our air sampling data, especially here at ANL West, we have those three areas where we're using the measured air concentration that's a distribution. So, we're going to have a distribution and a distribution that we need to propagate in those cases. For the control limit approach where we're using the 10 percent MPC, we're going to have a constant air concentration. So, we don't have that -- that's considered a constant number, and then we have a distribution. So, Report 97 goes

through how you actually do those calculations and that propagation.

In short, the constant would be the air concentration times the GM, and then it's the same GSD as the BZ to GA ratio distribution. For the distribution, propagated with the distribution, there's the Monte Carlo that needs to happen, or, you know, a calculation that needs to happen to determine the final uncertainty.

Okay. So, we have now -- we -- we went through our measured air sample data, we have our BZ equivalent air concentration for both our measured data and our control-limit approach, the 10 percent MPC, so now we have to calculate intakes. For the data that we were able to adjust for sample dilution using the sample on and off information or for the Type 3 data that we didn't do a sample dilution adjustment to, we're going to do a typical intake assumption or typical intake calculation where we're assuming 2,000 hours per year exposure, the 1.2 meter cubed per hour breathing rate, and we're going to convert that intake into a per calendar day intake.

For the Type 2 measured air concentrations where we had to adjust the intake for sample dilution, as I said before, we're going to calculate this intake assuming a per calendar day -- we're going to calculate an intake rate per calendar day, but assuming 24-hour exposure to that air concentration. And then we also, because we're doing intakes by air sample data, we need to calculate the ingestion intake as well, and so for that we followed OTIB -- or sorry, OCAS-TIB-9 for the ingestion calculation. One little interesting thing we had to do there is for Type 2 data. We had to calculate an equivalent to the adjusted easy air concentration because of that intake adjusted sample dilution. So, we talk a little bit more about that in the

report.

Okay. So, the intake assignment itself, how are we doing this? So, this is a big table, I'll try and walk through it to get everyone oriented. It looks very similar to the previous tables I put in here, except now we have air concentration, we have inhalation intake, we have ingestion intake, and then the GSD for both of those intakes. So, what I want to mention here is the location and exposure. So, you'll see here I don't list any longer the specific building that we were talking about before.

So, we established an exposure potential based on specific work in specific areas, but when it comes to actually applying this intake, we have to use what's available to us to determine where our worker was. So, that's the external dose records generally, and they identify an area location code. So, we can basically tell where someone is, either EBR I or EBR II, but we can't tell a specific facility within EBR I. Or for EBR II the only specific facility we can figure out or determine for any individual is ZPPR or non ZPPR. So, that's why you see here, this is a more general EBR I, EBR II, because we can only identify workers by that specific location. I'm not going to go through the numbers specifically, but what I will say is for periods when a worker had, you know, worked at both complexes, or ZPPR and non-ZPPR, we're going to look -- we're going to assign the unmonitored intakes that would result in the highest dose.

So, the big thing here is these time periods are different, so we're going to have to go off the time period the individual worked, the EE worked, and then determine if we know what location they were. If they were only in one location in that time period, then the -- the intake

application is rather straightforward, but if it's multiple facilities within a time period, then we'll have to do some comparisons and assign the highest dose. Okay. So, that's the overview of Report-89.

I was going to go through the -- our -- our response to the areas of concern. I can't see what time it is, but if I -- I need to stop, please just interrupt me and let me know, but I'll just keep on going.

So, as I mentioned before, the -- the first area of concern SC&A brought up was this potential or sample dilution. So, I think I explained it before, but basically the idea is that it would -- if a sampler is running during operational and nonoperational times, if we divide by that total volume the sampler collected, then we're going to potentially dilute out the signal of activity that really was higher during the working times. So, as I mentioned before, we basically agreed there was a sample dilution concern, and so we performed an evaluation, and we made a correction for it. So, when we could correct for the operational time, we did that, and when we couldn't adjust for the operational time, we adjusted the intakes to make sure that the entire activity was basically included. I think about it in terms of measurements. So if we're measuring an activity on a filter, we want to make sure that total activity is applied to the worker then and not diluted out. So, basically we agree, and we accounted for it.

So, the second area of concern was about this lack of parity between the measured general area samplers and -- and air concentration measured by lapel samplers or BZ samplers. And SC&A recommended using a factor of 10 based on the two studies they looked at. So, I'm going to start by kind of addressing the factor of 10 first, and then I'll talk more generally

about Report-97 again. So, the factor of 10 that SC&A proposed was really based on only two studies in 1967, one from NUMEC and one from UK worksites. We disagree with applying the results of these studies at ANL West because of -- for several reasons. One, because the facility sizes are not comparable to the facility sizes at ANL West, meaning the work area rooms. They're not comparable. The exposure levels aren't comparable, and the studies were completed before we knew some of the significant sources of error with lapel sampling. Like the fact that lapel samplers could be sampling contamination from protective clothing or the nonrespirable size particles or dominant particles. So, all those things that we kind of talked about in other contexts can be going on with lapel sampling and are a bit more common just due to the location of the sampler itself.

There are some additional studies at the UK worksite that happen later on, and we're trying to look into these discrepancies further, and they actually basically confirmed that there was dust from the worker protective clothing that was being measured by the lapel samplers. And they actually took this all the way to bioassay, and the bioassay data weren't correlated with the lapel samplers at all. So, to us, this indicates that the smaller intakes being calculated by bioassay kind of suggest that the lapel samplers were sampling nonrespirable particles.

So, because we knew there were other sampling studies out there, and we knew that this was an issue that was coming up at multiple sites for the project not just ANL West, we thought that it would be important for us to research this lack of parity issue, like, further. You know, do a literature review, statistical evaluation, and see what we could come up with. As Tim

mentioned, we focused on the small workrooms because that's where it was applicable -- what -- what we needed for ANL West, because we have small workrooms at ANL West, and so that's kind of how Report-97 was born, was -- was just to look at this lack of parity.

So, in looking at the lack of parity, like I said, we took the premise or the approach that we would need to correct BZ to -- we would need to correct GA -- general area air concentrations when that BZ to GA ratio becomes significantly greater than 1 or if the GSD becomes large. So, that's what we looked at. We took the data -- the studies available to us, and we looked at how this BZ to GA ratio looks and we found that those small workrooms should be adjusted, and Report-97 provides those adjustment factors.

So, based on our research in Report-97, we adjusted the ANL West general area air concentrations using the adjustment factors in Report-97, and like I said before, we used Scenario 2, and we adjusted the general area air concentrations to be equivalent to BZ air concentrations. So, that's how we that's how we basically looked at the lack of parity, and -- and in our opinion, took care of it.

So, as Bob mentioned, the subcommittee on procedures review, reviewed Report-97, had two observations regarding implementation, and they were closed. And then the subcommittee was interested in Report-89 because it's really the first application of Report-97. So again, a little bit of context to how we got here.

And with that, I am finished. So, I will entertain any questions.

CHAIR ANDERSON: Any questions? That was quite a mouthful you

put in.

DR. LOBAUGH: Yeah, it was. Sorry if I was speaking very, very fast.

CHAIR ANDERSON: Everyone still there?

MEMBER BEACH: Yes, we -- I'm here.

MEMBER KOTELCHUCK: I'm here. It's just an enormous body of calculation to grab hold of, and my feeling is -- I read it already, but I've got to rethink, so I'm -- here I am.

MEMBER BEACH: It's a lot to digest also.

CHAIR ANDERSON: I have --

MEMBER BEACH: It's a great presentation.

CHAIR ANDERSON: One quick question. Do we have any personal census data?

DR. LOBAUGH: So, we know that ANL-West did do BZ sampling, but I do not know what percentage of the results are BZ sampling.

CHAIR ANDERSON: As I'm just saying, I mean, you -- you go through all of this, but it's really -- you're just creating, I would say, exposure numbers and quality -- you know, it sounds through the statistics then well, this ought to be claimant favorable and whatever, but if you have actual measurement data, it would be interesting to look at some of those and see when you calculate their exposure. I mean all of the measurements that are made are really limited term for a short period of time, so the assumption being you're using a medium level or 95 percent what it could be, but do you have any that we could look at or you could look at and see how good is your prediction for actual measured samples in some of -- some of the individuals --

DR. LOBAUGH: So, I mean --

CHAIR ANDERSON: -- or is it not possible?

DR. LOBAUGH: Looking for the paired BZ and GA data, so what I can say in general right now, and I can't speak specifically to whether we could do a -- you know, an evaluation to determine, but what I will say is what we did early on is -- is we did not have enough data to look at the actual BZ to GA ratio at ANL West specifically. Because like I mentioned in the beginning of my presentation, Report-97 laid out a methodology. So if we should have enough data to do that, we could do a very similar analysis to what Report 97 did with the literature review for a site-specific data. So, we did make the determination that ANL West did not have enough paired data to do that, but --

CHAIR ANDERSON: Do we know how --

DR. LOBAUGH: -- I can't speak --

CHAIR ANDERSON: -- have?

DR. LOBAUGH: Yeah, no. I can't speak --

CHAIR ANDERSON: Well, not --

DR. LOBAUGH: -- to how much we have. Yeah.

CHAIR ANDERSON: And the amount of paired data in the studies you used isn't exactly overwhelming either, so we need to look at those perhaps a little bit. But I'm just raising -- it would be nice to be more confident that in fact what you're proposing is very close to what actually occurred or -- or is well over that.

DR. LOBAUGH: Yeah.

CHAIR ANDERSON: Your adjustment factor, you can't say the

adjustment factor when you go from 10 down to saying there really isn't an adjustment factor, that's not very, you know, favorable to a client. Now, it may be a better estimate of reality in these circumstances. I mean, you're -- let's see. I mean, I --

DR. LOBAUGH: So, let me -- let me --

CHAIR ANDERSON: (Indiscernible.)

DR. LOBAUGH: -- talk a little bit about how the adjustment factors were developed in Report-97. So, Report-97 doesn't have paired BZ to GA data. What Report-97 has is air concentrations, either measured throughout a room or ISO curves throughout a room based on measurements throughout a room. So, we don't have labeled breathing zone data that we're pairing with the GA data in the same room. What we're doing in there is actually pairing those, like, permeatation wise to determine those adjustment factors. So, I think that's something that's important for everyone to be aware of, is that the -- while it may seem like we don't have much paired data, that's how I'm talking about it for ANL West, that's not how Report-97 was developed. There is one study that was developed like that, which was the Munion (ph) and Lee (ph) study which had lapel sampling done during actual radiological work with GA samplers. But the other data, it was a permeatation wise combination of GA and BZ measurements throughout a room.

CHAIR ANDERSON: Yeah, I mean, kind of a broad interpretation of -- of -- of your parity issue would be well, we don't need to do any breathing zone sampling because we could just use the general area sampling because it's the same. So, we don't need to do the individual monitoring in these

small rooms.

DR. LOBAUGH: So, I --

CHAIR ANDERSON: (Indiscernible) --

DR. LOBAUGH: -- wouldn't say that that's --

CHAIR ANDERSON: -- (indiscernible) --

DR. LOBAUGH: -- the conclusion that we're trying to make here.

CHAIR ANDERSON: Well, but I'm saying that --

DR. LOBAUGH: Yeah.

CHAIR ANDERSON: -- that's kind of the bottom-line decision that you're saying, and part of that is one, the air exchanges when you have very high air exchange versus low, it's saying that doesn't make a difference.

DR. LOBAUGH: So, what we were trying to do here -- so, let me back up and try to say what Bob was also trying to say earlier. This approach is going to be used for those workers that we have no individual monitoring for at all. So, if a DR -- this is a hypothetical -- but if a DR claim would come in where the individual has breathing zone data, that would take precedent over this unmonitored approach. So, this is for the workers who have no individual either bioassay data or breathing zone data. Does that make --

CHAIR ANDERSON: (Indiscernible) --

DR. LOBAUGH: -- a little more sense, Dr. Anderson?

CHAIR ANDERSON: -- in the claims that have come in, do we know how that breaks out?

DR. LOBAUGH: No, I can't speak to that right now.

CHAIR ANDERSON: Jim?

MEMBER LOCKEY: Great -- great presentation, and a lot of

information to -- to digest. I'm going to go back to my original question. Did you compare your model to nonradiological data that's out there in the literature, and how does it compare?

DR. LOBAUGH: No, we didn't do that specific comparison. I would say what I would need help with, I guess, is the industrial hygiene side of that. So, I'm not familiar with how industrial hygienists would convert a GA chemical measurement to a breathing zone measurement. So, if anyone has that information that they can provide to me, that would be helpful. But what I would say is, like I said in the literature review, we looked at a few studies that came up with our search terms that we used to do the literature review, and we ruled them out because they were not applicable to ANL West.

MEMBER LOCKEY: So, I am somewhat familiar with the -- with the nonradiological industrial hygiene approach, and I think it -- I think it would be helpful to -- if you have somebody in NIOSH -- I know NIOSH has

MEMBER KOTELCHUCK: Yeah.

MEMBER LOCKEY: -- a lot of great industrial hygienists that they could maybe provide you some literature so you can compare your model to what's known out there in nonradiological literature, because I think that would be a good comparison. Are you in the ballpark, or are you not in the ballpark?

DR. LOBAUGH: Yeah, I agree. Yeah.

CHAIR ANDERSON: Yeah, I mean that's the parity issue is really here. I would say a lot of the usual industrial hygiene things doesn't see parity. Would you agree with --

MEMBER LOCKEY: Sorry, Henry, I missed what you said.

CHAIR ANDERSON: Yeah. What -- what I'm saying is that most of the industrial hygiene, if you have a monitor that's quite a distance from where the individual is, the personal sampler is going to come up with a higher result than the general area sampler.

MEMBER LOCKEY: Right. And I think that literature is out there and those comparisons are --

CHAIR ANDERSON: Yeah, I mean, because -- that's -- that was my first comment that the decision here is the opposite that it's -- that it's similar.

MEMBER LOCKEY: Well, --

DR. LOBAUGH: So, the --

CHAIR ANDERSON: -- flies in the face of a lot of other experience. Now, that may be true in these -- in this specific rooms and all of that, but it would be nice to -- to be more confident that what you observed is in fact reality.

DR. LOBAUGH: So, if you look at the -- just the GM, then yes, it does look like we're not adjusting much. But with the distribution -- so, let me pull this back up. So, let me share first or else I might lose what I'm sharing. So, looking here at the distribution itself. So, we have our -- let me turn on my -- our air concentration that we either determine by the control limit for the gray ones or the measured sample here. So, again this is GM. Here's the GSD. So, we have a distribution of that air concentration. And then we take our BZ to GA ratio distribution as well. We propagate them and look at this GSD. So, we're not saying that they're the same.

We're just saying that they're -- we're propagating those uncertainties. So, while the GM may be close to one -- and if you think about it just as a constant, that adjustment factor just as one, then yes, I can see why you're -- you're thinking about it as if we're not adjusting anything. But what we're doing is we're taking into account the uncertainty in that breathing zone measurement and the breathing zone to GA distribution, and that's where the change -- you're really seeing the change. So, the GM or the intake rate itself might not look that different, but the uncertainty that we're attaching to it is -- well, I'll say wildly different. So, does that make sense? Does that...?

MEMBER LOCKEY: Yeah, I saw that. And I saw how you adjusted by using that, so there is an adjustment. I saw that.

DR. LOBAUGH: Okay.

MEMBER KOTELCHUCK: Is that -- that's -- that large GSD would be claimant favorable, wouldn't it?

MEMBER LOCKEY: Yes.

DR. LOBAUGH: Uh-huh. Well, it's -- it's applying the uncertainty, --

MEMBER KOTELCHUCK: Right.

DR. LOBAUGH: -- so, yeah. It would be -- it would be taken into account in the POC calculation.

MEMBER KOTELCHUCK: Yeah.

CHAIR ANDERSON: Other questions?

MEMBER LOCKEY: Jim Lockey, Megan. And I would be more reassured if you would make a -- I mean, at least inquire about a comparison --

DR. LOBAUGH: Yeah.

MEMBER LOCKEY: -- how your -- how your modeling fits what's generally out there in the nonradiological literature. That would be -- I know the data's out there. I'm just -- I'm not informed enough to know where to find it.

DR. LOBAUGH: Yeah. I appreciate that --

CHAIR ANDERSON: We're --

DR. LOBAUGH: -- comment. Yeah.

CHAIR ANDERSON: We're into our lunch break for the Eastern people and breakfast for the West Coast people, --

MEMBER KOTELCHUCK: Right.

CHAIR ANDERSON: -- but I would also -- I mean, we may want to -- rather than close this out, I'd like to kind of circle back. We really don't have a good idea on when committees and -- are going to be able to meet, and I'd like to circle back to Josie's question about tasking SC&A -- SC&A to do something further. That activity could go on before the committee meeting. Josie, do you want to -- do you have a -- I don't know, Rashaun, if we could do that with a broader group here. Josie, you want to go back over what are the studies or what would you want SC&A to do in relationship to this?

MEMBER BEACH: Well, I honestly think Bob could answer that better, but I think what we want them -- SC&A to review is how Report-97 was used at ANL or INL. And I think Bob probably has a good handle on that. Is that correct, Bob?

MR. BARTON: Yeah, Josie. I think just because of how the scheduling

sort of got changed, I think -- and this was supposed to be really discussed at the work group level before we even got to the full Board Meeting.

MEMBER BEACH: Yeah.

MR. BARTON: So, it's certainly something -- I mean, your request is my command, so -- something -- something we can start to take a look at. I think probable -- probably how it would have played out was that the work group would have heard Megan's presentation and usually, it would be then tasked to SC&A at the work group level. Now, I don't know how procedurally -- if it's different since we're in the full Board. Again, this is a little bit different than how --

MEMBER BEACH: Yeah. Rashaun --

DR. ROBERTS: What I would like to say if --

CHAIR ANDERSON: Go ahead, Rashaun.

DR. ROBERTS: Yeah. I'd like to hold off on this. There's a little uncertainty as to when it would be rescheduled. If it's the case that it's taking longer, we could certainly look at tasking it off line. But, you know, it's probably something that needs to be tasked within the work group.

CHAIR ANDERSON: Well, I kind of understand from Bob that this is something you're probably going to do anyway without tasking, because it would be part of your process that hasn't been completed because it's --

MR. BARTON: No, no.

CHAIR ANDERSON: -- (indiscernible)?

MR. BARTON: I'm sorry if I implied that. I was just saying --

CHAIR ANDERSON: Okay.

MR. BARTON: -- you would normally -- this presentation would have

happened at the work group level. The work group would discuss it, and then many times then they would task SC&A to move forward with the presentation. But we --

CHAIR ANDERSON: Okay.

MR. BARTON: -- we're in reverse here with the presentation actually landing before the Board before SC&A was actually tasked and the work group had a chance to discuss it. So, it's sort of a backwards process, and I can't comment on what's appropriate. Certainly, that's -- that's --

MEMBER BEACH: Well, and --

MEMBER ZIEMER: -- this is -- this is Paul. Can you fill us in as to why the work groups are not able to meet? Is that information that we're privy to?

CHAIR ANDERSON: That's just the direction we've gotten. Basically, I don't know. I haven't been able to find it out, but Rashaun --

MEMBER ZIEMER: Rashaun, is that something that we're not able to bear, or who can fill us in? It's kind of a white elephant to me. I don't understand what's going on.

DR. ROBERTS: Yeah. Yeah, so I really can't elaborate at this time on the issues surrounding it. But I can say that we will reschedule the work group meetings that were postponed and subcommittee meetings that were postponed as soon as we can.

MEMBER BEACH: Well, --

MEMBER ZIEMER: In a different way, is it something that you could share in the executive session with the Board as opposed to a public meeting?

DR. ROBERTS: That -- that's something I can't comment on right now.

MEMBER ZIEMER: I wonder if -- is general council on board on this meeting? Normally general council is here.

MR. RAFKEY: Yes, we're here.

DR. ROBERTS: They're here.

MR. RAFKEY: We're on.

MEMBER ZIEMER: Is -- let me raise the question to general council. Can you tell us whether we could learn in the executive session why we cannot meet?

MR. RAFKEY: I'll have to -- we'll check into that a little bit and get back to you. I can't give you an answer right now.

MEMBER ZIEMER: Thank you.

CHAIR ANDERSON: Okay. I think we rest. Any -- any other comment, or let's go to take a break now and come back.

MEMBER KOTELCHUCK: Right.

CHAIR ANDERSON: It's now two o'clock, and we're due back for petition status at two o'clock, so we're running late. So, do people want to just take a 15-minute break now?

MEMBER ZIEMER: No.

CHAIR ANDERSON: You want to keep going?

MEMBER ZIEMER: We need time for lunch, Andy.

CHAIR ANDERSON: Yeah, well, I thought --

MEMBER ZIEMER: It's two o'clock here.

CHAIR ANDERSON: Yeah, I know. I didn't -- that's why I earlier it

was only going to be 15 minutes, so I said I need a half hour. So, let's take a half hour break.

MEMBER KOTELCHUCK: Okay.

CHAIR ANDERSON: Is that okay?

MEMBER KOTELCHUCK: Yes.

CHAIR ANDERSON: Any objections to lunch for the West and Midwest people?

MEMBER BEACH: No.

CHAIR ANDERSON: Okay.

MEMBER BEACH: Back at 2.30.

(Whereupon, multiple Members speak simultaneously.)

(Whereupon, a lunch break was taken from 2:03 p.m. EDT until 2:31 p.m. EDT)

DR. ROBERTS: -- remember that if you're not on camera, or if you're speaking by telephone, please identify yourself before you speak, before you ask a question or make a comment for the court reporter's recording purposes. Okay. So, I'm just going to take a quick roll call again of the Board Members. So, Anderson, are you back?

CHAIR ANDERSON: I'm here.

DR. ROBERTS: Beach? Josie, are you back? Clawson? Okay. It looks like they're not back. Let me keep going. Frank?

MEMBER FRANK: Here.

DR. ROBERTS: Kotelchuck?

MEMBER KOTELCHUCK: Here.

DR. ROBERTS: Lockey?

MEMBER LOCKEY: Here.

DR. ROBERTS: Martinez?

MEMBER MARTINEZ: I'm here.

DR. ROBERTS: Pompa? Okay. And I did receive a message from Valerio that she is unable to attend today. Ziemer?

MEMBER ZIEMER: Yes, here.

DR. ROBERTS: Okay. We're going to need to wait for Josie --

MEMBER CLAWSON: I'm here.

DR. ROBERTS: Okay. So Brad, you're there. Josie, are you back? Okay. We do have the quorum, so Andy, it's up to you. If you want to proceed, you can, with the agenda.

SEC PETITION UPDATE

CHAIR ANDERSON: Why don't we proceed with Megan presenting the SEC petition status updates. Put you on the hot seat again. Keep you going. It's your day.

DR. LOBAUGH: I feel bad that you guys have to listen to me.

CHAIR ANDERSON: Oh, no.

DR. LOBAUGH: So, Chuck is out on vacation this week, so he asked me to provide the SEC petition status updates. This is the typical presentation he gives at each Board Meeting, so it's an update for petitioners, public, and the Advisory Board on the status of our SEC special exposure cohort petitions.

So, we'll start with some numbers. So, to date, since the beginning of the program, we've received 264 petitions. There's a footnote there that

this includes five petitions prior to the SEC regulation. Currently, we have one petition in qualification review, and we've qualified 153 petitions for evaluation. There are no new evaluations in progress, but you'll see on the next slide that there is one evaluation in progress, but it's not new. And there's been 153 evaluations completed to date. There are currently nine evaluations with the Advisory Board for discussion and review, and there have been 110 petitions that have not qualified for evaluation.

I should say for that -- sorry, I just saw my notes -- for the one petition that is in qualification review, it's SEC-264, and it's a petition for the Missouri University Research Reactor. So currently, we've sent letters to DOE and DOL to make a determination if this should be a covered facility, and we're just awaiting final determination from DOE.

So, as I said previously, there's one petition under evaluation. It's not a new SEC petition. It's actually an addendum for SEC-221, which is for Lawrence Livermore, and it's the time period 1990 to 1995. So, we have a draft ER, and it's currently in review.

Now we'll talk about the SEC petitions that are with the Advisory Board for review. We're going in -- in number order here, so we'll start with Hanford, SEC-0057. At this time, all the SEC issues are closed except for those regarding internal co-exposure modeling. So, this work is underway right now, and there's been data capture requests to the site for data to help with the data completeness portion of, excuse me, the co-exposure study. So, we're currently trying to obtain information regarding the 1984 to 1987 RADCON Program and the selection processes. So, those data capture activities continue.

For Savannah River Site, SEC-103, NIOSH is responding to the findings and observations raised by SC&A in the work group. There was a work group meeting scheduled, but it has been postponed. So, that was one of the work group meetings that was scheduled for July that has been postponed at this point.

LANL, Los Alamos National Lab, SEC-109. At this point, NIOSH has provided four reports and two memos to respond to the findings and observations raised in the review of the ER. Those reports include 101, 102, 103, and 107. And then the two memos were weight of evidence memo -- memos -- sorry -- provided to the work group in August of '23, and then the RWP, weight of evidence analysis, provided in March of '24. So, we're currently working on responding to the SC&A review of the remaining internal dose issues for the 1996 to 2000 addendum period.

Next is Idaho National Lab, SEC-219. We're working on responding to findings and observations raised during the review of the ER. This includes Report 100, which is a document that is reviewing the high-priority reactors and whether OTIB 54 is bounding or applicable for those high-priority reactors. That work is a bit on hold because we've had some personnel changes, and it's a lower priority to some technical basis document updates. But it is on the list of things we're working on. Same as SRS, there was a July -- a tentatively scheduled July meeting that was postponed.

Argonne National Lab-West, SEC-224. We're in the same boat as INL. We're working on responding to findings and observations that came up during the review of the ER. Everyone just heard about Report-89. So, that was one of those responses to the concerns SC&A raised about the general

area air sampling, using general area air sampling for internal dose assessment. And again, the July meeting was postponed.

So, next is Area IV of the Santa Susana Field Laboratory, SEC-235. And right now we're working to provide clarification on some remaining issues. Where we're currently at with that is the EMCBC Records Center is digitizing records and sending them to DCAS in response to the data capture that we made. The documents are being uploaded to the SRDB and will be reviewed for relevance to the outstanding issues. The estimate of when this would be completed will be September '24.

There will be a very similar update for DeSoto Avenue Facility, SEC-246. Same thing, we're awaiting some records from the EMCBC. And same as before, they're being uploaded to SRDB and will be reviewed for relevance, and the same expected completion date of September '24.

The Y-12 plant, SEC-250, we presented the addendum to the ER at the August 2021 Advisory Board Meeting. And SC&A was advise -- assigned to perform a review of the ER.

And lastly, the Pinellas Plant, SEC-256, we presented the ER at the December 2021 Advisory Board Meeting. And there was a work group meeting scheduled for July of '24, but that was postponed. And as you'll see, I think on the agenda there's Pinellas -- time for Pinellas presentations tomorrow, so you'll hear more about that then.

So, next is the table of dates and what's awaiting action. So, these are the same petitions I just reviewed, but up here we see the dates that are applicable. So, Hanford for 1984 to 1990 prime contractors. SRS, 1972 to 2000 prime contractors. SRS, 1991 to 2007 subcontractors. Whoops.

NANL, 1996 to 2005. INL 1949 to 1970. And then ANL West, 1958 to 1979. Santa Susanna 1991 to 1993. And lastly, DeSoto Avenue Facility, 1965 to 1995. Y 12 Plant, 1979 to 1994. And then Pinellas Plant, 1957 to 1990. As Chuck has reported in the past, we are evaluating potential SEC for the AWE period at West Valley Demonstration Plant -- excuse me -- 1966 to 1968. So, we have data between this time period that we're reviewing for potential infeasibility. So, it's currently with us, and we're continuing to work on it.

With that, any questions?

CHAIR ANDERSON: Okay. Are there --

DR. LOBAUGH: I will say, I'll probably ask if the DCAS lead is on to answer any questions that maybe I can't answer.

CHAIR ANDERSON: Any questions?

MEMBER CLAWSON: Yeah, I've got a question on Hanford. Now, last time Chuck said that they had made their data captures. Are they just evaluating or is there still more data that needs to be received?

DR. LOBAUGH: Good question. Let me...

MR. KRANBUHL: This is Alek --

MEMBER CLAWSON: Hey, Alek.

MR. KRANBUHL: -- with NIOSH. So, we completed one data capture, and in the process of completing that data capture, we got some documents that we weren't trying to get and then also identified some additional documents, badging procedures, things like that, that we decided that we wanted. So, request is in. We're just waiting for the site to pull the boxes and then we're gonna -- we've got some folks that are local who will go retrieve those for us and get them uploaded to the SRDB.

MEMBER CLAWSON: I'd like to -- you know, the work group would like to be made, you know, aware of that. We've been on several of those data captures, so we'd just like to kind of know about that, if we could. So, I'd appreciate that, Alek.

MR. KRANBUHL: Absolutely. Yeah.

CHAIR ANDERSON: Okay. Other questions? No. Okay. Let's move on. I see Dave, --

MEMBER KOTELCHUCK: Yep.

CHAIR ANDERSON: -- you've got your photo on already, so --

MEMBER KOTELCHUCK: And so --

CHAIR ANDERSON: -- I'll pass it over to you.

SUBCOMMITTEE FOR DOSE RECONSTRUCTION REVIEWS UPDATE

MEMBER KOTELCHUCK: Okay, very good. And Rose is going to help me with the slides. So, let's go to the first slide. Okay. So, for SCDRR, and actually it's SOS Reconstruction and Reviews, plural. I -- I catch that. And here are our members: Myself, Josie Beach, Brad Clawson, Jim Lockey, Loretta Valerio, and our newest member, Arthur Frank. And since I'm -- this will be my last subcommittee report, let me give a shout out to Rose Gogliotti, who has been assisting this subcommittee for all the years that I've been chair. So, thank her and thank all of the other members of the subcommittee. Let's go to the next slide.

This -- we met on June 4th. This was our first regular meeting since April of '22 due to COVID and -- delays from COVID and the cybersecurity modernization initiative. It was, I'm happy to say, a relatively normal

meeting of our subcommittee. That is to say, we had cases from different set -- from Set 31. We reviewed them. Some of them were completed.

Others are continuing. And it's -- it's good to leave things in, if you will, working order. You'll see that we are now a little behind in future sets.

The BRS is now available again, as we found out. As I understand, of course, that will come through -- for Members of the Board, that will come through the CyberArk training -- come after the CyberArk training.

Is that true? Is that true, Rose? Rose? We'll have to -- Rose?

MS. GOGLIOTTI: Yes.

MEMBER KOTELCHUCK: Yeah.

MS. GOGLIOTTI: The training is now scheduled but could potentially be delayed.

MEMBER KOTELCHUCK: Yes, right. Right. For whatever reasons there are.

Okay. Next slide. Good.

Now, this was Set 31. Okay. And our time -- our findings and all. We went through the cases with our -- their findings and observations. Type 1, as we've always said, are the ones in which SC&A and NIOSH basically agree, and it's -- and -- and it comes through our subcommittee. And, of course, as a result, there are 24 of them were closed, and one is held in abeyance for further information. Type 2, however, are the ones where there is some disagreement or something that really needs to be looked into by the subcommittee further. So, we only had three that closed, three of these Type 2 that closed. Seven are in progress awaiting information, data. Four have been transferred. Some of them -- some of the transfers are to

the -- are to the working groups and some are also to the procedures subcommittee. So, you know, as I said, relatively regular meeting, and we did -- we did our good work on Set 31 and completed -- completed the first review of Set 31.

Next slide.

Set 32. Basically, it was delivered -- it was delivered in 2023. Our one-on-ones were completed earlier this year. The cases were revised and reissued on -- in March, and we are currently awaiting responses from NIOSH of review of those cases in Set 32. We -- at the time of the June meeting, folks from NIOSH were not sure when they would have completed their dose reconstructions, and then, of course, after that, SC&A has to review those. And so, that will be coming -- coming on soon.

Next slide.

Set 33 was delivered in June, and we're -- as we know, we're waiting on one-on-one assignments, and they -- these may be halted right now for the same reason that I don't know, that the subcommittees and the working groups are not meeting. Again, that will be determined, and Rashaun and Henry will clarify things for us at a later time.

Next.

Now, here is the one -- the one particular issue that we wanted to bring before the Board, and we discussed at our meeting. In 2022, I brought you our selection criteria, and we noticed that we were in the 1 percent of cases that -- of dose reconstruction cases that we reviewed, that we had a smaller percentage of female cases that we reviewed than we had claims coming in from female claimants. And so we spoke with -- we spoke

the Board, and the Board approved that we get at least eight female cases per 30 -- per set of 30 cases, which is twenty point -- 26.7 percent. The -- however, we'll see, this -- this may be -- well, let me go on.

For Set 33, the Board was provided with only three female cases, so all three were selected, but obviously, we were not -- this was below our criterion, and there had been the last measurement of claimants that we had over something like 26 percent of the claimants were female, so we're falling behind, and we discussed this. The bottom line from the discussion is that the eight -- or case -- 30 cases is a target, not a requirement, and SC - subcommittee decided to compensate for missing this target by selecting more female cases in future sets. Now, here's the data on that. We'll go to the next slide.

Interestingly, this is the number of female claims by file year for all the -- all the claimants. And what is interesting is that we were responding to the fact that from November of 2015 to 2022, we had 26.6 percent female claimants. However, Rose gathered the information from the other -- from the cases that have come in since February '22, and there are only six -- only 16.8 percent female. So, it may be that this 26.6 percent is a blip, or it may be, in fact, that as we perceived the percentage of female claimants, it's going up and that this happens to be a dip from the particular sets that we got. Overall, we have 14.8 percent of female claims.

Now, let's see our data for the next slide for the -- for the sets we've reviewed in our 1 percent sample for the subcommittee. And interestingly, Rose calculated these up through Set 33, because in terms of determining the gender of the claimant, we have data all the way through Set 33, even

though we only -- we're in the midst of finishing up Set 31. And we have, as you'll see here, 11 percent of the cases that we've reviewed in the subcommittee are female. So, we have 11 percent we've reviewed -- and if you'll go back one slide, Rose, -- and 14.8 percent is what we need to achieve, so we're not far behind. We were thinking from this 26.6 percent blip that we were -- you know, we were doing half as many female cases, reviewing the female cases, as we were -- we were -- we were reviewing only half the number of cases we need to. It's now -- now it is unclear whether -- whether -- again, whether this is a blip or this is the blip, or as often happens in this world, it's neither one of the extremes but in the middle, and it could be, you know, something like 20 percent. Nevertheless, obviously, we are going to be reviewing -- or the subcommittee will be reviewing claimants. There will be discussions by the subcommittee members to look at the selection process for the -- for the sets of 30 that come to us. Set 33 has already been -- we've already determined that set, and work has begun on it. So, we're really --

MS. GOGLIOTTI: (Indiscernible) Dave. Set 33 is completed by SC&A. It's just -- we're waiting for the one on ones, but Set 34 still needs to be tasked.

MEMBER KOTELCHUCK: Right. Right. And it's Set 34 that will come, and we will see about trying to increase the number of female claimants in our sample of dose reconstructions.

So, -- so, that's the story. So, I would say that we -- we are not in a bad shape for under -- under -- under examining the cases, the dose reconstruction cases in our sample. Nevertheless, we have work to do, but

then bottom line, we always have work to do. This work will continue. Claims are going up, and I'm sure this committee, like the Board, will continue to do its good work.

Okay. Any questions?

CHAIR ANDERSON: Congratulations, Dave.

MEMBER KOTELCHUCK: Yeah, okay.

CHAIR ANDERSON: We weren't that off on the distribution as we thought. I'm --

MEMBER KOTELCHUCK: Yeah, yeah.

CHAIR ANDERSON: I think it's worth paying attention to, so we want to -- since we're doing that many, I think it's good to -- to be sure that we're representative.

MEMBER KOTELCHUCK: Right, right. So, I'm handing off to the next person who you appoint and -- and hand off in what I think is in good shape.

CHAIR ANDERSON: Okay.

MEMBER KOTELCHUCK: And -- and the subcommittee functioning in good shape. Of course, Rose, don't retire. Right.

MS. GOGLIOTTI: Don't worry. Don't worry, I'm not ready to retire.

CHAIR ANDERSON: Okay.

MEMBER KOTELCHUCK: Thank you very much.

CHAIR ANDERSON: Thank you. Let's go on now to procedures review, a finalization of some documents and approvals. Josie and Kathy.

Procedures Review Finalization/Document Approvals

MEMBER BEACH: Oh, thank you. You'll -- you'll be pleased -- while Kathy's putting the slides up -- to know that this is going to be about an

hour or less presentation instead of our normal 90 minutes. So, yeah. And we'll go -- we'll follow the same format. Kathy will present and then any questions, and then we'll formally close out each one, so.

MS. BEHLING: Okay. Are you ready for me?

MEMBER BEACH: Yeah. Are you -- you don't -- we don't see the presentation yet, so.

MS. BEHLING: Oh, okay. I have it up, but I didn't share my screen, I believe. Let's see if I can do that. But you are hearing me, so that's a good

MEMBER BEACH: Yes, yes, --

MS. BEHLING: -- thing.

MEMBER BEACH: -- that's great. We are.

MS. BEHLING: Okay.

MEMBER BEACH: Okay.

MS. BEHLING: Are we seeing my screen?

MEMBER BEACH: Yes, yes, we see it. Or at least I'm seeing it.

MS. BEHLING: Okay. Is everyone seeing the screen?

CHAIR ANDERSON: Yes.

MS. BEHLING: Okay.

MEMBER ZIEMER: Yes.

MS. BEHLING: Okay, very good. All right.

MEMBER CLAWSON: Yes.

MS. BEHLING: Great. And I hope you hear me well. We're going to review eight documents today. It sounds like a lot, but I'm going to get through them in a summary fashion just because of the status of the findings.

So, on this slide, as I said, we're going to be reviewing eight of the Subcommittee on Procedure Review approved documents. Most of these are TIBs and OTIBs that were issued and reviewed many years ago. Actually, under our -- they were reviewed under our first and second set of procedure reviews. And as shown here, there are three TIBs, three OTIBs, a procedure, and a PER. And we distinguish -- the TIBs are issued by DCAS and the OTIBs are issued by ORAUT. So, that's how we distinguish them, and they distinguish them. And these are older -- most of them are older documents, but they're still active.

Okay. So, let's start with PROC-44, which is an administrative procedure that actually provides guidance for processing special exposure cohorts. It was issued back in October of 2005, and SC&A reviewed it in 2012. We identified 10 findings, and we presented those findings to the subcommittee at the November 2012 meeting.

So, this slide shows the first of the four findings, and I've summarized these findings on this slide in this fashion rather than the typical matrix or table format since the resolution and outcome for each of these 10 findings was the same. So, I thought this would be a better -- a better presentation approach. So, for finding one, which states that PROC-44 refers to, and we have here, OCAS-PR-004. And OCAS PR 004 is the internal procedure for processing SEC petitions. Initially it was issued in 2004 under OCAS and then revised in 2011 under DCAS. And so, I should really be referring to -- since we reviewed this in 2000 -- since we reviewed this when it was a DCAS document, I should be referring to the DCAS document in this -- these findings. So, PROC-44 references this DCAS-PR-004, and it states that the

feasibility evaluation process is guided by 42 CFR 83.13, but neither the PR 4, Rev. 1 nor 42 CFR 83.13 address the feasibility evaluation process.

In finding two, PROC-44 does not establish the time line for completing the petition evaluation report as required under the regulation, 42 CFR 83.13 and PROC-4.

And in finding three, PROC-44 does not include requirements that the regulation -- that are in the regulation regarding the Board's role in providing information to the secretary and the secretary's responsibilities.

And finding four, PROC-44 was written prior to DCAS PR-004, Rev. 1, and therefore several of the PR-004 references are -- are incorrect.

So, moving on to findings five through eight. Finding five, PROC-44 does not adequately consider the role of the Board and SEC -- or SC&A in the SEC process. And finding six, during the review of petition evaluation reports, there are often issues that surface that are site profile related, and so SC&A's concern is that the procedure does not provide for a discussion on separating those site profile issues from the SEC issues.

Finding seven, there should be less of an emphasis on the site profiles, on user's guides, and those types of documents, and more emphasis on source documents. And then to expand on that, finding eight, to help ensure data adequacy and completeness, guidance should be more specific to the needs -- to evaluate NOCTS to determine we've got all the documents that we -- we need.

Okay. Finding nine, the procedure should provide guidance on identifying specific types of flaws in personnel and area monitoring data and should -- should be -- that should be investigated and to -- and explain how

to perform those investigations. And then finally, the PROC would benefit from referencing the Advisory Board's surrogate data criteria.

So, these -- these ten findings were discussed at the April 2013 subcommittee meeting, and NIOSH agreed with all the findings and stated that the procedure would be revised. There were further discussions of these findings at the July 2013 meeting, and the discussions were -- the findings were placed in abeyance at that time, awaiting for this document to be revised. And then in 2017, Rev. 1 of PROC-44 was issued, and at the November 2017 meeting, SC&A stated that they had determined the findings were properly addressed in Rev. 1, and the subcommittee closed all the findings.

And I also want to make mention here to note that relatively recently, 2020, NIOSH has issued a supplemental document, IG -- Implementation Guide 006, which is the criteria for evaluation and use of coexposure data. IG-6 has been reviewed by the SEC work group, and contains the current guidance on coexposure modeling, data adequacy, data completeness, and really addresses all of the previous findings.

So, that's it for PROC 44.

MEMBER BEACH: Thanks, Kathy. Any questions, comments? Remember, the -- the subcommittee has closed these, and we're just asking for final approval for the closing of -- with the full Board.

CHAIR ANDERSON: Right. And then, like we've done in the past, rather than do a roll-call vote, we're just going to say, is there anyone who objects to us closing these out at the Board level? If not, we're going to accept the report as written, and everything closed out. So, I think we're

good to go. Next one.

MEMBER BEACH: Thank you.

MS. BEHLING: Okay. Let's see here. What is this doing? There we go. All right.

Now we'll discuss the very first PER, performance evaluation report, that was written by DCAS, and it's appropriately labeled OCAS-PER-001. And this is misinterpreted dosimetry records resulting in an underestimate of missed dose at the Savannah River Site, or in Savannah River Site dose reconstructions. This was issued in September of 2003, and the PER assesses the impact of misinterpreting SRS dosimetry records that resulted in an underestimation of missed dose.

An SC&A reviewed this PER under our first set of procedure reviews in January of 2005, and this review was performed prior to SC&A issuing our formal PER procedure, which includes four subtasks. However, our original reviews essentially covered all of the current subtasks except for subtask four, which is a review of a sample set of cases. In this particular case, PER 1, that case -- the case reviews were not necessary, as I will explain.

So, the misinterpretation of the records was discovered in September of 2003, and it involved dosimetry records between 1973 and 1988. During this time, it was assumed that the data gaps on an SR -- yeah -- SRS form were missing badge cycles. If there were missing badge cycles on that form, that that meant that the EE was not monitored. However, it was determined that the missing badge data -- badge cycle data on this SLHP3 form could indicate that the individual was not monitored, but it could also indicate that the worker was monitored, and the results were less than the

limits of detection. So in addition, if data was missing for an entire year, this could also mean that the EE was not monitored, that the data for that year was less than the LOD, or a combination of both.

So, in this PER, NIOSH also noted it came to light that in August of 2003, that the Savannah River Site site profile contained on-site ambient doses between 1974 and 1988 that were significantly overestimated. When they compared the overestimate of the on-site ambient dose to the underestimate of the missed dose, it was determined that the ambient dose overestimate was greater than the misinterpretation of the SRS records. So, as part of their evaluation process, NIOSH assessed the net impact of the two errors, not only on the dose but also on POC values. They looked at the top 10 cancer claims at SRS, and NIOSH determined that the net effect of those two errors nearly canceled each other out and that there was actually a slight claimant-favorable bias because of the overestimation of the ambient dose.

Okay. The corrective action taken by NIOSH. The corrective actions actually were they issued an OCAS-TIB-6, which provides guidance on the proper interpretation of the SLHP3 form. Also, NIOSH corrected the on site ambient dose values in August of 2003 with the issuance of Rev. 1 of the Savannah River Site site profile. And due to the canceling effect of the two errors, it was not necessary for NIOSH to rework any cases.

So, SC&A's evaluation of PER-1 assessed the approach taken by NIOSH for quantifying the magnitude of the errors and their evaluation of the impacts, and we concluded that the analysis was technically correct and fair to the claimant. And in addition, SC&A also reviewed TIB-6, which is our

next TIB for discussion. And so, that summarizes PER 1.

MEMBER BEACH: Thanks, Kathy.

CHAIR ANDERSON: Any questions? That was pretty straightforward. Thank you.

MEMBER BEACH: Yeah. Yes.

CHAIR ANDERSON: Okay. Anyone disagree with adopting the reports and moving forward? Since no one is objecting, we'll unanimously adopt it. Thank you. Moving forward.

MS. BEHLING: Okay. We're moving right along.

All right. And as we just discussed in PER-1, OCAS TIB-6 was issued to provide appropriate guidance for interpreting the external dosimetry records at Savannah River. Rev. 1 was issued in February of 2004, and the TIB provides guidance, not only for the interpretation of the dosimetry records for 1973 through '88, but also in reconstructing shallow dose. And SC&A reviewed this again in January of 2005 under our first set of procedures, and we had three findings that were presented to the subcommittee in October of 2005.

Again, I am just going to summarize these findings because the resolution is the same. Find -- in finding one, SC&A found the guidance for correcting dosimeters with aluminum filters between 1954 and 1981 to be complex, confusing, and it was not clear on which dosimeter -- dosimetry data really required refinement. Finding two also stated that it was not clear whether the TIB guidance replaces guidance in the Savannah River site profile. And finding three, we felt that there was -- clarity was needed regarding which time frames required interpretation of the shallow dose.

And at the July 2006 SR -- subcommittee meeting, NIOSH agreed with all these findings and stated that they would either revise TIB-6, or they would incorporate this guidance into the Savannah River site profile and cancel TIB-6. It was decided that they were going to revise TIB-6, which they did in October of 2007. They issued Rev. 2, and SC&A reviewed that revision and determined that all findings were properly addressed, and the subcommittee closed those findings at the November 2007 meeting. Another quick one.

MEMBER KOTELCHUCK: Okay.

CHAIR ANDERSON: Okay.

MEMBER BEACH: We good?

MEMBER KOTELCHUCK: Yeah.

CHAIR ANDERSON: Moving quickly.

MEMBER BEACH: Yeah.

CHAIR ANDERSON: Anyone object to adopting this one as well on OCAS TIB 007 (sic), Rev. 0 (sic)? Objections? None. Therefore, we will adopt unanimous approval and acceptance.

MEMBER BEACH: Kathy, you're going to put us back on schedule.

CHAIR ANDERSON: Yeah.

MS. BEHLING: Okay. Yeah, I'm sure this is going to be a reprieve for someone who may not have to listen to me for 90 minutes. Anyway. Okay. We're going to move on to TIB-7.

This is another Savannah River site TIB that involves neutron exposures. It was issued in September 2003, and it provides supplemental guidance on potential neutron exposures for various workers, workers who

were employed prior to 1971 when the thermoluminescent neutron dosimeters were implemented, or if the EE was monitored with a Type A (NTA) film badge, which under responds to neutrons that are less than 500 keV prior to 1971, and workers who were potentially exposed to neutrons post 1971 through 1980. And that's because the criteria then specified that monitoring was only provided when it was determined that the neutron field was greater than 1 millirem per hour. And as a result, nonroutine workers may not have been adequately monitored.

So, SC&A, again, reviewed this back in January 2005 and had two findings, and our review was presented to the subcommittee in October 2005. Okay. The two findings. First, there was a lack of guidance regarding which occupations may be exposed to the neutrons at Savannah River. And second, in conditions where work areas were not known or it's not clear, the guidance regarding neutron exposure should -- should be -- should be included, and it's subjective, requires professional judgment and is a bit contradictory.

So, NIOSH agreed with both those findings and, again, stated that they would either revise the TIB or the site profile. The TIB was revised, and Rev. 1 of TIB-7 was issued in October of 2007. And at the November 2007 subcommittee meeting, SC&A informed the subcommittee that based on its review of Rev. 1, the findings were properly addressed, and so the subcommittee closed both findings.

There's another one.

CHAIR ANDERSON: Okay. Same thing here. No questions? If there are no objections, we will adopt the proposal as discussed for OCAS-TIB-

007. Moving right on, Kathy.

MS. BEHLING: Okay, thank you.

All right. Another older TIB is OCAS-TIB-8, which is the use of ICRP 66 to calculate respiratory tract doses, and ICRP publication 66 is the human respiratory tract model for radiological protection. This TIB was issued in September of 2003, and it provides guidance on selecting the appropriate surrogate tissue for assigning internal dose to specific organs or tissues of the respiratory tract. Again, SC&A reviewed this in 2005 under our first set of procedures, and we had three findings. And these findings were discussed at the January 2006 subcommittee meeting.

Now, I went back for some of these findings to our matrix style because I wanted to provide a little bit more detail. Finding one is guidance on the use of certain organs as surrogates is not clear. For example, the use of nonmodeled organs for the mouth. And NIOSH responded that based on information in ICRP 66, they concluded that the extrathoracic region 2 does not apply to the mouth, and the highest nonmetabolic organ should be selected. Two years later, NIOSH issued Rev. 1 of TIB-8, which provided more details about the assignment -- assigning dose to the mouth, and this Rev. satisfied SC&A's finding, and therefore the subcommittee closed the finding at the November 2007 meeting.

And finding two, the guidance is not clear on which highest nonmetabolic organ to select when there are large differences among those -- those nonmodeled organs. And NIOSH agreed that the TIB did contain two contradictory statements, and they stated they would revise the TIB to provide more clarity in the guidance. And that revision was issued in

2007, and SC&A found that the revision adequately addressed their findings, and the subcommittee closed the finding at the November 2007 meeting.

Finding three, Section 4.2 of TIB-8 is mouth, nose, and throat, and specifies assigning the mouth as the highest nonmetabolic organ, and SC&A felt that this did not comply with ICRP 66. And NIOSH's response was to point SC&A and the subcommittee back to their response to finding one, and they did subsequently revise the TIB to the satisfaction of SC&A and the subcommittee, and the finding was closed.

So, OTIB-8 -- or TIB 8, not OTIB. TIB 8.

CHAIR ANDERSON: TIB-8, not TIB-8, Rev 1. Okay, this is OCAS-TIB-8, closed out by the committee, and if there's no objections, we'll make a unanimous decision to accept the recommendation to accept the revisions that NIOSH has made. We can now move on.

MS. BEHLING: Okay. Okay. And not to be confused with TIB-8 like I just did, our next document is ORAUT-OTIB-8, and this is a technical information bullet -- bulletin for a standard complex wide conversion correction factor for overestimating external doses measured with a thermoluminescent dosimeter. There's a companion to this, which I've already presented, which is OTIB-10, and that has to do with a correction factor for the film badges. But this TIB -- OTIB was issued in November of 2003, and it develops a correction factor that will generate a reasonable overestimate of external doses measured by a TLD, and it should only be used -- it's -- it's typically only used for claims that are likely not compensable.

SC&A reviewed this document, again, in 2005, and the discussion was

held with the subcommittee in January of 2006. So, I've grouped together three of the four findings here, again, because the resolution is the same. Finding one is that the procedure lacks clarity and is often misinterpreted by the dose reconstructors. Finding two, the document contains excess -- an excessive amount of up-front background information and does not provide the dose reconstruction with guidance for its implementation until the end of the document. And a reviewer suggested that the OTIB would benefit from relocating the implementation guidance to the beginning of the document.

And then finding four, guidance does not inform the user of the document that this correction factor eliminates the need for uncertainty. So, in other words, the dose would be entered into IREP as a constant rather than entered with some type of uncertainty.

Okay. The resolution for those three findings was that NIOSH agreed with the findings and stated that they would revise the document. That did happen. Several months later they issued Rev. 1 of OTIB-8, and based on that revision, SC&A determined that the three findings were adequately addressed, and the procedure subcommittee closed the findings at their June 2008 meeting.

Okay. I'll elaborate just a little bit more on finding three from OTIB-8. This finding states that OTIB-8 does not identify its hierarchical position among competing procedures. For example, it's unclear whether the dose reconstructor has the option to use OTIB-8 or, at the time, there was a PROC-6, Attachment D2. And PROC-6's title is "External Dose Reconstruction." And the Attachment D2, the title of that attachment is "External Dose Record Desk Instructions for Likely Less Than 50 Percent POC

Cases for Monitored Covered Employees." Quite a title.

NIOSH stated that they would review PROC-6 and OTIB-8 for consistencies and make modifications as needed. And what happened is initially PROC-6 was revised, and they eliminated Attachment D2, but subsequently the PROC-6 procedure was canceled. And S -- the subcommittee closed the finding at the June 2008 meeting based on those actions by NIOSH.

That's --

CHAIR ANDERSON: Any --

MS. BEHLING: -- OTIB-8.

CHAIR ANDERSON: questions? If there's no questions, we'll unanimously adopt the recommendation and the NIOSH response to the review to close this out. So, more? One more?

MS. BEHLING: Okay, there's more. Okay.

We are on to ORAUT-OTIB-0028, Rev. 1. This OTIB is the validation of thorium annual dose conversion factors. And Rev. -- Rev. 1 was issued in March of 2005. Because IMBA is not designed to emulate independent kinetic -- kinetics for radionuclides with progeny chains, ORAUT generated annual thorium dose conversion factors to be used for internal dose assessment. So, OTIB-28 is a verification of these correction factors.

And SC&A reviewed it in June of 2006, and we had four findings. And these were discussed at the August 2007 subcommittee meeting. Okay. Finding one. There were several files that were listed in the OTIB that SC&A did not have access to. And we needed those in order to perform an independent verification of these correction factors. So, NIOSH provided

those files to us, and SC&A was able to verify the -- the dose correction factors, and we found the data to be valid. And based on that, the subcommittee closed the finding in 2007.

Finding two and three, again I grouped together. Guidance is required when there is a chronic exposure to type M Thorium 232 or Thorium-228. And finding three, guidance is also needed when there is an acute intake of Type S for the same two radionuclides.

And NIOSH agreed with those findings and issued Rev. 2 of the OTIB in 2008. And based on SC&A's review of this revision, it was determined that the revision adequately addressed the findings, and the subcommittee closed those findings in October of 2008.

Finding four. SC&A thought that there should be some guidance on how to handle potential intakes of thorium particles with a diameter different than the assumed 5 micrometers. NIOSH responded that they were not aware of a different AMAD diameter was being -- was ever being applied, and they stated that the ICRP 66 uses this diameter as a default value for occupational exposure. And SC&A agreed with that response, and so the subcommittee closed the finding.

CHAIR ANDERSON: Okay. Any questions? Any objections to accepting the recommendation by the committee to close OTIB-028? Hearing none, we'll unanimously adopt the recommendation.

MS. BEHLING: Here we go with the last one. ORAUT-OTIB-79. This is an OTIB for guidance on assigning occupational X ray dose under the EEOICPA for X rays administered off site and -- which was issued in January of 2011. And this OTIB was issued to provide guidance on when occupational

doses should be included in the dose reconstruction based on NIOSH's interpretation of the EEOICPA statute language.

So, SC&A reviewed this back in two -- back in January 2013, and we had no findings. And this was discussed at the February 2013 subcommittee meeting. OTIB-79 guidance states that NIOSH interpreted the statute to mean that covered radiation is radiation recorded -- yeah -- recorded by a covered employee at a covered facility during a covered time period. Therefore, if X ray exams were performed at a noncovered facility or some off site facility, such as a physician's office or clinic or local community hospital, the associated dose would not be included in the dose reconstruction. NIOSH based this interpretation on guidance in their DCAS IG -- implementation guide. It's IG 003, which is "Radiation Exposures Covered for Dose Reconstructions under Part B of the Energy Employees Occupational Illness Compensation Program Act." OTIB-79 does include a table listing the sites where X ray exams were administered at locations other than the covered facilities.

So, in SC's -- in SC&A's review of OTIB-79, SC&A stated that its role is to provide technical support to the Board, but that role does not include commenting on DCAS's interpretation of the statute. DCAS's interpretation is contained in IG-003, which SC&A has not been tasked for review and -- but SC&A was able to conclude that based on IG-003's interpretation of EEOICPA is stated in OTIB -- is stated in OTIB 79, and so SC&A has no technical findings. And that concludes OTIB-79.

CHAIR ANDERSON: Okay. Any -- any questions or objections to accepting the committee's recommendation to close out OTIB-0079? No

objections, it's unanimously accepted.

MS. BEHLING: Okay. Thank you. Thank you for your time.

MEMBER BEACH: And Kathy, thank you. Thank you for your excellent reporting, as always. We appreciate that.

MS. BEHLING: Thank you.

CHAIR ANDERSON: It's reassuring that we're now closing out some 20-year-old documents.

MS. BEHLING: Agreed.

CHAIR ANDERSON: Needs to be done. We're kind of wrapping up all the loose ends on things, and it's good to see that they were all resolved.

So, next we're scheduled for a break for a period here, and I assume everybody would like to break, and we'll come back for a board work session and correspondence, and then close out with the public comment. I'm going to expect everybody back tomorrow. We're going to have an interesting long session and discussion about Pinellas and some other good findings.

MEMBER BEACH: How -- how long are we breaking for?

CHAIR ANDERSON: Until 4.15.

MEMBER BEACH: Okay.

CHAIR ANDERSON: I don't think the work session is going to take more than 45 minutes, so we don't have that much correspondence to deal with.

(Whereupon, a break was taken from 3:36 p.m. EDT until 4:15 p.m.)

DR. ROBERTS: Just a quick check to see if the court reporter is back on.

THE COURT REPORTER: Yes.

DR. ROBERTS: Okay, great. And I'm going to do a quick roll call for the Board, Starting with Anderson.

CHAIR ANDERSON: Present.

DR. ROBERTS: Beach? Clawson?

MEMBER CLAWSON: I'm here.

DR. ROBERTS: Frank?

MEMBER FRANK: Here.

DR. ROBERTS: Kotelchuck? Lockey?

DR. ROBERTS: Here.

DR. ROBERTS: Martinez?

MEMBER MARTINEZ: Here.

DR. ROBERTS: Pompa?

MEMBER POMPA: Yes, ma'am, I'm here.

DR. ROBERTS: Okay. As I mentioned earlier, Valerio is unable to attend. And Ziemer?

MEMBER ZIEMER: Yes, I'm here.

DR. ROBERTS: Okay. Beach, have you joined?

MEMBER BEACH: Yes, I'm here.

DR. ROBERTS: Okay, great. Kotelchuck? Okay. So, Andy, --

MEMBER KOTELCHUCK: Sorry, I'm here. I was on mute.

DR. ROBERTS: Great, sure. Okay, thanks, Dave. So Andy, over to you.

WORK SESSION AND CORRESPONDENCE

CHAIR ANDERSON: Okay. Rashaun, should I start with the revised letter?

DR. ROBERTS: Yes, please.

CHAIR ANDERSON: Okay. This is an update. We found out after the fact when I read the letter to the secretary on M&C SEC that there had been a revision since the one I had. So, there's an added sentence in it, but I'm now going to have to reread the whole letter to the secretary into the record. So here we go.

(Reading:) Dear Mr. Secretary, the Advisory Board on Radiation Worker Health Board has evaluated Special Exposure Cohort Petition-00236 concerning workers at the Metals and Controls Corp. ("M&C") in Attleboro, Massachusetts under the statutory requirements established by the Energy Employees Occupational Illness Compensation Program Act of 2000 and incorporated into 42 CFR 83.13.

The Board respectively recommends SEC status be accorded to all atomic weapons employees who worked at Metals and Controls Corp. in Attleboro, Massachusetts from January 1, 1968 through September 21, 1995, 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 by one or more other classes of employees included in the special exposure cohort. This recommendation is based on the following factors: M&C is an atomic weapons employee ("AWE") covered facility from January 1, 1968, through March 21, 1997.

M&C employees may have been exposed to radioactive contamination resulting from previous AWE facility weapons-related work. M&C workers were engaged in construction and maintenance activity that involved exposure to residual low-level contamination related to prior nuclear weapons production and related operations involving uranium and thorium. The scope and degree of intrusive work activities by construction and maintenance workers during the residual period included pipe clean outs, underground utility replacement and maintenance, and subsurface construction activity. M&C workers may have been in close proximity and exposed to contaminated dust and aerosols while working within poorly ventilated spaces, such as ditches and pits without respiratory protection, radiological controls, monitoring, and safety oversight.

NIOSH regards the pre decontamination and decommission ("D&D") activities by M&C workers at the end of the residual period to be similar to their construction and maintenance activities during the preceding 27 years of the residual period. The Board believes the uncertainties about the source terms, the conditions and processes during that earlier period and the impact of those activities may have had on resulting dose levels suggests that the NIOSH dose reconstruction methods may not account for all worker exposure scenarios and circumstances during that earlier residual period.

These uncertainties relate to M&C maintenance workers' exposure to interior drain pipe surface contamination scale and sediment during pipe cutting and replacement. Those source terms may have been influenced by regular discharges of what a worker described as a coagulant oil in 1968 to

1981 and two internal contamination of repurposed AWE-era machinery and equipment being serviced. No radiation monitoring of M&C construction maintenance workers was conducted during the residual period. The Board finds that other facility processes, process monitoring, and read -- and source term information available is not sufficient to estimate internal uranium and thorium radiation exposures were necessary to conduct individual dose reconstructions at M&C during the period January 1, '68, through September 1, 1995.

The Board's review of available M&C data found that NIOSH lacked sufficient information, which includes internal radiation exposures to residual uranium and thorium where members of the proposed class who may have been exposed from January 1, 1968, through September 1, 1995. Therefore, the Board finds there to be insufficient information to enable NIOSH to estimate with a sufficient accuracy radiation dose that the proposed class may have been exposed to during the time period in question.

NIOSH has determined that available information is sufficient for use of dose reconstruction of external doses in accordance with existing NIOSH methods and procedures. The Board concurs with this determination. The Board determined that health may have been endangered for the workers exposed to radiation during the time period in question. Based on these considerations and the discussion of the April 17, 2024, Zoom Board Meeting, 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. The documentation -- documentation includes copies of

the petition, the NIOSH review thereof, and related materials. If any of these items are unavailable at this time, they will follow shortly.

Sincerely, Henry Anderson, M.D., Chair, Advisory Board on Radiation and Worker Health.

I hope I got the right one this time. Okay. So, what more do we have for our work session? We want to go over the -- any updates from committee members? A number of meetings that we had hoped to have had completed were postponed. So, are there any other updates from the committees or work groups?

MEMBER ZIEMER: Henry, before we do that, a quick question. This is Paul. Do we have a copy of this wording?

CHAIR ANDERSON: Rashaun, was that sent out?

DR. ROBERTS: Yes, it -- it was sent out in one of my emails before we had finalized everything. So yes, it had been sent out. We can re-send it, though.

MEMBER ZIEMER: Was this -- this -- I'm looking in what I got for this meeting. Maybe it was sent out earlier, and I missed it.

DR. ROBERTS: Yes. It was sent out before the teleconference, which was when it was read into the record, but the wrong version was read in. The correct version was sent around to the Board, but I can't say --

MEMBER ZIEMER: Oh, okay.

MEMBER KOTELCHUCK: Okay.

CHAIR ANDERSON: I think the only change was the second to the last bullet on the second page. It --

MEMBER ZIEMER: Yeah, that's really what -- what I was going to ask.

Just remind us what was changed. That's all I need.

CHAIR ANDERSON: That was the NIOSH determination that available information was sufficient for use in external doses, that our SEC was determined on internal doses.

MEMBER ZIEMER: Okay. That was the only real change.

CHAIR ANDERSON: That was the only one, yeah.

MEMBER ZIEMER: Yeah, okay, that's -- that's all I needed. I'll go back and find the original version, or the -- the written version. I -- I'm sure it's in the email. I just had been looking for it here in the documents for the meeting here.

CHAIR ANDERSON: Not in the --

MEMBER ZIEMER: Okay, thank you. That's all I needed.

CHAIR ANDERSON: Not in the 16 attachments that came in --

MEMBER ZIEMER: No, no. Okay. Thank you.

CHAIR ANDERSON: Okay. So, updates by work groups, committees, subcommittees?

MEMBER CLAWSON: Yeah. Henry, this is Brad. I just -- we had a TBD change to Savannah River. We haven't been able to task SC&A to review it yet. I guess what I'd kind of ask if John is available, that if he could kind of explain a little bit to us, a little bit about the changes that were made to that TBD.

DR. TAULBEE: This is Tim. I don't know if John is available or not. John, are you on? If not, I'll go ahead. Okay. Brad, what -- what changed is that the original TBD was one volume, and that was done many, many years ago.

Since then, we've broken it into different parts where we have a site description, you have the medical X-rays, you have the environmental dose, internal dose, and external dose. So, what we've done is we've broken this apart into the individual sections and updated it since then. So, all of these sections are being updated and modified as a result of the discussions within the SEC context.

In particular, with the coexposure models and all of the things that we've learned during the SEC process with regards to neptunium and thorium and all of the addition of the SEC that happened with the thorium for the early years, and then the construction trades for the latter years. So, the whole thing has changed. So, I can't give you line by line because really too much has changed. You really should go through and review all of these TBDs anew.

MEMBER CLAWSON: (Indiscernible.)

DR. TAULBEE: I'm sorry, you're breaking up.

MEMBER CLAWSON: I said I have been trying. It is quite a bit there. And that was kind of why I was wanting for an overall general of what actually changed. So, is this just at Savannah River that we're -- that we're doing this, or is there other sites that this is -- that you guys are doing this with, too? Was this just for Savannah River?

DR. TAULBEE: Well, Savannah River was the big one, because it still was one volume. It's now been broken apart. INL is going through significant changes as well right now with regards to the addition of the coexposure model and the changes to how we're doing internal dose there. So, the internal dose TBD is being significantly revised as a result of the SEC

as well. So, it depends upon the site at the particular time.

I fully expect that once Hanford's coexposure model is done, it's under -- it's going to undergo a pretty big significant revision as well.

MEMBER CLAWSON: Oh, okay. Well, that's -- that's what I was trying to understand. I hope -- I hope in the future that -- 'cause we kind of used to do this in correspondence with one another with SC&A. I hope we can do that in the future. This -- this -- this one's kind of a little bit interesting, but I appreciate that update, Tim.

MEMBER ZIEMER: Henry, this is Paul again. I have a sort of question on the status of a couple reports for Portsmouth's Gaseous Diffusion Plant. I believe SC&A has recently completed two reviews, one on the coworker exposure model and the other on the external coworker. One on internal and one on external for Portsmouth's Gaseous Diffusion Plant. And I was wondering if NIOSH needs to prepare their response before the work group meets on this. Tim, do -- can you tell us -- and -- and I know this is very recent. I believe it was May or June that those reports came out -- came from SC&A.

DR. TAULBEE: Right, I believe --

MEMBER ZIEMER: (Indiscernible.)

DR. TAULBEE: -- that those are coming through the subcommittee for procedures review.

MEMBER ZIEMER: One of those -- one of them is. I think the --

DR. TAULBEE: I believe both of them are. And SC&A had not presented those responses yet. One of them has one observation and the other has two, as I recall. One's on the internal dosimetry coworker data for

Portsmouth, --

MEMBER ZIEMER: Right.

DR. TAULBEE: -- and the other's on the external.

MEMBER ZIEMER: Oh, okay. Can we -- SC&A, can you confirm where -- did those just go to the featured subcommittee?

MR. BARTON: Yeah, Dr. Ziemer, this is Bob. I believe they were sent April and maybe June. And they were the external and internal coworker models, and they -- I don't believe they've been discussed yet. So, I think Tim was correct on that, but they --

MEMBER ZIEMER: Oh, okay.

MR. BARTON: -- go to the procedures subcommittee.

MEMBER ZIEMER: Okay. I wasn't sure who was responding first on this. Okay. Very good. Thank you.

DR. BUCHANAN: Yeah, those were sent -- this is Ron Buchanan with SC&A. Those were sent -- the noncleared version to the work group on May 29th of 2024, both of them.

MEMBER ZIEMER: Thank you.

CHAIR ANDERSON: Other updates? Okay. Rashaun, you want to talk about the next meeting?

DR. ROBERTS: Sure. Actually, let me go over the April public comments before I get to that.

CHAIR ANDERSON: Okay.

DR. ROBERTS: So, there were, I believe, 10 or no, 11 comments that were offered to the Board during the April Board Meeting. And most of these comments pertain to specific SECs. There were comments that were made

in relation to Pinellas, including, you know -- offering a suggestion of where to hold the next Board Meeting in person. Comments about holding -- or suggestions that NIOSH and DCAS hold face to face interviews in Pinellas, and some other such comments about that. And -- and generally, where we are with that is that the Pinellas work group really hasn't had a time to meet, but some of these things will be covered in that work group meeting, which hopefully will be rescheduled sometime in the near future.

There were a couple of comments about Metals and Controls. And as people might remember, the Board voted to recommend that Metals and Controls be added an SEC -- added to the SEC. And let me see what else.

And then there were a couple of more technical questions that were put out. And again, for those, I think it is a matter of the work groups having an opportunity to discuss some of those issues. And they just haven't been able to up until now. But as I said, you know, those meetings will be rescheduled at the earliest possible opportunity.

So, that is all I have for the public comments, Andy.

CHAIR ANDERSON: Okay.

DR. ROBERTS: So, moving on to scheduling the work group meetings. Let me pull up where we are. So, I think we're pretty well scheduled out. We have our next meeting would be scheduled -- we have a teleconference scheduled for October 9th, so that would be our next meeting. And we scheduled, I believe, all the way through April of next year, which would be a full Board Meeting on April 23rd to 24th.

So, we would need to schedule a teleconference for some time in June of 2025. And then a full Board Meeting in August of 2025. So, if you have

your calendars, we can look at some dates. Typically, the best days for the meetings are Wednesday and Thursday, although we've had meetings scheduled other days. So, looking at June of next year. Is there a part of the month that is better for some than others? Otherwise, we could maybe go for mid-month if that's okay with people.

MEMBER BEACH: Works for me.

DR. ROBERTS: Okay. If we're going for mid-month, there's June 18th and also the 19th. Any preference?

MEMBER BEACH: Either of those work for me, Rashaun.

DR. ROBERTS: Okay. Well, that being the --

MEMBER ZIEMER: I'm okay on either one.

CHAIR ANDERSON: Yep, so am I.

DR. ROBERTS: Okay. How about then, if it's okay with everyone, we could do the 18th, which is a Wednesday?

MEMBER BEACH: Okay.

DR. ROBERTS: Okay. And then moving on to --

CHAIR ANDERSON: Ten o'clock in the morning?

DR. ROBERTS: Probably 11:00.

CHAIR ANDERSON: 11:00, I mean, but 10:00 my time.

DR. ROBERTS: Oh, yeah.

MEMBER BEACH: Yeah.

DR. ROBERTS: Right, that's right. So, 11:00 Eastern, we'll say that.

Okay. And then moving on to August. I know that that is a little problematic in terms of schedule. Let's see. How is early in the month for people?

MEMBER BEACH: So, Rashaun, I'm out until August 6th.

DR. ROBERTS: You're out until --

MEMBER BEACH: So, the first week wouldn't work for me personally.

DR. ROBERTS: Okay. Okay. In that case, how is the -- I would say the last week, I have some conflicts, like the third week. So, the week of the 25th?

MEMBER BEACH: And the week of the 11th is out?

DR. ROBERTS: Yes.

MEMBER BEACH: It's clear for me.

DR. ROBERTS: Okay. Does anyone have an issue with August the -- let's call it 27th and 28th, that Wednesday and Thursday?

CHAIR ANDERSON: Nope.

MEMBER ZIEMER: When is Labor Day?

MEMBER BEACH: It looks like -- I think it's the 25th but let me double check.

CHAIR ANDERSON: No, it's the 1st.

MEMBER BEACH: Oh, it's September 1st, yeah.

CHAIR ANDERSON: Monday, yeah.

MEMBER BEACH: So, that'll get -- that might get into some travel plans for people.

CHAIR ANDERSON: Yeah, if we do 27th. 27th, 28th is...

DR. ROBERTS: Okay. What about earlier in the week? So, --

MEMBER BEACH: Sure.

DR. ROBERTS: -- 26th, 27th?

CHAIR ANDERSON: Yeah.

DR. ROBERTS: Okay. Okay. So, we'll go with the 26th and 27th tentatively for August.

CHAIR ANDERSON: Where?

DR. ROBERTS: Okay. Well, at least we've got the dates lined up for those, Andy. So, I think that's what I needed to cover with that. Okay.

MEMBER BEACH: Do we know if December is going to be an in-person at this point or not?

DR. ROBERTS: I think that's something we probably, you know, could cover at the October teleconference.

MEMBER BEACH: Okay. I'm going to be absent of the October teleconference. I can tell you that now.

DR. ROBERTS: Okay. Well, Andy, that's all that I have. I don't think I have anything else at this point.

MEMBER CLAWSON: What -- what -- what date was the December meeting that you were wanting? I missed that. I'm sorry.

DR. ROBERTS: December 4th and 5th is what we have down.

MEMBER CLAWSON: Okay.

CHAIR ANDERSON: What was December again?

MEMBER CLAWSON: 4th and 5th.

CHAIR ANDERSON: Yeah, okay. Okay. I just heard my doorbell ring, so I got to run. So, are we going to -- we have nothing else, do we have until the public meeting at five o'clock?

DR. ROBERTS: Yes, public comment session at 5:00.

CHAIR ANDERSON: So, -- go ahead.

DR. ROBERTS: Yeah, if people could get here maybe a couple of

minutes before 5:00 at the latest, just so I could do the quick roll call, and we could start about 5:00, that would be great.

(Whereupon, a break was taken from 4:41 p.m. EDT until 4:59 p.m. EDT.)

DR. ROBERTS: Final time today, starting with Anderson.

CHAIR ANDERSON: Present.

DR. ROBERTS: Beach?

MEMBER BEACH: I'm here.

DR. ROBERTS: Clawson?

MEMBER CLAWSON: I'm here.

DR. ROBERTS: Frank?

MEMBER FRANK: Here.

DR. ROBERTS: Kotelchuck?

MEMBER KOTELCHUCK: Here.

DR. ROBERTS: Lockey?

MEMBER LOCKEY: Here.

DR. ROBERTS: Martinez?

MEMBER MARTINEZ: Here.

DR. ROBERTS: Pompa?

MEMBER POMPA: Here.

DR. ROBERTS: And Ziemer?

MEMBER ZIEMER: Here.

DR. ROBERTS: Okay, great. I have five o'clock Eastern, Andy.

PUBLIC COMMENTS

CHAIR ANDERSON: Okay. I want to open public comment period. Did we have any notifications, or I think you have one letter to read.

DR. ROBERTS: Yes. There's one comment that was submitted, but is Dr. DeGarmo there? Okay. Then let me pull that up.

Okay. So this is from Dr. Denise DeGarmo -- DeGarmo, sorry. So, it says, (reading): Dr. Or Rashaun and Dr. Anderson, on behalf of the Pinellas Nuclear Weapons Workers, I would like to thank you for inviting me to make a research presentation in front of the full Board tomorrow, August 8, 2024. We are very much looking forward to this opportunity and are appreciative of you listening to our concerns. Sincerely, Dr. Denise DeGarmo, Author and authorized petition representative.

And, Andy, I wasn't informed that there were other folks who -- who would like to be -- to have comments ahead of time, but if anyone would like to, they're certainly welcome to come forward.

CHAIR ANDERSON: If there's anybody on the call here, unmute yourself and identify yourself. We'd be happy to hear your comments. We have a few displayed phone numbers, so there must be some. No comments?

If not, any comments to add to our work session with the Board? If not, we could adjourn for the day, if I hear a motion to do so.

MEMBER BEACH: Andy, I'll make that motion to adjourn for today.

MEMBER CLAWSON: I'll second that one.

MEMBER KOTELCHUCK: All right.

CHAIR ANDERSON: Thank you, both. I assume all are in favor of it. If not, if you've got some issue you'd like to raise, please do so. If not, we'll stand adjourned until tomorrow morning at eleven o'clock.

(Whereupon, the meeting was adjourned at 5:03 p.m. EDT.)