CENTERS FOR DISEASE CONTROL AND PREVENTION

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

ADVISORY BOARD ON RADIATION AND WORKER HEALTH

SAVANNAH RIVER SITE WORK GROUP MEETING

TUESDAY, MARCH 17, 2026

The meeting convened at 11:22 a.m. EST

Bradley Clawson, Chair, presiding.

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Members Present:

Clawson, Bradley, Chair

Lockey, James, Member

Pompa, David, Member

Ziemer, Paul, Member

Registered Participants:

Roberts, Rashaun, Designated Federal Office (DFO)

Arnaud (ph), Matt, Oak Ridge Associated Universities (ORAU)

Barton, Bob, SC&A

Behling, Kathy, SC&A

Buchanan, Ron, SC&A

Cardarelli, John, National Institute for Occupational Safety and Health (NIOSH)

Chalmers, Nancy, ORAU

Fitzgerald, Joe, SC&A

Gogliotti, Rose, SC&A

Holzberger, Malia, Department of Health and Human Services (HHS), Office of General Counsel (OGC)

Hughes, Lara, NIOSH

Mangel, Amy, SC&A

Marion-Moss, Lori, NIOSH

Nelson, Charles, NIOSH

Ostrow, Steve, SC&A

Rutherford, LaVon, NIOSH

Tribett, Zachariah, ORAU

Registered Members of the Public:

DeGarmo, Densie

TABLE OF CONTENTS

PROCEEDINGS

(11:22 a.m. EST)

WELCOME AND ROLL CALL

DR. ROBERTS: Okay. Well, again, thank you, everybody, for your patience. These things can happen. And as I said, there were a number of people having difficulty getting into the meeting this morning. So, perhaps there's some sort of system problem. But it is about 11:22 a.m. I'd like to go ahead and wish everyone a good morning and welcome everybody.

This is the Advisory Board on Radiation and Worker's Health meeting of the Savannah River Site Work Group. My name is Rashaun Roberts, and I am the Designated Federal Official for the Board, or DFO.

With that, I just wanted to talk a little bit about some logistics. There is an agenda, and there are presentations and other meeting materials for today on the NIOSH website under Board meetings for March of 2026. Since Board members who have conflicts with regard to this site can't sit on this work group, there are no conflicts of interest for the work group members for the site. Other staff do, as we do roll call, need to state any relevant conflicts as I move through. So, starting with the Work Group Chair Clawson, are you here?

CHAIR CLAWSON: Yes, I am.

DR. ROBERTS: Lockey?

MEMBER LOCKEY: I'm here.

DR. ROBERTS: Pompa?

MEMBER POMPA: Yes, ma'am.

DR. ROBERTS: And Ziemer?

MEMBER ZIEMER: I'm here.

DR. ROBERTS: Okay, great. Let's move on to NIOSH and ORAUT.

MS. MARION-MOSS: Lori Marion-Moss, no conflicts, NIOSH.

MR. LAVON RUTHERFORD: Lavon Rutherford, no conflicts.

DR. NELSON: This is Charles Nelson, no conflicts.

DR. CARDARELLI: This is John Cardarelli, no conflicts.

DR. HUGHES: Lara Hughes, no conflicts.

DR. ROBERTS: Okay. Anyone else for DCAS or ORAUT?

MR. TRIBBET: Zachariah Tribbet, ORAU (sic), no conflicts.

DR. ROBERTS: I'm sorry, can you repeat your name?

MR. TRIBBET: Zachariah.

DR. ROBERTS: That's your last name?

MR. TRIBBET: Oh, no, sorry. First name Zachariah, last name Tribbet.

DR. ROBERTS: Okay. Thank you. Okay. Anyone else for DCAS or ORAU?

MR. ARNAUD: Matt Arnaud (ph), ORAU Team, no conflict.

DR. ROBERTS: Okay. Can you repeat that --

MS. CHALMERS: Nancy Chalmers, --

DR. ROBERTS: Okay. I have Nancy Chalmers. There was someone else that was speaking.

MR. ARNAUD: Matt Arnaud (ph).

DR. ROBERTS: Okay. Last call for DCAS, ORAUT. Let's move to SC&A.

MR. BARTON: Bob Barton, no conflicts.

MS. BEHLING: Kathy Behling, SC&A no conflict.

DR. BUCHANAN: Ron Buchanan, SC&A, no conflict.

MR. FITZGERALD: Joe Fitzgerald, SC&A, no conflicts.

MS. GOGLIOTTI: Rose Gogliotti, SC&A, no conflicts.

MS. MANGEL: Amy Mangel, SC&A, no conflicts.

DR. OSTROW: Steve Ostrow, no conflicts.

DR. ROBERTS: Anyone else for SC&A? Okay. Let's move on to HHS and contractors. Malia, are you on the line?

MS. HOLZBERGER: Malia Holzberger HHS, OGC, no conflicts.

DR. ROBERTS: Okay, great. Wanted to make sure. Anyone else for HHS and contractors? Okay. How about the departments, DOL or DOE? Okay. Are there any members of the public who'd like to register their attendance? DR. DEGARMO: Dr. Denise DeGarmo, authorized petition representative 256 and 267.

DR. ROBERTS: Any other members of the public who would like to register their attendance as well? And hearing none, thank you all so much and welcome. I do need to go over a couple of things before I give the floor over to Brad, who chairs this work group.

In order to keep everything moving smoothly and so that everyone speaking can be heard clearly, please make sure that you're on mute at all times unless you're speaking. So, there's a way to mute yourself on Teams if you're on Teams, and if you're on the phone, you press star six to mute if you don't have a mute button. If you need to take yourself off, press star six again.

The agenda, the presentations, and background documents that are relevant to today's meeting can be found, as I said before, on the DCAS website. If you're participating by telephone, you can find those documents and presentations and the agenda and follow along with them off the website. If you're on Teams, you should be able to see the presentations and follow along. And all of the materials were sent to Board members and to staff prior to the meeting.

So with that, I will go ahead and turn the floor over to Brad.

CHAIR/SANFORD COHEN AND ASSOCIATES, INC. (SC&A) REMARKS: STATUS OF SAVANNAH RIVER SITE WORK GROUP

CHAIR CLAWSON: Hey, Rashaun, I appreciate that. Rashaun, did you want to go over any of this paperwork you sent out to us yesterday, or kind of tell us the background of it, or...?

DR. ROBERTS: No. That -- that was just --

CHAIR CLAWSON: Or --

DR. ROBERTS: That was sent that was just sent to as a reminder. It wasn't something --

CHAIR CLAWSON: Okay. We --

DR. ROBERTS: -- cover in the agenda.

CHAIR CLAWSON: Because I didn't see anything different. I was just wondering about that. With that being said, I'm Brad Clawson. I'm the work group chair for Savannah River. It's been a while since we've been able to meet.

We're -- with -- with that said, we'll kind of get down to business.

Bob, you're going to give a brief overview for the work group, if you would, please.

BRIEF REVIEW: DATA SUFFICIENCY FOR THE PROPOSED SPECIAL EXPOSURE COHORT PERIOD OF 1991 TO 2007 FOR SUBCONTRACTOR CONSTRUCTION TRADE WORKERS

MR. BARTON: Yeah, sure, Brad, I'll take a stab at it. Like you said, it's been a while -- excuse me -- it's been a while for this work group, about a year and a half anyway. Back in September 2024 was the last time the work group met, I believe. And so, there was an update a little later on in 2024 at the full Board meeting.

Given that we got off to a -- somewhat of a late start, I would actually recommend that we dive right into Item 2, which is the SEC discussion that's been going on for quite some time. And I think that might kind of set the table or at least tell the story of that discussion.

CHAIR CLAWSON: That --

MR. BARTON: I, you know, --

CHAIR CLAWSON: That's fine with -- that's fine with me, Bob. That's...

MR. BARTON: Okay. Well, per the agenda and -- this will be under Item 2 -- 2 a. I don't know if NIOSH wants to make some comments. I'm not aware if there's a presentation they wanted to give or just an oral narrative; otherwise, we can move right on to 2 b., and I'll be handling that presentation. So, I guess punt over to NIOSH to see what their position is.

National Institute for Occupational Safety and Health Position

DR. CARDARELLI: This is John Cardarelli. I do have a couple oral comments to present here. And to keep the meeting fairly efficient, a presentation is not really -- was not necessary with regard to any new information.

CHAIR CLAWSON: What --

DR. CARDARELLI: Can you hear me?

CHAIR CLAWSON: Yes, John.

DR. CARDARELLI: Okay. I just wanted to recap that -- excuse me -- the NIOSH position on our ability to reconstruct doses from 1991 through 2007 continues as it -- as it was back in the last meeting; that we can reconstruct doses using co-exposure models. We went through several PowerPoint presentations to provide the evidence that supports that.

In that meeting, both Dr. Lockey and Dr. Ziemer con -- agreed with NIOSH that we could reconstruct doses for this time period. And then the meeting went into a discussion about, you know, compromising public policy issues, things of that nature. And I think what's -- I want to reserve the right to come back and bring back those presentations after Bob's presentation if there's any confusion or if you need additional clarification to remind folks about certain aspects that will be brought up during SC&A's presentation and our responses to it.

But all of the information we have has been presented, and I would like to reserve the right to bring back those old presentations in case the discussion among the work group is needed. Any comments there, Mr.

Clawson? You want me to...?

CHAIR CLAWSON: I appreciate that, John, and we'll -- we'll get into that discussion and go from there. So, we'll turn it over to you, Bob, and push forward there.

SC&A Presentation: "Savannah River Site Special Exposure Cohort (SEC) (1991- 2007): Status"

MR. BARTON: All right. Very good. Hopefully everybody can see the title slide for SC&A's presentation here. So, any acknowledgment would be good.

CHAIR CLAWSON: Oh, yeah. That's good, Bob.

MR. BARTON: All right. Excellent. Excellent. Well, good morning, everybody. And happy St. Patrick's Day, which is a big deal up here in Massachusetts. Again, this is Bob Barton with that SC&A. You probably recognize my voice and would certainly recognize my ugly mug if I kept my camera on.

Again, I'll be giving the presentation under Item 2 today, and per the agenda, I'll strive for brevity insofar as I can. As was stated earlier, the last we met was back a year and a half ago about. And we discussed similar issues as this item, but it was also posed before the Board at its 2024 full meeting in December.

Now, that said, if this material seems like a familiar movie, well, you've probably seen it before, but it is an important one because it speaks as an example of how we treat this program and its people going forward. And I -- I swear I'll get to these slides, but I also wanted to first highlight

Ron Buchanan and Joe Fitzgerald who did the lion's share of work for this SEC period under discussion and that we're focusing on, at least for the moment anyway. And they are both on the line to really back in or answer specific questions about this material.

MEMBER LOCKEY: Bob? Bob?

MR. BARTON: Oops, --

MEMBER LOCKEY: Bob? Jim --

MR. BARTON: -- yep?

MEMBER LOCKEY: -- Jim Lockey. One -- one comment, can you, when you're making this presentation, if there's something new that we didn't hear previously, would you just point that out for me?

MR. BARTON: I certainly will, but I don't think there's anything new from the last time that we met. So, this is really just a refresher to get the discussion going again. As you probably recall, back in September of 2024,

there was extensive discussion on these very issues. However, there were administrative issues with some of the Board members, so an official vote or recommendation put forth before the full Board was postponed, which I think is the purpose of this item for this meeting.

MEMBER LOCKEY: That's great. Thanks, Bob. I appreciate that.

MR. BARTON: No problem.

I guess, before I get into the presentation, yeah, I -- I want to make sure we focus on the crux of the issue under discussion, and that is to basically keep in mind the Board has already evaluated an SEC for subcontractors for the prior period, which is roughly the latter part of 1972 up through 1990, and recommended the SEC for these -- group of workers.

That is, the subcontractor construction trade workers. So, the question now is simply -- or well, not so simply -- is 1990 sufficient to cut off the SEC, or did issues with what we'll talk about, the non-routine job-specific bioassay program, did they continue into the 1990s such that the recommended SEC should be extended. So, I guess with that said, I'll get on with it.

There are clearly other issues for consideration per the agenda, but those really pertain to a discussion of -- of revised technical basis documents and our review of those with a particular focus on how they affect the feasibility of dose reconstruction.

Okay. So, these next two slides are simply to give some background. And, again, this is sort of a refresher, background on the exchange of different white papers and work group meetings that have occurred since that SEC was recommended by the Board. This is why this list here starts in 2021, though, discussions regarding subcontractors and construction workers go back many years for SRS in some shape or form, all the way back to the first work group discussions for SRS, which was all the way back in 2006 or so, so, you know, 20 years.

So, the first bullet, you can see the dates of the Board's previous recommendation, which was, again, up to 1990. And there's an SC&A report focused on that -- this latter period under discussion today, which is 1991 through 2007. And you have NIOSH's response to that focused review and the work groups in 2023 and 2024, and then again, the full Board in December of 2024. And all these documents that I'm gonna refer to here, they're cited here, but there's also a hyperlinks at the end of the presentation for the appropriate and the interested parties.

And here's some more timeline points on reported changes and discussions. You know, SC&A response paper based on discussions at the March 2023 work group meeting. There's also a trio of white papers and responses produced by NIOSH in 2024, which were discussed at those previous meetings.

And the next few slides are really just an overview of the previous SEC again, to frame up the real question that is under discussion about what is the proper end date to recommend for an SEC, whether it stands as is or should we extend it. And we'll get to -- again, this is a refresher, so I'm not going get too far down into the weeds here, but we can certainly answer any specific questions that you might have or might come to or pick up on what those answers are.

So, here's the official recommended class that was submitted by the Board, and I won't -- I won't read all of it, but basically subcontractor construction workers from '72 through 1990. And it is somewhat unique class definition. In this case, it specifically points out that prime contractor employees are excluded from the class. So, that would be DuPont workers and Westinghouse workers who were the prime contractors. It was based on interviews and resulting data captures and data analysis that subcontractor workers were in a different category that needed really to be talked about.

The rationale for the SEC designation is as follows on this slide. It basically boils down to the fact that subcontractors did a significant variety of jobs, but they may have worked in unusual or nonroutine environments. And I'll -- I'll borrow -- borrow this term, but contemporary interviews with

subcontractors indicated that sometimes they were brought in for jobs, especially higher exposure potential. And this was actually pointed out by NIOSH way back in 2017. Also, the subcontractors at SRS were often, to quote, transient. So, a lot of different jobs in different locations and, you know, sometimes short term in the actual employment (indiscernible). This is why this is important works, in that these types of workers would be the most likely to fall under the purview of the job-specific bioassay program, which is distinctly different than the routine bioassay program.

Here is a summation of the chief conclusion in the Board's recommendation letter from back in 2021. And essentially, that it is insufficient or there was insufficient information, which included the job-specific bioassay for subcontractor construction trades workers. Again, this was the recommendation for the '72 to '90 period and, again, today, the discussion is post 1990 on whether dose reconstruction is feasible for those same subcontractor class of -- of workers.

Again, the main question before the work group at present is at what time is there confidence that you have the programmatic policies (indiscernible) in this job-specific monitoring program. These would include the procedures, written procedures and such. They -- those would have to balance with the actual percentage of workers that were submitting these non-routine samples when they should have. Essentially, when were these procedures that were written, when were they being sufficiently implemented? I guess, in other words, at what point has the program evolved to the point where the Board is confident that dose reconstruction would be feasible via the development of a co-exposure model? And I hate

to say this because I think we all agree that we can do the math, but do the numbers that we calculate actually make sense under the auspices of this program for this class of workers?

This last (indiscernible) some questions that we were raised about how you calculate the percentage of workers. This is based on an analysis of radiation work permits. So, what percentage were monitored or were effectively monitored, which we'll get into what that means a little bit later in this presentation. But it basically means they were next to someone else who was monitored, because then one could argue that the unmonitored worker's exposure is represented in the available data set. And the matching of radionuclides was basically when you consider a worker monitored.

The discussion was basically, all right, they monitored for at least one of the radionuclides associated with the radio -- RWP, or should they have been monitored for all of the radionuclides on the RWP? However, I note that this issue was effectively resolved because NIOSH went back and recalculated their values considering both of those criteria.

The next few slides relate to NIOSH's current positions, or at least SC&A's view of NIOSH's current positions, which they may want to modify or comment on, on these key issues.

So, on data completeness, which the issue is again that they found there was an issue with workers submitting their job specific bioassays, that there is some level of incompleteness in the available data set, and that's not because they can't be found, it's because they never existed. NIOSH does note that compliance and completeness aren't necessarily relevant, and

that what is relevant is whether the workers are represented in the data set. That's the whole unmonitored workers standing next to a monitored worker, sort of, theory.

And, I guess, to clarify, when SC&A mentions compliance, we mean compliance with the SRS program documentation, not necessarily regulatory compliance. And it is really meant to be used as a marker on when data can be considered sufficient, again, to construct a co-exposure model. I'll note that completeness as a general term and representativeness are actually two of the four core concepts in NIOSH's own implementation guide on co-exposure modeling. That's IG-006.

So, again, these concepts are really tied at the hip. If you have incompleteness in the data, can you still establish representation with the data that you do have? There's no exact number to be reached. I mean, it could be 70 percent, which has been referred to before. I mean, 90 percent, 99 percent. There's no true answer. So, ultimately, it is really a subjective judgment for the work group and the Board as a whole.

But again, just try to keep things in focus, the issue of completeness was already decided by the Board for the prior period, that is up to 1990. And currently now, we're talking about, again, that latter period, 1991 and on.

Okay. Regarding the job-specific samples, NIOSH contends that the program was simply -- that is, the job-specific program -- an efficient way to add workers to the routine sampling program, and they don't constitute special samples, which special samples in this case are essentially what you refer to as incident related. Something happens, so they were sent to -- to

give their labs. And, you know, SC&A agrees. We agree.

Job specific aren't special samples. Even in the procedures from SRS, this was the 5Q1 document referred to on this slide, were clear that job-specific and special samples are distinctly different. So, we agree on that.

However, the job-specific sampling program was for non-routine hazards. Basically, the worker isn't on the routine program. Otherwise, there'd be no need for assignment of sampling, essentially, you know, in the field. And again, this is not a new issue. The question is when is the Board comfortable with the cutoff date? Is 1990 sufficient, or should it be extended?

This is -- slide describes the discussion on self-assessments by the site and by DOE. The issue is really over the finding by the site of about 79 percent noncompliance with the job-specific program. That is, 79 percent of the job-specific samples were not being submitted. And this was discovered in the late 1990s. Especially, the position there (indiscernible) is that workers that were to be covered by the job-specific program are such a small percentage of the monitored workforce that it isn't really significant in the context of a co-exposure model, because you have all these -- a wealth of data for workers who are in the routine program. And we -- that is, SC&A said -- disagrees with that. If there is a group of workers out there however small that wouldn't be sufficiently represented or credibly bounded by a co-exposure model, then we believe -- that is, SC&A believes that is still a significant issue. Here we talk about one of NIOSH's relatively recent submittals which compared monitored subcontractors with other SRS monitored workers. And I'll note here, based on Dr. Lockey's comment that

this is not actually new information, it's just the most recent of -- or more recent than those. But this was also discussed back in 2024.

The statistical conclusion was that there is essentially little difference between the populations and no evidence that the subcontractors who were monitored were more highly exposed. So, the thing to remember, though, is what the unmonitored workers would have shown, because we can't really know that. These would be workers not likely to monitor routinely, obviously. Again, likely to perform transient work in nature on and off, right, at different periods. And there were accounts of subcontractors being brought in for the harder jobs. And, again, these were based on interviews, and NIOSH actually pointed this out back in 2017.

We've been talking about the job-specific samples but should also be noted that as late as 1997, there are issues with collecting the termination samples, that is, the worker was leaving the site, they were supposed to leave a urinalysis sample as sort of a finalization. And if you're only on the site for a short time, it seems logical to me that this problem would certainly affect the group of workers we're talking about, which is the subcontract construction trades.

So, to summarize the status here, SC&A agrees that a co-exposure model could be constructed for some point in the post-1990 period, that is, after the SEC that has already been established, but with really two caveats. And you have one -- and number one and number two here. The subjective judgment that available job-specific bioassay are sufficiently complete and representative of the exposures experienced by subcontractors, and evidence that the program itself was adequately implemented, such that

significant exposures would not have be missed. So, an SEC consideration should really balance those two considerations. And that was actually a -- Conclusion 5 from SC&A's 2022 response paper, which again, all these citations can be found at the end of this slide deck.

SC&A's conclusion is fairly simple. We feel like the issues that have been presented since the previous SEC was established aren't necessarily new issues that weren't already discussed and adjudicated by the Board. So, it comes down to a subjective judgment on whether it is necessary to extend the SEC cutoff date to some later date in time or determined that post-1990 conditions were sufficient that a co-exposure model can be used for those unmonitored workers.

So, some possible options. So, obviously there's the option of no change at all, that we just keep it at -- at the end of 1990. 1991, NIOSH notes that the field procedures were changing and now required note -- notification for any suspected intakes, so dose reconstruction is feasible starting in 1991.

There's 1992, you have a -- radiation work permit guidelines that have evolved and included job-specific bioassay prescribed at this point. So, those not necessarily familiar with the work group discussions at this point today, these percentages on the slide are the percentage of RWPs, that's radiation work permits, reviewed that had a specific bioassay requirement. The DM stands for direct monitoring and refers to the worker on the RWP actually submitting the required report. And EM stands for effective monitoring, which is that concept I referred to before that the unmonitored worker working essentially next to a monitored worker and thus would be

represented in any co-exposure model. And so, those unmonitored workers are included in the effective monitoring percentages shown here.

Moving on to 1994, we found that the RWP's listed relevant bioassay requirements about 60 percent of the time. So, that's another sort of milestone to consider here. 1996, this is really the last year in which job-specific bioassay collection was not verified as complete. In the following year, 1997, there was a self-assessment which had identified this primary issue with the job-specific bioassay. And as a result of that self-assessment, they went back and performed 100 percent resampling for those employees who weren't, or subcontractors even, that weren't submitting their required bioassay. So, they went back in '97 and said, you know, we're going to go collect all these to shore things up.

So, to sort of sum up the most recent work group and Board discussions, again, these were back in 2024. I guess the most recent would be the full Board discussion in December of 2024. NIOSH has been consistent in maintaining that dose reconstruction is feasible beginning in 1991. So, essentially, there is no need to extend the SEC for subcontractors.

The other plausible end date or the other end of the spectrum, if you will, would be 1996. And the reason for this, again, is that they did 100 percent resampling in 1997 and initiated more significant changes in the field practice, specific to job-specific sampling, so that noncompliance with the intended program was essentially fixed by then, or at least under much more scrutiny and much better beyond 1996. So, what is being weighed by the work group at the moment is when did the established procedures in

place, starting again around 1991, translate to actually implementation -- implementing in practice and in the field? And so, you essentially have two parallel things taking place. You have an evolving radiological protection program throughout the '90s, and then you have the actual data that both NIOSH and SC&A evaluated directly from these radiation work permits.

And again, somewhat recent discussions by the work group. And I use the term loosely, because it was a year and a half ago. There was, and I'll call it, tacit agreement that the balance of those two facets that you just described points to the end of 1992 as an appropriate cut off point. However, I noted earlier, the work group did not officially vote on a recommendation to the full Board at that time back in September of 2024.

So, that's sort of a summary of where we're at. Before I sort of wrap this up, let me just ask Ron Buchanan and Joe Fitzgerald if they have anything they want to add or correct anything that I may have missed up here.

MR. FITZGERALD: This is Joe Fitzgerald. No, I think that's a pretty good update.

MR. BARTON: Okay.

DR. BUCHANAN: Same thing here. This is Ron Buchanan. I don't have anything to add to that. I think it refreshed our memory good on that. Thank you, Bob.

MR. BARTON: All right. Very good. (Indiscernible) --

CHAIR CLAWSON: (Indiscernible) this is -- this is (indiscernible) right now. I want everybody to remember how come we cut off at '90. That's when DuPont was leaving and Westinghouse was coming in. That's why we

chose that point to kind of stop. We figured we'd make the evaluation later on. Like you said, in 1996, there was a notice of violation that was given to Westinghouse for not monitoring correctly. And that's why they had to turn around and do the 100 percent of the people to be able to satisfy that notice of violation. So, this is why we're taking a look at these last few years.

So, John, you've got your hand up.

DR. CARDARELLI: Yeah. Thanks, Brad.

CHAIR CLAWSON: Okay.

DR. CARDARELLI: Can't get my hand to go down by itself. Yeah, there it goes.

CHAIR CLAWSON: There you go.

DR. CARDARELLI: I didn't know whether Bob -- yeah, Bob's finished. Just a couple clarifying comments, and I'm not going to go back -- I can I have the PowerPoint presentations up, and I could bring them up for those who can view it on Teams, but most people cannot. So, I'll stay verbal. But I want to remind the audience that the -- the constant mentioning that 79 percent of the workers in the 2nd quarter of a particular year was so significant, and folks need to recognize that during that year, there were almost 11,000, actually 10,889 samples collected in that year.

So, we have 96 percent of those data. The other 4 percent were associated with this job exposure, and a very small percentage that represents about 4 percent. Every single one of those people who were mentioned in the 79 percent were actually monitored after the fact for potential intakes. 100 percent of those people came back as non-detects, no indication of impact. So, it's important to recognize that we can look at

these things retrospectively and calculate.

None of them have exposures. And I think that that's an important -- folks to remember, even under that worst case scenario. Not to mention that the SRS, compared to all other DOE sites, in my opinion, is one of the best run health physics program bar none, because of the number of values, bioassay samples, external monitoring samples that exist over the course of time. And so, that's -- that's a critical point.

The other thing is, since we keep talking about the previous SEC, I would like to have it noted that NIOSH, even during the time period 1972 to 1990, was very consistent that we could reconstruct doses. And when the Board voted, it was not a unanimous vote. So, NIOSH position has been consistent since 1972 that we can reconstruct these doses using co-exposure models and all the other scientific methods that have been implemented in this program over the past 25 years.

I think that concludes the key points that I wanted to bring up. One last thing, and you will see it in all the other presentations, a radiation work for me is not a criteria for us to be able to do a dose reconstruction. If we had zero radiation work permits, but we had 10,889 bioassay samples, we can reconstruct doses. We can take that logic all the way out, which we've done in previous -- that if you had one worker that you actually knew was the highest exposed, that is the bounding dose for the entire site. In one year we have almost 11,000 samples. So, you know, it is a subjective issue, but we believe the data is complete, it's absolutely representative of this cohort, and we can reconstruct doses. And that -- that concludes my comments.

MEMBER LOCKEY: John, Jim Lockey. Can you hear me?

CHAIR CLAWSON: Yes, Jim.

MEMBER LOCKEY: So, you also in the past went through a jitter plot. Could you just run -- briefly run through that again?

DR. CARDARELLI: I'm sorry, Dr. Lockey, was that directed to me?

MEMBER LOCKEY: Yes, it was brought to you. I remember I was going through my notes and when you looked at the jitter plots, there was no difference between subcontractors and all other exposure populations, is -- is that -- my notes correct on that?

DR. CARDARELLI: It is. And I can bring up -- if I share my screen, I can show you that PowerPoint presentation. Would you like me to do that?

MEMBER LOCKEY: Well, that was my recall. I wanted to make sure my notes were correct on that.

DR. CARDARELLI: Your notes are correct. We called that particular document a scatterplot where we compared the folks -- the subcontracting construction trade workers to the prime workers or non -- subCTWs, and it clearly showed that there was really no difference between the two. And I will venture to say back in '72 to '90 time period, we presented data showing that actually the primes were on a higher side exposed than the subs. But that's irrelevant at this point.

MEMBER LOCKEY: I think that was important to me. This is Jim Lockey. I think that was important to me because in the -- in the beginning -- and Bob was correct on this -- sometimes some contractors are brought in for what is perceived more hazardous job tasks on a temporary basis. And I -- I think I used this data to indicate that there was no objective indication

that their exposures were different or significantly higher than the non-contract employees.

DR. CARDARELLI: That is correct. And the protocols put -- to put the subcontractors -- and may have been something that occurred at other DOE sites, but it was not a routine practice at the Savannah River Site.

MEMBER LOCKEY: And one other thing, the other thing in my notes is that the overall exposure levels at Savannah River during this time frame were well under 100 microrem; is that correct?

DR. CARDARELLI: Well, they were well below 100 millirems per year.

MEMBER LOCKEY: Millirem.

DR. CARDARELLI: Yeah, that is correct.

MEMBER LOCKEY: Okay.

CHAIR CLAWSON: Anybody else have any more questions?

MEMBER POMPA: Bradley, this is David Pompa. I have a couple of questions just for my clarification. Number one is how were the construction trade workers identified, with a name and badge number? And my second question is, when the comment is made a co-exposure model can be reconstructed to what percentage? 90 percent, 95 percent accuracy?

DR. CARDARELLI: Well, the -- I will -- well, it's in the PowerPoint presentation I gave earlier, which I'm happy to share, but the NIOSH definition for a subcontractor construction trade worker was anyone who worked for Bechtel, Savannah River Incorporated, or their organization was listed in 19 other companies or it starts or ends with four unique -- unique job titles or their employer union craft CV was not null and void, which differs a little bit from the SC&A's definition. But the conclusion from the

analysis was no matter how you name the subconstruction trade worker, the conclusions were the same; there is no difference between the subcontractor construction trade worker's exposure potential and that of a prime contractor.

And the analysis covered from '91 to 2007 was based upon an extraordinary amount of data on the effect of tens of thousands, if not over 100,000, results that were collected over all those employees for those years. So, this is not a situation where we're talking about a few hundred samples over seven years. It's like 100,000 samples. So, there's plenty of data for us to work with to reconstruct exposures for both those cohorts.

MEMBER POMPA: Okay. Thank you.

MEMBER ZIEMER: Brad, this is Paul.

CHAIR CLAWSON: Yep.

MEMBER ZIEMER: I can make a couple of comments here.

MEMBER ZIEMER: Go ahead.

MEMBER ZIEMER: First of all, just to remind everyone that what -- the presentations that we just heard basically are a review of what we all heard before and when the -- when the work group met last, we -- we had a position which basically was going to recommend a -- a start point of -- of effectively January 1, '90 -- 1993 or ending -- or taking the SEC through to December 31, '92. And the -- the issue that arose was not a technical issue at that point; it was a procedural issue because one of our work group members was not allowed to vote for reasons that -- that most of us still don't understand, that somehow a bona fide member of the Board and of the work group was not permitted to be a voting member at that meeting.

And I personally objected and therefore abstained from the vote. I think -- I think Brad and -- and Jim Lockey both voted, but with two votes out of four, it's not clear if a non-voting member counted as part of the majority or not. So, procedurally, we didn't know what to do with that. And I think -- I think Brad reported that to the full Board, but we didn't have really a firm recommendation at that time. But the -- it seems to me at this point that the work group has to decide whether they want to go with that original number or if there's any changes that would affect how the members of the work group feel about that. For example, if it's not -- if -- if the -- if we don't go through December 31st of '92, is it -- is it a later point or is it earlier? I -- I think -- I think --

CHAIR CLAWSON: Yeah, --

MEMBER ZIEMER: -- the Chair, Brad, you probably had some concerns about that ending point. What are your views on it?

CHAIR CLAWSON: Well, I'll tell you what, I appreciate you bringing this up, Paul, and John and Bob, for all the good work that you've done there and everything else like that. It ultimately comes down to us as the -- the Board to be able to decide where this cutoff is at. And you-all know that I held out for the '96-'97 time period, because that's when they did 100 percent of the monitoring. They had to go out, round up all these people. They had to re-monitor; they have to do all of this stuff.

So, I always felt good about the '97 time period. But since then, we've been able to be looking at this from where -- where have we really seen a change from Westinghouse? Well, actually from DuPont to Westinghouse, because '90, Westinghouse was just coming in. Westinghouse was just

starting to figure out some of these problems, and there were some issues that they had they worked through. And yes, in the later time they got hit with a notice of violation in the '96-'97 time period. And that's why they had to go out through this 100 percent re-evaluation.

So, I guess, what I really saw is that they're starting to become a change in the '93 to '94 time period. And I was going to throw out to the Board my opinion of where the cutoff time should be at the end of '94, because that's when we see a change in their process, and they were starting to do more monitoring if you look at the -- the graph and stuff that they have on 63 percent to 95 -- 85 percent. So, I was going to throw out to the Board what I felt, but this is up to you guys to be able to put -- make your feelings met too, that the cutoff be at the end of '94, because from then on we can see that they were making a change in the process there. They were able to start getting their RadCon program into compliance. Yes, they did get hit with a notice of violation, but they were already in the process of changing it by the time that that came out.

So, I guess my -- my -- mine would be the cutoff would be the end of '94, I'd be good with. So, I'm throwing that out to the other Board members of what their feelings are.

Paul, do you have any feelings on that, or -- or Jim or Dave?

MEMBER ZIEMER: Well, I think --

MEMBER LOCKEY: -- could -- I could talk first, I guess.

MEMBER ZIEMER: Go ahead.

MEMBER LOCKEY: I think that -- I think that I went through this data, I think my main concern about Savannah River, and I agree with Brad with

this, is that this has been sitting on the docket for so long, we had to bring it to a conclusion. But based on all the data that was presented, I really think they had a very well-defined monitoring program.

And -- and in regard to looking at dose reconstruction, I think they can do dose reconstruction in a very scientifically sound manner. And their database is, from my perspective, is an incredible database. I think it -- we had to merge science data with social policy data, and I think that at the last meeting, there was a change in 1990. It was going to get additional two years to implement that change, and that's why I thought that 12/92 data was a good compromise.

I don't think there's -- this data that we have indicates that there's any indication that the exposure model is not all-inclusive. The TRACK data points that, this plot data points to that, the number of samples is -- is a huge number of samples. And in -- and in addition, the exposures that I've looked at, at this facility, I know some people don't want to take that under advisement, but for most exposures under 100 millirem, the chances of adverse outcomes are very small in relationship to cancer risk.

So, when you put all that together, there is -- this is a competition program. I think this dose reconstruction model will address that compensation program. And I think that the science indicates that the -- that the data is available is -- will allow for a very rigorous and reliable calculations to do that type of dose reconstruction. I'd be proud to have this database if I was reconstructing the doses in relationship to cancer outcome. It's -- it's -- it's a phenomenal database. Phenomenal.

So, I'm -- I'm -- I agree with you. I'd like to get this off the table

because it's been sitting around for so long. And I understand the social policy part of it. So, I'm happy with the 12/92 data -- date.

MEMBER POMPA: Brad, this is David Pompa. I agree with you after looking at my notes and listening to the comments, the accuracy of reconstruction. I agree with you, Brad, and go forward with that. That's my vote. It's a positive vote.

MEMBER ZIEMER: This is Ziemer again. Just another couple comments. Also, keep in mind, wherever that line is drawn, there -- there are some issues. When you have an SEC that you do automatically knock out some people who might otherwise be compensated because they don't meet some of the other criteria. So, you gain some and you lose some.

We're and -- and I'm -- I'm talking here a little bit more about the public policy thing, because I -- I have every confidence that we could reconstruct the doses even earlier, but we do have to take into consideration the intent of the policy. And the SEC does help some people, and it hurts others. So, we need to be careful when we when we make these decisions on that.

The -- I was comfortable with the sort of compromise we had at -- which would start '93, January '93 as sort of the cutoff point. I think, Brad, you're talking about going through till the end of '94, maybe. I was --

CHAIR CLAWSON: No, actually -- actually, I was looking at the -- the end of '93 because in '94, we had 63 percent. So, to me, '94 was -- was a year that we saw a significant change --

MEMBER ZIEMER: Yeah, yeah, yeah.

CHAIR CLAWSON: -- in how they were doing business.

MEMBER ZIEMER: Yeah, you --

CHAIR CLAWSON: So, what -- what I was going to call it -- yeah, the end -- the end of '93.

MEMBER ZIEMER: So, you're thinking about it -- sliding it one more year forward?

CHAIR CLAWSON: Yeah, I was thinking -- I just was wanting to go, yeah, to the end of '93.

MEMBER ZIEMER: So, you've got --

CHAIR CLAWSON: Because the following year, in '94, --

MEMBER ZIEMER: Yeah. Well, --

CHAIR CLAWSON: -- they -- they did (indiscernible) 63 percent.

MEMBER ZIEMER: Yeah. Well, see, and this is one of those things, and we all know that there's no sharp cut off from '90 to '91, '91 to '92. Things don't happen overnight. I -- I could go with either one of those years. I -- I don't think there's a great deal of difference. But I was -- I was comfortable staying with the end of '92 that we did before, but I -- if -- if -- if the others want to go one more year, I'm okay on that.

But David, I -- I wasn't quite sure what you were supporting, what was your position?

CHAIR CLAWSON: Well, let me -- let me -- let me just put it out here in a -- in a little bit different manner here. So, the reason why I went with -- with the end of '93, the beginning of '94, so what I'm proposing is the beginning -- well, December 31st of '93 would be the cutoff date for the SEC. And the reason being is besides policy, everything else like that, in '94, there was a significant change in the process. And this is where they

did 63 percent specific bioassays.

So, to me, that was showing that their procedure changes, their operations, everything was changing and going that way. So, I guess, by that being said, I guess how many would agree with me on the ending date of December 31, 1993? I guess, I'd just put it out for a vote and then we could go from there.

MEMBER ZIEMER: You're suggesting that this be a recommendation to the Board?

CHAIR CLAWSON: Yes.

MEMBER ZIEMER: The Board is going to have to make the decision on --

CHAIR CLAWSON: Yes, but --

MEMBER ZIEMER: -- if there's any cutoff at all. I mean, the Board could decide it's '90 --

CHAIR CLAWSON: Right. I --

MEMBER ZIEMER: -- or '97, either way. Yeah.

CHAIR CLAWSON: Right. And -- and, you know, that -- that's their decision. All we can do as a work group is bring this up. But what I was trying to come to is a consensus with this work group and be able to go from there. So, I would -- I'd like to take to the Board the end of '93.

MEMBER LOCKEY: Brad, what changed your mind from the previous meeting?

CHAIR CLAWSON: Because I was being hardnosed because I was going up to '90 -- going '96-'97, there was 100 percent, and that's what I was hanging my hat on. Plus, the notice of violation was just the previous

year before that. But -- but just because they got notified, just because they had a fine and everything else like that, it didn't mean that they weren't doing change before that happened.

And if you -- if you remember some of the videos, the stuff that was put before -- before the Savannah River person that will remain anonymous there, they were -- they were showing what the changes were. So, what I did, Jim, was I brought up the data that we had, and I worked -- looked back.

And I was looking at it now -- because really what we've got to show is when -- when did the -- when did SRS really start to make a change in their program? They were seeing issues and how -- how do we -- you know, it's going to take a while to work those through. They just don't happen overnight. And -- and so, that's why I changed from my '96-'97 time period to -- the beginning of '94 was when I started to see -- in '94, they started to make a lot of changes to their process, to their RWPs, how they were monitoring, and they were making improvements. So, that's why I changed. And that's why I changed my time, too.

MEMBER LOCKEY: (Indiscernible) --

CHAIR CLAWSON: Does that answer (indiscernible), Jim?

MEMBER LOCKEY: Jim Lockey. Yeah, I can understand that, but if -- if you look -- if you look at -- if we're looking at can they dose reconstruction and is the dose reconstruction adequate based on the data we have, the answer to that, from my perspective is, yes. And it -- and you can make an argument, it's adequate prior to 1990, if you -- if you really look --

CHAIR CLAWSON: Well, --

MEMBER LOCKEY: -- at the objective data. So, I understand that they changed procedures. They -- they did differences. But if the dose reconstruction is rigorous, how does -- you -- I -- I think you have to take that under advisement. The question is can they do --

CHAIR CLAWSON: Well, how --

MEMBER LOCKEY: -- an adequate dose reconstruction? And is any indication that the dose reconstruction is not adequate? And I didn't -- I didn't hear any data that indicated that. That's what my -- my --

CHAIR CLAWSON: Okay.

MEMBER LOCKEY: -- issue was.

CHAIR CLAWSON: There was -- there was also another comment there --

MEMBER LOCKEY: I'm sorry, say it again.

CHAIR CLAWSON: I said there was also some other information that came into that, that was also said. But if you remember what John said, he said, if we knew we had the highest person monitored, we could do this, and we could do that. I understand that, but there is gaps in this, you know.

And also too, look at our -- look at our co-exposure models. Some of those we're waiting ten years now for. If this was so -- so easy and so precise to be able to do, Jim, we would have had those co-exposure models ten years ago, but we're not.

MEMBER LOCKEY: That's true --

CHAIR CLAWSON: We're having an awful lot of problems with those.

MEMBER LOCKEY: If you had -- if you looked at the subcontractors and -- and showed that the subcontractors had exposure levels that really

were different than the primary workers, then that would raise all kinds of flags for me for any subcontractor worker the data was missing, but that's not the case. The subcontractor worked -- monitoring data was in line with the routine monitoring data, if not lowered.

And then --

CHAIR CLAWSON: Well, this --

MEMBER LOCKEY: -- the other issue --

(Whereupon, Chair Clawson and Member Lockey speak simultaneously.)

MEMBER LOCKEY: I'm sorry, go ahead.

CHAIR CLAWSON: I'd say, so, Jim, I understand what you're saying to a point, but the subcontractor was a little bit different. Now, you got to remember how this site was set up too. So, the same contractor, the union or whatever you want to call them that had the contractors for the prime, and then they also had the contractors for the construction work.

MEMBER LOCKEY: Right.

CHAIR CLAWSON: And this is what we were looking at was the construction tradespeople.

MEMBER LOCKEY: Right.

CHAIR CLAWSON: Now, we're saying that we don't see any difference in that plot plan. Does that take that those construction trades workers were on the site 365 days of that year, or were they there two months or were they there six months? You never know. They came and they went.

And if you guys remember, this is part of our problem that we got into with Savannah River and its uniqueness of you could be working for the

prime -- prime contractor, you could drag up and through the same union, you could be working for a construction company. And this is -- this is part of the problem that we got into with Savannah River. This is kind of one of the unique processes because usually each one of these DOE sites had their own union that everything ran through.

Savannah River has always been a different horse. All of their -- the – the -- the site workers, the -- the prime workers went through the same union hall as the construction trades went through. And you could be working for one, one day, and you could turn around two weeks later, be working for the other.

MEMBER LOCKEY: But that was --

CHAIR CLAWSON: And the reason why is --

MEMBER LOCKEY: Wouldn't -- wouldn't the scatter data show that – that -- that subcontracting construction workers had a least some points that are high exposure and that didn't show? It didn't show that, Brad. I don't know how -- I understand, you know -- I've been in the field long enough to know that subcontractors are a different breed, and so I always look at them with -- with a -- with a -- with that under consideration. That's why I think I asked for the scatter plots to see what the subcontracting data is.

If you see plots that are way outside the routine, then what you're saying is absolutely plausible, but we didn't see that. We didn't see that, Brad. That's not -- that that does not exist.

CHAIR CLAWSON: You know, Jim, what I always like about math, you can make it say whatever you want.

MEMBER LOCKEY: No, you can't do that. You can't --

CHAIR CLAWSON: You can't.

MEMBER LOCKEY: No, you can't --

CHAIR CLAWSON: (Indiscernible) --

MEMBER LOCKEY: -- data. Statistics you can say whatever you want based on your statistical program, but when you look at the raw data, the raw data is the raw data. It's raw, and you can't manipulate raw data. You can regulate how you analyze it, but you can't -- when you just -- that's why you always look at the raw data and what does it look like.

CHAIR CLAWSON: Well, and this -- this is the thing, you know, we've all got our opinion on this, and it really is not going to come down to you or I or Bob or whoever; it's gonna come down to what the Board wants to represent. But we've got to get it before the Board. So, I've got to come up with something that we take before the Board. I've offered up the end of '93. You can offer up whatever you'd like, Jim, and it's -- and we can go from there.

MEMBER LOCKEY: So, I'm happy with the end of '92. I think that's a -- that's a reasonable point because you're --

CHAIR CLAWSON: Okay.

MEMBER LOCKEY: -- Westinghouse -- Westinghouse came in, and we needed to give them a couple of years to get things organized. So, that's why I think we originally chose '92. So, I think that's a good cutoff point from my -- from my perspective.

CHAIR CLAWSON: Okay. How's you, Paul -- how -- how do you feel about that, Paul?

MEMBER ZIEMER: Yeah, well, I originally -- I originally indicated that I

supported that, and I also told you today that I'm willing to move another year on it, but in part because we have to deal with the public policy part of this, and we have to be able to satisfy the full Board on -- on a recommendation.

CHAIR CLAWSON: Okay.

MEMBER ZIEMER: I mean, I -- I think John Cardarelli made a good case for the fact that they can reconstruct dose, but people have to have confidence in what NIOSH is saying there. And to give them that confidence, we have to come up with a rationale for sort of why we are choosing a particular year by -- you know, why not just go with -- with 1990? Well, nobody's going to be comfortable with it.

CHAIR CLAWSON: Right. Especially with the notice violation --

MEMBER ZIEMER: Yeah.

CHAIR CLAWSON: -- later on.

MEMBER ZIEMER: So, I said I --

CHAIR CLAWSON: So, you'd be good with --

MEMBER ZIEMER: -- I -- I'm -- I'm okay with going another year on it simply because -- to -- to satisfy those who need to have that for making their decision. I -- I have no -- no concerns about the ability to construct -- to construct the doses and --

CHAIR CLAWSON: Okay.

MEMBER ZIEMER: -- and the original NIOSH recommendation, but I think it's not going to pass. So, we need to find something that the Board can deal with. And I think -- I think '92 or '93, they would be able to deal with that, because we could -- we need the Board to support the

recommendation.

MEMBER POMPA: This is Pompa.

CHAIR CLAWSON: Well, and --

MEMBER ZIEMER: It's a practical matter --

CHAIR CLAWSON: Right, and that --

MEMBER ZIEMER: -- I think -- I think we all feel pretty confident that somewhere around '92 to '93, everybody can feel confident, can -- can make their vote and to -- to rationalize it and to support it for those who they sort of represent. Some of us represent, in a sense, different parts of our overall communities, but we also want to fairly represent the requirements of the law, and that means we have to find some sort of consensus and make a recommendation.

CHAIR CLAWSON: So, you can --

MEMBER LOCKEY: Brad? Brad? Can you --

CHAIR CLAWSON: Yeah?

MEMBER LOCKEY: Can you -- can we say it -- can we present the Board the end of 1992 to the end of 1993 and let the Board decide?

CHAIR CLAWSON: Well, it -- it's -- it -- it's actually up to us, Jim, as a work group that we bring forth to them the -- what we've come to, the conclusion. That's -- that's still throwing it out there. And, you know, they haven't -- they haven't dealt with this that much.

I -- I will be honest, why I went -- why I went the end of '93 was because that's when I saw statistically there was a change in the program, that their RWPs were starting to work, that they were doing things. Yes, later on they got hit with a notice of violation, but that they were -- that I

could actually see data that was being changed and that they were following the RWPs the way they were supposed to. So, that's why I went at the end of '93. And it's -- that -- you know, that's what I'm throwing out. We've got to take something to the Board. We can't -- we can't leave it as a as a question.

So, -- so, Dave, I know that you've been in on this for a little while. It's -- it's -- there's a lot more to it than meets the eye. I guess, I'd like to understand what your feeling is on -- on this. And if you agree with -- with nine -- the end of '92, or if you go for '93.

MEMBER POMPA: You know, after reviewing the notes and reading the notes and I've got some notes down on my tablet here, I would go with '93, in my opinion. The accuracy -- I mean, I'm always concerned about the accuracy, and that's why I make that comment again as to what percentage can they do reconstruction. And, of course, there's, what I understand, thousands and hundreds of thousands of data out there. Somewhere you got to say, okay, that's enough. If NIOSH -- even SC&A is over there, they concluded it can be done.

But I want to say one more thing. Brad, I want to address the -- the claimants that are outside the SEC, those employees or construction workers that are going to be outside the SEC. I've dealt with this program since the beginning for the last 25 years. In fact, just recently, I had a worker come to my house. And we're looking for -- this particular individual just one instance here, is outside the SEC for Pantex. So, I'm reviewing some documents that I have. They're not classified, anything that will get you in trouble, some literature that I have from the past, and I'm helping workers

outside the SEC for Pantex from 1991. You have employees from '92, '93 and so forth that have the same type of cancers.

So, we're coming up with an appeal process, trying to find new information and appeal it and go forward. I -- I -- I wish we could help all the workers all the way, all the way. But then you have NIOSH and SC&A saying yes, we can with accuracy do reconstruction. Then I'm looking for another avenue to help that worker outside the SEC.

MEMBER ZIEMER: Well, David, that's what --

MEMBER POMPA: I understand --

MEMBER ZIEMER: -- pointing out that when you do have the SEC you will exclude some cancers --

MEMBER POMPA: Yes.

MEMBER ZIEMER: -- and also workers who don't -- don't meet the total number of days work. And we --

MEMBER POMPA: Oh, yeah.

MEMBER ZIEMER: -- if we say we can't reconstruct certain doses, then they don't get to use that for part of their actual --

MEMBER POMPA: Yeah.

MEMBER ZIEMER: -- dose reconstruction. Anyway, those --

MEMBER POMPA: Yeah, I --

MEMBER ZIEMER: -- issues.

MEMBER POMPA: And I'm here to (indiscernible) Part B, which is the radiation, and Subpart E, which is chemicals. I have a chemical list that we had an incident in 1991, and a union safety officer went and made a list of all the chemicals that -- where the bombs were built in (indiscernible). So, I

have that list, and I use it. Maybe it was this chemical that caused that cancer or prostate cancer and so forth. I understand. I understand, Jim, we -- and I'll fight the battle, I guess, until I'm so old that I can't read or see. But I'm with you.

CHAIR CLAWSON: Okay. So -- so, you're to the end of '93. And -- and Jim, I -- Jim, I -- you know, we -- I think we're noted for our arguments back and forth to one another. And I -- I respect your -- your input on it. But -- but I also -- you know, I've got to be true to myself too. But the way it sits right now, Jim, what we'd take before the Board was the end of '93. And we'll give that to them, and but I do understand your point on that. So, I just want to make sure that you feel good about -- about what we're doing and going forward.

MEMBER LOCKEY: No, I do -- I have a lot of respect for you, Brad. I -- I -- when I look at -- when I look at the data, I look at what we were charged with. And this is a compensation program, but it's also a compensation based program that's based on -- on looking at the data from a scientific perspective also. So, if -- if we can do dose reconstruction, that's a compensation program. Where you can't adequately do both reconstruction, there's a fallback, and that's what the SEC stands for.

Savannah River has a first rate monitoring program, first rate. And I would -- if I was running that program, I'd be proud of it. I -- I -- and especially in the '90s. A lot -- I remember when I was down in Oak Ridge at K-25 looking at could we reconstruct exposures back in the '90s, and it was a whole different ballgame back then. There was no data, and the data was so poorly organized that the reason we were pushing for some kind of

legislation.

But when we're in a more -- much more contemporary period with much lower exposure levels, we need to be careful because the probability of these type of exposure levels are having an adverse outcome, Brad, are low from a medical perspective, they're low.

CHAIR CLAWSON: I understand that.

MEMBER LOCKEY: Yeah. And so,

CHAIR CLAWSON: Well, without being -- we've got basically three to one. Oops. Hello?

DR. ROBERTS: Hello, Brad. Can you hear me?

CHAIR CLAWSON: Yeah, yeah.

DR. ROBERTS: Yeah. I just --

CHAIR CLAWSON: (Indiscernible) --

DR. ROBERTS: -- want to make sure that -- that if this is being, you know, -- you're -- you're making the decision on whether to bring this to the Board or not, that that vote is handled, you know, properly. So, I believe --

CHAIR CLAWSON: Okay.

DR. ROBERTS: -- I need to -- I need to do that piece. I --

CHAIR CLAWSON: I just -- go ahead.

DR. ROBERTS: Yeah. So -- so, I just want to consult Dr. Ziemer briefly. Do -- do they -- does someone need to make a motion to now vote, or do we just do a straight vote? I just want to consult you on that.

MEMBER ZIEMER: Well, properly, it would be good to have a motion.

DR. ROBERTS: Uh-huh. Okay.

CHAIR CLAWSON: And Rashaun, that's -- that's what I was going to

do. And then you could go through each one of us -- and this is to bring it before the full Board. And then you can go to each one of us and get our vote on it yay or nay and go from there.

DR. ROBERTS: Right.

CHAIR CLAWSON: Are you okay with that?

DR. ROBERTS: I guess, I just --

CHAIR CLAWSON: I just wanted -- what -- what I was trying to do, Rashaun, was I wasn't quite sure where we were at on everything. So, I was just kind of talking to people. So, at this time, I'll make a motion to be able to extend the SEC to the end of 1993 to bring before the full Board in our upcoming meeting.

MEMBER POMPA: I say aye.

DR. ROBERTS: Can I get a second? It's --

MEMBER POMPA: Dave Pompa here.

DR. ROBERTS: -- to the -- okay. He seconded the motion?

CHAIR CLAWSON: Yep.

MEMBER POMPA: Yes, ma'am.

DR. ROBERTS: Okay. And --

MEMBER POMPA: David Pompa, yes.

DR. ROBERTS: Okay. And Dr. Ziemer, more discussion, or can we just go straight to the vote?

MEMBER ZIEMER: Unelss -- unless someone who has discussion, we can vote.

DR. ROBERTS: Okay. Does anyone have any further discussion points they'd like to raise? Okay. Hearing none, I will start with Lockey.

MEMBER LOCKEY: In order to make this unanimous vote, I'll vote yes.

DR. ROBERTS: Pompa?

MEMBER POMPA: Yes, ma'am.

DR. ROBERTS: Ziemer?

MEMBER ZIEMER: Yes.

DR. ROBERTS: And Clawson?

CHAIR CLAWSON: Yes.

DR. ROBERTS: Okay.

MEMBER LOCKEY: Hey, Brad?

CHAIR CLAWSON: Yeah?

MEMBER LOCKEY: Are you there?

CHAIR CLAWSON: Yes, --

MEMBER LOCKEY: (Indiscernible) --

CHAIR CLAWSON: -- I am.

MEMBER LOCKEY: It's always a pleasure.

CHAIR CLAWSON: I -- I think we still have some more, don't we, Bob? Bob Barton?

MR. BARTON: Yeah. There were two other. Items on the agenda that we had presentations for. I don't think they'll take all that long, but they basically relate to the TBD and aren't specific to any SEC determination.

CHAIR CLAWSON: Okay. We still got 003-3 and 000- -- 3-7, correct?

MR. BARTON: That's right. And dash 3 is about medical X-rays, not a whole lot going on there, obviously. And 07 -- dash 7 is actually -- Savannah River was the first, I guess, test drive for NIOSH using their co-exposure implementation guide. And that's already gone -- undergone

extensive discussions. So, there's not a whole lot to add there. Basically, just us verifying that the revisions to those two documents that were made by NIOSH would not necessarily affect the feasibility as it stands right now to reconstruct doses for SRS. So, there's site profiles (audio drop) discussions.

So, we can certainly -- I know Ron's ready to go if you want to hear those presentations. I think the SEC discussion was really the long pole in the tent, if you will.

CHAIR CLAWSON: Right. I understand that, Bob, but we also need to take care of these TBD issues too. So, if you want to go ahead and continue, that'd be great.

MR. BARTON: Sure thing.

ORAUT-TKBS-0003-3

SC&A Presentation: "A Review of ORAUT-TKBS-0003-3 for Savannah River Site – Occupational Medical Dose"

DR. BUCHANAN: (Audio interference.)

MR. BARTON: Ron, we still got you?

DR. BUCHANAN: Can you see it (audio distortion)?

MR. BARTON: Okay. Yep. All right. Yep. We can see it.

UNIDENTIFIED SPEAKER: That's actually me. Ron asked me to share his screen.

MR. BARTON: Ah, okay. Ron, are you still on the line?

CHAIR CLAWSON: (Indiscernible) --

MR. BARTON: -- mute.

DR. BUCHANAN: Hello, this is Ron.

CHAIR CLAWSON: There we go. Now we can hear you, Ron.

DR. BUCHANAN: Yeah, yeah, I got cut off there just as I was going to start talking. Okay. Are you ready?

CHAIR CLAWSON: Yes, go ahead and continue, Ron.

DR. BUCHANAN: Okay. This is Ron Buchanan with SC&A. And today I'll be presenting a little shift in the gears here. We reviewed Savannah River Site TKBS-0003-3, which is occupational medical dose. And so, I'd like to present our results of our review on that.

Next slide.

Okay. This TBD has underwent several revisions. First of all, revisions 0 through 3 were issued along with the site profile between 2003 and 2005. However, then revision 4 and 5 and 6 were issued as a standalone TBD 0003-3 from 2009 until 2024 when revision 6 was issued, which we will be discussing today, and I'll call that TBD-3.

Okay. Next slide.

Okay. The source of data used to gather this information, they obtained it from SRS records. And they obtained some of the summary data of the frequency of chest X-ray, the description of the equipment, and the equipment types, and the, what we call, kerma, the entry of air kinetic energy released per unit mass. And so, that's the amount of energy in the air per unit mass for various projects. And that's a PA or a lateral or that sort of different views they take when they use the X-ray machine.

Next slide.

Okay. To analyze this data and for dose reconstruction purposes, and they determined the organ dose equivalent ingredients and the skin guidance, such as, like, 10 percent of the entry dose, or, etc., depending on the organ. There it is. Okay. (Indiscernible) cancer on the skin. And the skin actual dose and rem, it's all for the chest projections.

Okay. In addition, they provided Table 3-8 for assigning B-lymphocytes cancer sites, and they provided spreadsheets. What you see in the TBD is actually the results of the summation of quite a few calculations, which they provided us in a spreadsheet so we could check their analysis.

Next slide.

Okay. So, we reviewed TBD-3 and reviewed things such as the frequency of the chest X-ray, which is listed in Table 3-1. We also went to the documents that was in the notes for the table and reviewed those and found that the material in 3-1 matched those in the reference documents. And the same way with the description of the X-ray equipment in Table 3-2. We concur that those documents do make those recommendations. And also, 3-3, which gives the type of equipment. And we looked at those references, and we agree with that information.

Okay. So, we reviewed their kerma values and the dose reconstruction recommendations by going to the site research database documents that were referred to. And we looked at the entry air kerma for various projections in Table 3-4, the dose equivalent for chest projections in Table 3-5, and the skin guidance in Table 3-6, and the skin doses in 3-7. And we used these documents to verify that the contents of these tables were correct and had no findings or observations.

Now, we also reviewed the -- the B-lymphocyte documents for the information entered in Table 3-8 of the TBD, and we agreed that the IREP distribution and values recommended in parameters 1, 2, and 3 of the IREP tables, which were listed in Table 3-8 were correct. And we found that the information matched that recommended in the reference documents, so we had no issues with that.

Now, also, we have started a recent new thing in that we looked at prior dose reconstructions to see if there was findings or observations that NIOSH agreed to make some sort of commitment to change in the upcoming TBDs to resolve those issues; however, we reviewed issues of 66 previous completed dose reconstruction cases, which potentially could have used TBD-3, and we did not find any commitment to change. There was no issues to be changed, so that was -- they didn't need to make any changes that were identified in previous dose reconstructions.

Okay. Next slide.

Okay. So, our summary of TBD-3 was reviewed the documents that NIOSH used to derive tables and the values in Tables 3-1 through 3-8. We performed the calculations to verify the dose was correct. We did not identify any errors or issues. And we concur with NIOSH's recommendations.

And we reviewed the text in the documentation, the actual text, and didn't identify any errors or issues.

So, that concludes my review of TBD-3 of Savannah River Site. Any discussion or questions?

MEMBER ZIEMER: This is Ziemer. I have one question, Ron. Maybe

you can answer or if not, maybe Kathy Behling can. Are all these observations now entered into the Board's data site?

DR. BUCHANAN: If we make present observations, yes. Now, Kathy kept all the old ones (indiscernible) updated the BRSes at this point.

MS. BEHLING: Yes. This is Kathy Behling. I'm in the process of updating the BRS. I've got about 50 percent done, but we are in the process of updating that, yes.

MEMBER ZIEMER: Now, so, on observations, are -- how are these shown then? Are they shown as in process, or? They haven't been closed, right?

MS. BEHLING: These observations you're talking about for the SRS or --

MEMBER ZIEMER: Yeah. How are they shown in the database?

MS. BEHLING: I am not entering the SRS work group information. I'm entering everything for the procedures subcommittee.

MEMBER ZIEMER: Oh, okay. Okay.

MS. GOGLIOTTI: These should all be listed as open. And now that we've talked about them in a Board meeting, they would move to in progress unless we closed them out.

MEMBER ZIEMER: Okay. Okay. That's -- I was going to say -- and they -- they -- we can't close them because they haven't -- NIOSH hasn't done anything on these, or what? Are these (indiscernible)?

DR. CARDARELLI: That's correct, Dr. Ziemer. NIOSH has not had a chance to provide our responses to this yet. So, we will --

MEMBER ZIEMER: Yeah, that's what I --

DR. CARDARELLI: -- take that up.

MEMBER ZIEMER: Yeah, that's what I assumed. Okay. Thank you.

DR. BUCHANAN: Okay. Of course, we didn't have any findings or observations in 3.

ORAUT-TKBS-0003-7

SC&A Presentation: "A Review of ORAUT-TKBS-0003-7 for Savannah River Site: Internal Dosimetry Co-exposure Data"

DR. BUCHANAN: Now, in 7, 7 we will. And so, if we're ready to continue, next presentation is -- this is still Ron Buchanan with SC&A, and I'll be reviewing Savannah River Site internal dosimetry co-exposure data from 003-7.

Next slide.

Now, this is a new document. This is the first time I'm aware that there's been a TBD-7 on any of the sites, and this is for co-exposure internal dosimetry. And a little history on this is that the -- NIOSH did provide OTIB-81 in 2019 concerning this subject, and we reviewed that in 2020, issued a review of OTIB-81. And what happens is that then they incorporated this information into TBD-7, and so that's what I'll actually be reviewing today. But OTIB-81 plays as the background to this.

Now, when we reviewed OTIB-81, we did have a summary position memorandum issued in 2020 concerning trivalent bioassay variability for the bioassay samples from Savannah River Site which was presented to the work groups. And then in twenty -- November 2020, this was -- there was a

discussion at the work group meetings. And then in April of 2022, we issued a memorandum, again, titled "SRS Trivalent Bioassay Variability Status Report and Recommendations" to the work group. And back then, we were working with SEC mainly rather than the -- the regular work group.

And then in March of '24 NIOSH issued the TBD-7, revision 0, which I'll refer to as TBD-7 today.

Okay. The next slide.

Okay. So, we're going to step back a little bit and look at OTIB-81, which is the basis for TBD-7. And in 2020, we identified five findings and eight observations. And all these findings and observations were addressed and closed except for Finding 1, and that was concerned with the -- the variability in the trivalent bioassay. In other words, alpha counting coming back, there was a couple outliers. And we flagged this and was -- and wanted to discuss it further. And we also had some papers back and forth, NIOSH. And SC&A did the review in 2020 and 2022. And then NIOSH addressed this in more detail in TBD-7, Attachment C.

So, our evaluation Finding 1 is that we further evaluated the paper since our findings and the Attachment C of TBD-7 for further analysis of the -- of variability in the trivalent bioassay results.

And looking at it, we did not find that the variability of alpha particle counting results from several bioassays for Americium-241 would significantly impact the derived co-exposure dose for Americium intake for dose reconstruction first. In other words, there were a few outliers, but in the overall scheme of the data, it had very little impact on the results. And so, we recommend closing Finding 1 of our 2020 review of OTIB-81.

And now, this wasn't directly related to our review of TBD-7, but that's the background for it. So, at this point, we do recommend that it be closed. And additional information was gathered and reviewed.

And so, since we reviewed 81 and that was the basis for TBD-7, we reviewed the TBD-7 to identify revisions in TBD-7 compared to 81. So, we focused on those review -- on those revisions that could potentially impact the internal dose assignments for claimants assigning the internal dose at Savannah River Site.

Next slide.

Okay. So, we identified the following major revisions that could increase the internal dose. And that was Americium-241 that was updated and re-entry in the spreadsheet and revised. Of course, when you re-enter the bioassay data, you have to revise urinary excretion rate and then from that, you have to get a revised recommended co-exposure intake rate. And that was mainly based on the re-evaluation and updating of americium data.

Now, fortunately, thorium can be reconstructed using americium data because it's all on alpha count and cross -- gross alpha count and process. So, they revised the co-exposure intake rates using the updated and re-entered americium bioassay data.

And now plutonium had nothing to do with americium and thorium, but they did in the TBD-7 add in derived plutonium absorption type SS co-exposure intake rates. In the past, they analyzed thorium data had been -- asked (indiscernible) and asked, and they extended that to the Super S in TBD-7.

Okay. Next slide.

So, they performed those steps to remodel the americium data, was updated and re-entered; the americium urinalysis used a time-weighted one person, one statistic method; and used the multiple imputation method, which was new from what they did in 81.

Next slide.

I reviewed this updated data and re-entry and the recent data and did not identify any findings or observations concerning the rework of the data.

Next slide.

Okay. So, the detail. NIOSH revised the urinary excretion rates by using the remodeled americium data to derive the 50th and the 84th percentile and also (indiscernible) standard deviation, the GSD, and they did this separately for non-construction and construction trade workers. Covered the years 1963 through 1989. And Table 7-6 presents this revised Americium-241 urinary excretion data.

All right. Okay. We reviewed this urinary excretion data rate that NIOSH had derived. And we used the reference documents, and we used a portion of NIOSH's (indiscernible) spread -- spreadsheets, which contained the supporting documents for TBD-7 in a zip file and was able to review those and do spot calculations and determine if there was any errors in the tables. We did not find any findings or observations concerning the data for Americium-241 excretion rates listed in Table 7-6 of TBD-7.

Next slide.

Okay. So, once you do the data, then you have to revise the co-exposure intake rates, and they used the revised rates to determine the excretion rates for the construction trade -- construction workers for

Americium-241-type intake. And there was a lot of data, as we've been discussing today. And so, they grouped Tables 7-6 urinary excretion rate into intake regime of similar excretion rates. In other words, if you seen a trend in there that suddenly changed to another trend, then that would be a different intake reg -- regime, an IR.

And then they used the IMBA program, which is the program which looks at the bioassay data and projects what the intake rate would be. And so, they projected the 50th and 95th percentile intake rates for GSD. And all that information is summarized in Table 7 -- Table 7-19 for non-construction workers and Table 7-20 for construction workers. And they projected the Americium-241 50th 84th, and 95th percentile intake rates, entered the standard deviation and they adjusted -- NTSD. Now, they adjusted GSD is just put limits on using it as claimant favorable. They don't let it fall below a certain amount. So, they round up. And this is presented in Table E-1 for non-construction workers and EE-2 for construction workers. So, TBD-7.

Next slide.

Okay. Review these for exposure intake rates and we checked the represent -- the representative portion of a lot of IMBA runs. We checked some of those, which verified that the data was entered correctly and that the selection of the IRs were appropriate following the trend in the values and -- and also verified the projected intake rates through the (indiscernible) IMBA plots, which showed the major data as a -- and also they fitted a projected bioassay data in each IR. And we found it fit really well between those spots and didn't identify any findings or observations concerning the

Americium-241-type intake rates in Table 7-19 and 7-20, E-1, and E-2 of TBD-7.

Next slide.

Okay. So, now we took care of the americium, but since thorium is based on americium then we reviewed that also. So, and then NIOSH revised it, because during the radiochemistry separation of the trivalents, you get thorium is carried over in aliquot containing americium, curium, and californium. And the chemical extraction efficiency californium is approximately the same, 97 percent as americium, which is 95 percent. So, if you think the possibility the worker was exposed to thorium, you can use the gross alpha counts to de -- to determine whether it was -- what the thorium intake could have been using americium results.

And so, they used this revised americium excretion rate in Table 7-6 in IMBA program. Of course, thorium has somewhat biological and (indiscernible) different characteristics, so you have to re-run the IMBA program using the raw gross alpha data and determine the type -- Thorium-232 type in M and S for non-construction and construction workers co-exposure intake rates. End results are listed in Table 7-43 and 44 and E-25 and 26 for the period November 1, 1972, through May 31, 1980, of TBD-7.

Next slide.

So, we performed a focused review of some sub -- subsets of the IMBA runs, because being that there was just a lot of them. And we checked the runs in the zip file they provided. We verified correct data entry and selection of IRs, and the projected rates. We reviewed plots again to determine bio measurements versus (indiscernible) fitted, and we found

reasonably good fits between them and consistent. And we did not find any findings for the Thorium-232 type M or type S intake rates listed in Table 7-43, 7-44, E-25, 26 of TBD-7.

However, some of the entries and dates, we did have observations, which I'm sure probably some of them are typos and maybe when NIOSH reviews our -- our review and addresses those issues, they'll be resolved fairly easy, I would think.

So, we'll go to the next slide and we'll have -- discuss each one individually.

Okay. Observation 1, we found that the thorium intake -- intake start date tables, some of them appear to be incorrect because the SEC was (indiscernible) the lack of sufficient internal thorium monitoring ending in September 30, 1972. And so, OTIB-81, Table 5-23 and 24 list the start date for thorium co-exposure as October 1, 1972; however, the thorium start dates in Table 4 -- 7-43, 44, and E-25 and 26 TBD-7, lists it as November 1, 1972. So, the -- the -- missed out on one month there when they went from 81 to TBD-7. Missed out on the month of October. That's Observation 1.

Next slide.

And then Observation 2, Table 7-6 of TBD-7 provides the co-exposure americium excretion rates from 1963 through '89; however, NIOSH only used the data to determine thorium intakes for 1972 through '80, and then they switched to Report 70 for recommendations for 1989, and they might have had a reason for this, but it wasn't stated. And so, that was our Observation 2 that NIOSH had -- address that issue.

Next slide.

Okay. Then the thorium ingestion intake rate's not addressed for '72 to '80. According to TIB-9, ingestion is part of the -- associated with inhalation intake of thorium, so ingestion rates weren't listed in Table 7-43 and 7-44 for 1972 to '80, but they were listed for 1980 through '89, so we had the question of was that -- was there a reason or was that just mistakenly omitted?

Next slide.

Observation 4 was the thorium intake rates in tables appear to be incomplete in Table 7-43 and 7-44. Both list thorium intake rates for two periods, '72 through '80 derived from americium data and the '80 through '89 for the inhalation ingested -- ingestion rates from Report 70. However, in the -- in fact, in the Table E-25 and 26 only lists thorium intake rates for '72 through '80 and no ingestion intake rates, so again, was there a reason for that, or was that just a -- not entered when it was made, TBD-7.

Okay. Observant -- next slide.

Okay. So, we're done with the americium. We go now to plutonium, and this is a separate issue in they included in -- when they went from OTIB-81 to T -- TB -- TBD-7, they included Type SS, plutonium intake, in addition to M and S intake rates. And so, they used the plutonium excretion rate from Table 7-8, and they derived the SS plutonium for non-construction and construction workers in a -- of course, in addition to the previous M and S solubility types. They did not revise or add to the plutonium data. And 7-8, Table 7-8 in TBD-7 is the same as Table 4-4 of 81. And they grouped it into excretion rates in Table 7 -- from 7-8 into IR similar excretion rates and

the used the, what we call, the internal dosimetry tool, IDOT, to derive the 50th and 95th percentile. And this is -- IDOT's used for SS-type plutonium as opposed to IMBA. And for non-construction and construction trade workers from '56 through '90 and also the GSD values. And these are all summarized in Table 7-24 of TBD-7. And they also projected the 50th, 84th, and 95th percentile intake rates and GSD in the back in Table E-5 for non-construction workers and Table E-8 for construction trade workers.

Okay. Next slide.

Okay. We reviewed these values for Type SS plutonium intake rate, and we focused on review of subset again. There was a lot of runs, a lot of IDOT runs. And so, we focused on some subsets of those provided in the zip file. We reviewed the -- and verified the correct data entry, the IRs, and projected intake rate, reviewed the plots with the data and the projected bioassay values. Found reasonable fits and did not identify any findings or observations concerning the recommended plutonium Type SS intake rates in Table 7-24, E-5, and E-8 of TBD-7. However, we did have one observation about use of plutonium data in general.

Next slide.

Observation 5, we had the question in that we noticed that when reviewing this at the plutonium urinalysis data wasn't added to or revised in the TBD compared to OTIB-81, but we noticed that the -- there is no plutonium data and analysis -- urinalysis. Data sheets were nearly identical form -- format and often on the same page as americium urinalysis sheet, which was re-coded. And so, could this indicate that plutonium data also needed to be re-coded? And so, we had that question. Did NIOSH look at

that and have a reason for not re-evaluating plutonium data, or should it be evaluated as the americium was?

Okay. Next slide.

Okay. We -- when we review, we also look at the methods and documentation that was used. And so, we had previously reviewed OTIB-81, of course, like I said, and since TBD-7 contained the same analysis in general, the methods, as 81, plus an expanded analysis and quality assurance and (indiscernible). We reviewed additions and revisions that they made and we reviewed -- especially in Attachment A, we reviewed the quality assurance.

And that -- that means error rates and how -- how well that is transcribed and that sort -- checks and balances on that. And, you know, it expanded in TBD-7. And we reviewed that, and it indicated improved or identical data transcription and worker classification acceptable errors for in vitro and also in vivo bioassays. So, we didn't identify any findings or observations concerning their analytical methods or results.

Next slide.

Okay. So, we looked over the text and the documentation to make sure that the dose reconstructor could understand it and it was consistent. And so, we did identify four observations on the next four slides concerning the contents.

Okay. We noticed that in Table 7-7 for tritium -- now, tritium wasn't re-evaluated from OTIB-71, but we noticed comparing the tables that some of the tritium and annual dose GSD values for non-construction workers and construction workers in Table 7-7 of the -- in TBD-7 were different from the

entries in Table 4-3 of OTIB-81. All other values remained the same. There's no indication that tritium value was re-evaluated, so we'd expect that GSD values to remain the same. Again, this may be a transcription error, or if there's a reason, we'd like to -- for NIOSH to address that.

Next -- next slide.

Observation 7, we seen in Table 16 some of the entries need clarification in that it looks like for non-construction trade workers, GSD values in column 4, Table 7-16 of the new TBD-7 for '77 through '89 for neptunium, although neptunium wasn't changed supposedly, contains values that are shifted one row down from the corresponding years compared to the entries in Table 4-12 of the of the OTIB-81. So, since that neptunium wasn't re-evaluated, I think that's probably transcription error, but still, we'd like that clarified.

Next slide.

Okay. Observation 8, some of the Table 7 -- in Table 7-34 need clarification and that -- in the TBD-7 for '61 through '69, it contained values that appear have been switched in columns three and four compared to those in Table 5-15 of OTIB-81. Again, that might be a transcription error. And while all the uranium intake rates and tables remain the same in TBD-7 compared to OTIB-81, the intake rates in column four of Table 7-34 of TBD-7 are slightly less than corresponding values in Table 3 of OTIB-81. But there was no indication that uranium data was re-evaluated for TBD-7. So again, we'd like clarification why that occurred.

One more slide, I think.

Okay. Incorrect text on Page 142 is that Attachment A states there's -

- are no issues with transcription error rates in this SRS tritium database. However, that was concerning the neptunium database, so we believe that it should be neptunium and not tritium on Page 142.

Okay. Next slide.

So, we, again -- we evaluated NIOSH's commitment to modify SRS guidance on any previously identified issues in DR patient reviews, and we didn't identify any in those that NIOSH committed to change that would impact OTIB-81 and therefore, TBD-7 and so, no issues there.

Next slide.

Okay. So, that brings us to the sum -- summary of our review of TBD-7. We reviewed it as to methodology and recommendation and intake rates focusing on major revisions that could impact internal dose assignments. We didn't identify any findings, but we did identify nine observations that are listed there. And some of them are -- might be explained by clarification. Some of them might need change in the text and the -- and the numbers entered into the tables. And that's a summary list of them. I won't go over them all again because you just heard them.

And next slide, please.

Okay. So, that brings us up -- up to the end of my presentation and open for comments or questions.

CHAIR CLAWSON: Anybody have any questions for Ron or any clarification that needs to be done?

MEMBER LOCKEY: (Indiscernible) --

CHAIR CLAWSON: Ron, I -- okay. Thanks, Jim.

So, these are all going to go to NIOSH, and they're going to respond to

those. And this is probably for you, John. You guys will respond to these, but these will be put in to the BRS as pending, correct, Rose?

DR. CARDARELLI: Yes, sir. We will -- we will respond to those through the BRS and our traditional mechanisms.

CHAIR CLAWSON: Okay. Just wanted to make sure we're -- we're all on the same -- same plane, which way we're going with that. So, if we'll -- if there's no more questions, I appreciate that, Ron.

DR. BUCHANAN: Yeah. Thank you.

WORK GROUP DISCUSSION AND PATH FORWARD

CHAIR CLAWSON: Yeah. Okay. So, I guess -- so, we're going to take a little bit about the path forward for the work group. I would like to bring this before the full Board for discussion on the SEC. For -- as far as these -- these documents that Ron just went over, we'll go through those, the same process that we have always gone through with BRS, respond to them, then we'll be able to close them later on when we review those things. Is there any other actions that need to come before the Savannah River Work Group at this time?

Okay. Rashaun -- oop, Bob, go ahead, Bob.

MEMBER LOCKEY: Yeah, I had one question -- one question for Rashaun. Is the next meeting for the -- whole board going to be in person? Do we know yet?

DR. ROBERTS: No, it's not going to be in person. It'll be virtual.

MEMBER LOCKEY: Okay. Thank you.

DR. ROBERTS: Sure.

CHAIR CLAWSON: And Rashaun, is that -- what we're -- for -- just so we make sure, what date is that? Is that the April 29th and 30th?

DR. ROBERTS: Yeah. Actually, it's going to be April 29th only.

CHAIR CLAWSON: Okay.

DR. ROBERTS: And we -- and we have received approval for it.

CHAIR CLAWSON: Okay. So, if we could -- you'd set aside a time for SRS --

DR. ROBERTS: Yes.

CHAIR CLAWSON: -- to be able to present this to the Board? Thank you.

DR. ROBERTS: Yeah. Absolutely.

Petitioner Remarks (Optional to Petitioner)

CHAIR CLAWSON: Okay. Mr. Barton?

MR. BARTON: Yeah. I'm not even sure if we need to address this, but you kind of glossed over it in the agenda, but is there -- do we have any petitioner comments?

CHAIR CLAWSON: Oh, that --

MR. BARTON: That was one of the items. And I -- I don't know even know if we even have a SRS petitioner on the line but thought we should close that one out if not.

CHAIR CLAWSON: (Audio distortion) understanding we don't have any petitioners left, but are there any petitioners for the SRS that would like to have a moment to speak? I'm not hearing any for SRS. I -- I appreciate that.

WORK GROUP DISCUSSION AND PATH FORWARD (RESUMING)

CHAIR CLAWSON: I'm -- I'm good with this, if we want to call this meeting, but I want to make sure, Rashaun -- Rashaun, if you have anything else that needs to come before us as a work group.

DR. ROBERTS: No.

MR. BARTON: I think Dr. Cardarelli has a comment to make.

DR. CARDARELLI: Yeah. Thanks, --

CHAIR CLAWSON: Okay.

DR. CARDARELLI: -- Bob. Very quickly, I just wanted the work group here to know that on April 22nd, a little over a week before the next Advisory Board meeting, there will be a joint outreach task group that presents the compensation program. And that is being held in Augusta, Georgia, very near the SRS plant. And I'll be going down there with communications folks just to present the NIOSH dose reconstruction process as part of the overall compensation. The Department of Labor is leading that effort, and there will be representatives also there from the Department of Energy. So, this is more an informational note for the working group.

CHAIR CLAWSON: Do you know if that's going to be televised or if -- if you can call in or listen to it? Do you know if that's going to be that way, John?

DR. CARDARELLI: I don't have that detail, so I can't answer that question right now, Brad. But I will contact the organizer and ask them about its availability to the people who cannot show up in person.

CHAIR CLAWSON: Okay. Because -- yeah, I may want to listen in on

that a little bit there. But okay. I appreciate that.

Rashaun, anything else or Paul?

MEMBER ZIEMER: Is that --

MEMBER POMPA: Bradley, this is David Pompa. Is that meeting April the 22nd, if we're not allowed to listen, maybe they could record it and we could listen to it later, hopefully.

CHAIR CLAWSON: I don't know (audio distortion) that's Department of Labor sets it up for people that can call in and listen to that, to the meeting. And it's -- it's just good to hear what -- what is being said by the people and also by -- what's going on with Department of Labor and NIOSH. It's just -- yeah, we've been able to do it before, but I just wonder if you have that capability. So, I'll look for that from the Department of Labor and go from there.

MS. MARION-MOSS: Brad, this is Lori.

CHAIR CLAWSON: Yeah.

MS. MARION-MOSS: This is Lori. We will find out if -- what the -- the Department of Labor will offer for that event, and we'll let you know as soon as we can.

CHAIR CLAWSON: Okay. I appreciate that, Lori. It just -- it's just another option sometimes. It's kind of beneficial for us as Board members to hear what -- what -- what the petitioners have to say and everything else like that, and also what the Department of Labor, how they represent it too. So, I appreciate that.

With that, Rashaun, I think we've finished our SRS Work Group meeting, and I'll turn it over to you if there's anything else that you need to

bring before it.

DR. ROBERTS: Thank you, Brad. There -- there's nothing else that I needed to bring. I just want to let you know that I will be in touch about, you know, the definition, the write up for, you know, what you guys are presenting to -- to the Board. And so, I'll be in touch after the meeting.

CHAIR CLAWSON: Okay. That sounds good. And with that being said, we'll call this work group to an end. I appreciate all of you putting forth the time and the effort and the discussions that we've had, and I appreciate it. So, with that being called, the Work Group of Savannah River is come to a close.

(Whereupon, the meeting was adjourned at 1:34 p.m. EST.)