CENTERS FOR DISEASE CONTROL AND PREVENTION

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

ADVISORY BOARD ON RADIATION AND WORKER HEALTH

TELECONFERENCE OF THE SUBCOMMITTEE FOR PROCEDURE REVIEWS (SPR)

THURSDAY, FEBRUARY 16, 2023

The meeting convened at 11:00 A.M. EDT

Josie Beach, Chair, presiding.

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Members Present:

Josie Beach, Chair

Loretta Valerio, Member

Paul L. Ziemer, Member

Registered and/or Public Comment Participants:

Rashaun Roberts, Designated Federal Official

Nancy Adams, NIOSH contractor

Bob Barton, SC&A

Kathy Behling, SC&A

Ron Buchanan, SC&A

Grady Calhoun, DCAS

Doug Farver, SC&A

Rose Gogliotti, SC&A

Ashton Habighurst, HHS

LaVon Rutherford, DCAS

Mutty Sharfi, ORAU

Tim Taulbee, DCAS

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PROCEEDINGS

(11:00 a.m.)

Welcome and Roll Call

DR. ROBERTS: So, good morning, everybody. Welcome to the Advisory Board on Radiation and Worker Health. This, as you may know, is a meeting of the subcommittee on procedures review. I'm Rashaun Roberts, and I'm the DFO for the advisory board.

The agenda for today, along with other meeting materials, are available on the NIOSH website under scheduled meetings for February of 2023.

Since the subcommittee will be discussing a number of different documents today, some of which may involve -- might involve specific sites, we do need to address conflict of interest. If a conflict does happen to come up during the course of the meeting, subcommittee -- subcommittee members and others do need to recuse themselves from the discussion where the COI applies. So as we move through the roll call, subcommittee members and others, please state where you have a conflict of interest.

So let's go ahead and start with the Chair, Beach.

CHAIR BEACH: I'm here, and I am conflicted at Hanford. Good morning.

DR. ROBERTS: Good morning. Cassano? Okay, don't hear Cassano. Valerio?

MEMBER VALERIO: Loretta Valerio, I'm here, and I'm going to go ahead and conflict myself out of all sites in New Mexico.

DR. ROBERTS: Okay. And Ziemer?

MEMBER ZIEMER: I'm here and am conflicted at Oak Ridge X10. And how do I get rid of the voice on Zoom because I'm -- I mean, I have my -- I'm -- I have it muted, but I'm still hearing other people over Zoom and my phone.

DR. ROBERTS: Huh. I'm not quite sure how to get out -- you may have to go out of Zoom and rejoin and then just click the X at the top of the box when it says "join audio," just don't -- you know, don't click join audio, press the X at the right-hand side of the box.

UNIDENTIFIED SPEAKER: Or you can just turn off your volume on your computer.

DR. ROBERTS: That probably is easiest. Thank you. Okay. So we do have a quorum, so we can go ahead and proceed with the rest of the roll call.

Anyone from DCAS?

MR. RUTHERFORD: LaVon Rutherford.

DR. TAULBEE: Sorry, this is Tim Taulbee, I'm conflicted at Mound.

DR. ROBERTS: Okay. I heard --

MR. RUTHERFORD: This is LaVon Rutherford. Yeah, I'm conflicted at Fernald.

DR. ROBERTS: Okay.

MR. CALHOUN: This is Grady Calhoun. I'm also connect -- conflict -- conflicted at Fernald.

DR. ROBERTS: Okay, thank you.

MS. MARION-MOSS: Lori Marion-Moss.

DR. ROBERTS: Anyone else? Okay.

MS. MARION-MOSS: Can you hear me?

DR. ROBERTS: Yes, I can hear you.

MS. MARION-MOSS: This is Lori Marion-Moss, and I'm conflicted at Mound.

DR. ROBERTS: Okay.

MR. SHARFI: Mutty Sharfi of the ORAU team, I'm conflicted at Mound.

DR. ROBERTS: Anyone else DCAS? ORAU? Okay, moving on to SC&A.

MR. BARTON: Bob Barton, no conflicts.

MS. BEHLING: Kathy Behling, no conflicts.

DR. BUCHANAN: Ron Buchanan, conflicted as Los Alamos.

MS. GOGLIOTTI: Rose Gogliotti, no conflicts.

DR. ROBERTS: Anyone else at SC&A? Okay. Let's move on to HHS and contractors.

MS. HABIGHURST: Ashton Habighurst, HHS, no conflict.

MS. ADAMS: Nancy Adams, NIOSH contractor, no conflict.

DR. ROBERTS: Are there participants here from -- from DOL or DOE -- or attendees, rather? Okay. And are there any members of the public who would like to register their attendance at this point? Okay. Hearing none, so I just want to say, we don't have a public comment session today. Again, if there's anyone from the public who'd like to announce themselves anyway, they're welcome to do so now.

Okay. And hearing none, again, I'd like to welcome all of you. I do

need to go over a couple of additional items before I give the floor to Josie Beach who chairs this subcommittee.

So in order to keep everything running smoothly so that everyone speaking can be clearly understood, everyone, please, mute your phone unless, of course, you need to speak. If you don't have a mute button, press star 6 to mute. If you need to take yourself off mute, press star 6 again.

And since this is audio, just to be sure that our court reporter can get everything down, if you would, just identify yourself as you're speaking.

The agenda and the presentations and background documents, again, that are relevant to today's meeting can be found on the NIOSH/DCAS website. All of the materials were sent to board members and to staff prior to this meeting. So with that, I'll go ahead and turn the meeting over to Josie.

CHAIR BEACH: All right, thank you. Good morning, everyone. Just a couple of housekeeping items. Is our agenda good as listed, or are there any changes that need to be made?

MS. BEHLING: Josie, this is Kathy. From SC&A's perspective, we are fine with the agenda as it is listed.

CHAIR BEACH: Okay, perfect. Sometimes I know we have to tweak it.

I'd like to start with our first item. I'd like to try to get through the first four and then take a look at where we are time wise and take a break at that point. But if it's -- if it's too soon in the meeting, we'll -- we'll postpone. But some -- somewhere about halfway through, let's get a good half hour

break in so those that need lunch can do that. And if there's no other (indiscernible), we'll start.

I think, Kathy, you're going to be presenting the OTIB-52 discussion.

MS. BEHLING: Yes, that's correct. I think I'm sharing my screen; am I correct? I have the agenda up. Can everyone see --

CHAIR BEACH: Yes, I see --

MS. BEHLING: -- that?

CHAIR BEACH: -- the agenda.

ORAUT-OTIB-0052

MS. BEHLING: Okay, very good. Let's see if I can open my presentation. All right. Here we go. Are you seeing my presentation?

CHAIR BEACH: Not yet. The agenda is still up. Anybody else?

MS. BEHLING: Okay.

MEMBER ZIEMER: I'm not seeing --

MEMBER VALERIO: I see the agenda.

MS. BEHLING: Okay.

MEMBER ZIEMER: Just the agenda, yes.

MS. BEHLING: Try this again. Okay.

MEMBER ZIEMER: There it is.

MEMBER VALERIO: Yes.

CHAIR BEACH: Yep, it's up. Thank you.

MS. BEHLING: Okay. This is a discussion of OTIB-0052. And OTIB-0052 is the parameters to consider when processing claims for construction

trade workers. And I've mentioned many times over the last several meetings that there is somewhat of a complex history about presentations of -- and what SC&A has reviewed and presentations to the subcommittee. And the subcommittee has actually presented OTIB-052 to the board, actually twice, we'll be discussing today. So today, we're just going to revisit this OTIB, see where we are in the process, and how we move forward.

Okay. As I said, OTIB-0052, parameters for -- to consider when processing claims for construction trade workers, and it provides guidance on the development of co-exposure models for unmonitored construction trade workers. There have been multiple revisions, SC&A reviews, and board discussions. And at the May 2022 meeting, subcommittee tasked SC&A to present a summary of the -- of the history, and so that's what we're doing today.

Okay, here's a little chronology of OTIB-0052, and it actually starts in August of 2006 when the OTIB was issued. Then rev. 1, PC 1, page change 1, was issued January 16, 2007. And SC&A reviewed rev. 0 and submitted our report in July of 2007. In that review, we identified 16 findings. Thereafter, PER-14 was issued in November of 2007 to evaluate the construction trade worker claims that had been adjudicated prior to the issuance of OTIB-0052.

In February of 2011, rev. 1 of OTIB-0052 was issued to address five of SC&A's 2007 findings. And then in July 2011, SC&A reviewed OTIB-0052, rev. 1 and determined that the status of a -- to -- part -- the review of that

01 was to determine the status of the 16 findings. And that review revealed that six of the findings were closed, three were transferred to OTIB-20, one was in abeyance, and six were in progress.

Okay. SC&A also reviewed PER-14 in March of 2012. And in July of 2014, NIOSH issued rev. 2 of OTIB-52, which is the current version. Lastly, to assess the impact of revisions 1 and 2, NIOSH issued -- issued PER-62 in November of 2017. And SC&A reviewed PER-62 In May of 2018.

Now as I mentioned, this OTIB and the findings were presented to the board two separate times. The first presentation was in March -- it was March 12, 2013. And that's when the OTIB was -- that's when we were discussing rev. 1 and rev. 0 and the 16 findings. I have also included -- I should have mentioned this up front. I've also included a handout that gives more details, and it lists all of the 16 findings and how they were ultimately closed. The board, during -- during that board discussion, there were several questions that were -- that were raised and the -- which I'll discuss on the next slide, and the board also had requested a follow-up discussion of this OTIB.

And here are the various questions that were asked by the board. And the questions asked about how were the construction trade worker ratios established; what is the basis for those ratios; how does the dose reconstructor determine if it's appropriate to apply this to a particular site; who made decisions to put construction trade workers into a category of using exposure -- coexposure data; there was also a question as to why how coexposure data was used to assess construction trade workers as opposed

to issuing an SEC; what was the science behind the 1.4 correction factor; is the correction factor applied to all construction trade worker job titles; and how is OTIB-52 being used and where is it applied. So there were obviously numerous questions by the advisory board, and although the -- the board requested a follow-up discussion of these issues, at least based on my review of several subsequent transcripts of board meetings, I could not find that there was ever a NIOSH follow up.

So, again, on December 13, 2017, the subcommittee presented to the board OTIB-52, rev. 2, and again discussed the resolution of the 16 findings. During that meeting, the board raised two additional questions that I've summarized on the next slide.

First of all, the board said that updating OTIB-0052 may be necessary due to related issues being discussed at other sites such as Savannah River and Hanford and INL, and NIOSH agreed but stated that OTIB -- OTIB-52 will continue to be used until other data becomes available. And NIOSH was working on a Savannah River site draft implementation guide that may prompt changes in the future.

Question two, the question had to do with NIOSH's response to SC&A's finding 8. In finding 8, it questioned why NIOSH solely used data from the Savannah River site external dose HPAREH database and that database only contains dosimetry data for employees in -- in 1979 or later. So the -- NIOSH did respond that there were discussions on the application of the SRS database for workers who terminated prior to '79. However, NIOSH was not prepared to provide details at that meeting. So the vise -- advisory board

had requested that NIOSH provide a follow up regarding the questions and to clarify the questions that they had at this meeting. And again, I could not find where NIOSH presented or provided any follow-up data or -- to answer the questions for the advisory board.

So that summarizes where we've been on OTIB-0052. And I'm open for discussions as to how we should proceed. And perhaps NIOSH would like to -- to interject here and make some statements also.

CHAIR BEACH: Yeah, we'll -- we'll have -- we'll definitely have NIOSH respond.

First, I have a question. This is Josie. The second OTIB-0052, I think it was rev. 1 or rev. 2 -- rev. 1, was that a full review or was it a focus review?

MS. BEHLING: Rev. --

CHAIR BEACH: Sometimes (indiscernible) focus (indiscernible) these.

MS. BEHLING: Yes, I know. I believe -- I want to say that was a focused review just to see if these find -- if the 16 findings were addressed. I'd have to actually go back and look at that closer. But I think that may have been a focus review. I guess, in my mind, one of the things that we can do, and perhaps should do, is the current BRS, temporary BRS that I am compiling information on now because we don't have access to BRS -- in fact, I've expanded that a little bit, and I think it has to be expanded further -- they -- the one we were using online, Lori had already expanded that to include questions that the advisory board had when we were presenting these -- these guidance documents. And so, as a minimum, I would suggest that these questions that were raised by the advisory board, we include

those on our temporary BRS matrix. And I'm not sure how to go forward or how -- how the subcommittee would like to go forward from there.

CHAIR BEACH: Okay. So I agree that they should be included. I think these were early on. I know that 2013, I don't think we were capturing board comments as well as we do now. But other -- other subcommittee members, Paul or Loretta, questions or comments?

MEMBER ZIEMER: Yeah, this -- this is Ziemer. Well, I agree that we need to address these. I don't -- I don't think the present format will fit into our -- our grid system. These aren't really findings, but they are questions that were raised relative to that document. So, I guess we need to get some idea from NIOSH as to how they are -- have they been looking at it, or has this caught them by surprise as well. Where -- where do we stand from a NIOSH point of view and how -- how would we approach these going forward? I mean, we sort of need to address them like they were findings, but they -- they really aren't findings, they're questions.

CHAIR BEACH: Correct. And -- and you notice that the 2017 questions were answered by NIOSH in --

(Whereupon, there was an indiscernible audio interruption.)

CHAIR BEACH: -- 2013 that was missed, so -- as far as I know. Loretta, anything before we move on to NIOSH comments?

MEMBER VALERIO: No, I'm just -- I'm just gonna hold off and see what NIOSH's response is at this point.

CHAIR BEACH: Okay, thank you.

Is -- somebody from NIOSH want to chime in?

DR. TAULBEE: Hi, this is Tim. And if I -- I guess, Kathy, could you move to slide eight, please? And I know this is something that, you know, you mentioned, Josie, that NIOSH had responded to, but what I want to draw your attention to is kind of the last part of our response, that we're in -- at -- in 2017, we're in the testing phase with the SRS draft implementation guide. This is the coexposure implementation guide that the board passed back in 2020. And so all of this kind of applies under that realm of we're updating all of our coexposure models, and in some cases, we're breaking out construction trades workers from operations workers and in other cases, we're combining them together. And the application of these factors is going to be more on a site-by-site basis. But we're -- we're kind of revamping this entire approach now.

In the interim we're doing -- we plan on continuing to use OTIB-52 and the CTW correction factor of 1.4 until other data becomes available. And that hasn't changed from 2017, but now we have new guidelines, a new implementation guide, of what we have to do to demonstrate these coexposure models for both operations and for construction trades workers.

So I mean, we can go back and answer all of the 2013 questions that were raised, but I will say the same resources that would be answering those questions are currently developing the new coexposure models. So it's more of, I guess, a question back to the board, of do you want us to go back and focus on those or do you want us to continue on the path of implementing the approved guidance that you-all approved in 2020?

CHAIR BEACH: That's a great question, Tim.

MEMBER ZIEMER: This is Ziemer, let -- let me partially ask a question to answer that. Tim, if you were to go back and answer these today, as opposed to sort of the idea that they are going to be taken care of with the upcoming revisions, what exactly would you end up saying beyond what you just told us?

DR. TAULBEE: Yes, thank you, Kathy, for going back to number six. Well, in going through -- you know, in looking at these that Kathy summarized, you know, just take, you know, what is the science behind the factor of 1.4. I mean, we -- we would -- we would go through and we would, you know, kind of reproduce that and demonstrate it, you know, of how we came up with that and then to write it up and describe it.

The -- some of the other questions of, you know, the validity in establishing such a ratio, that's really been taken care of in the -- in the new coexposure implementation guide, because now we have to document a whole lot of information about the monitoring requirements, both external and internal, and why they apply and why they apply to both operations and to construction trades.

So, you know, something like that, it makes it harder to answer. Our current approach is to do this on a site-by-site basis in building the case for the coexposure model. I'm not sure that answers your question, Dr. Ziemer, but does that help?

MEMBER ZIEMER: I guess partially it helps. It's not what -- what I'm concerned about is are we comfortable going forward with these questions sort of hanging out there yet versus taking the time to answer them all. I

think, for example, the correction factor, I think that's come up before. And I have a feeling that was answered somewhere in the past, but I -- you know, I can't put my finger on it. And if you're saying we do some of these things site by site, then we really get into cases where we have to look at how dose reconstructors -- you know, how it comes out when we monitor some of these things. I -- I -- I'm -- I'm -- I'm just not confident that answering them all right now has any particular value. That's what I'm struggling with.

CHAIR BEACH: Yeah, --

DR. TAULBEE: I would agree with you on that, Dr. Ziemer.

CHAIR BEACH: Yeah, this is Josie. I feel the same way. I'm gonna throw this back at Rashaun a little bit. I know this is early on, Rashaun, before your time. And we are really trying to go back and look at all the questions and try to have some kind of track -- tracking device. Can you give us your perspective on this? I feel like these are gonna get answered at some point. And maybe we carry them forward as a subcommittee for when this new criteria comes out that we don't lose them. Is there anything that you can add to this discussion?

DR. ROBERTS: No, I'm -- I'm not sure how much more value I can really add. You know, I thought that there was a system already for sort of tracking and documenting everything that -- that Kathy had put together.

MS. BEHLING: Yeah. This is Kathy. I -- I -- if you would like me to interject. Yes, in fact, I just pulled up, I think, the last -- the last actual document or report that I got off of the BRS system. At that point in time,

we had already -- I think Lori and her team there had introduced -- once we decided that everything that was done by the subcommittee was going to have to be presented to the full board, we added a couple -- several columns we -- to the BRS system, one being advisory board open, so we can lift --

(Whereupon, there was an interruption from an unidentified speaker.)

MS. BEHLING: -- from how many -- how many questions they may have or how many issues they raised. And so we have an advisory board open, an advisory board closed, and then -- and ultimately, the document closed date. And so we already have in place in, at least the -- the old BRS system that we no longer have access to, -- and so I can add columns to my temporary BRS to incorporate that -- that data into what we're tracking right now. And I think that's important. And as you've stated, I don't think these --

(Whereupon, there was an interruption from an unidentified speaker.)

MS. BEHLING: I'm sorry, is somebody speaking?

DR. ROBERTS: I'm -- I'm hearing some interference. If people can, make sure you're on mute, please.

MS. BEHLING: Okay. And all I was going to say is if NIOSH is not in a position to answer these questions, it -- we do have a means now of tracking them. I just have to expand my summary table and then add more information into the details table that follows. So that shouldn't be a problem at all for the tracking purposes. And as I mentioned, it already exists in the BRS system that we used to be able to access.

CHAIR BEACH: Yeah. And this is Josie. It -- it -- to me, that seems

like the logical choice instead of having these answered and stopping the implementation of the coexposure models that are being produced right now. That -- we just have to be able to go back and kind of cross-reference it, if at all possible, that there's nothing outstanding moving forward.

Tim, can you give us a time line on -- I know this is always a loaded question -- on, like, when some of these are going to be available?

DR. TAULBEE: Well, as you -- as you know, we are currently working on the -- on updating the coexposure models, but this is a very lengthy process. This is going to take multiple years here to get all of the sites that we have coexposure models done from that standpoint.

So I really can't give you a time period of when this is going to be completely resolved from that standpoint. I will say that once we get a coexposure model completed and done, that is when we look at, you know, the PER type of process of whether we need one and whether we don't, whether the doses go up, whether they go down, and then we look at it from that standpoint. But I don't have a -- I'm sorry, I don't have the date of when this will all be wrapped up, but it will be multiple years.

CHAIR BEACH: So would it be difficult Tim -- this is Josie again -- to go back and look at those questions on slide six and give a brief answer as to what's happening with each one of those and potentially close out some of them that moving forward aren't going to change or...? I mean, is that something that you could do relatively quickly and easily?

MS. BEHLING: This is Kathy. I was --

DR. TAULBEE: I'll wait. Go -- go ahead.

Chair Behling: Go ahead, Kathy.

MS. BEHLING: Okay, thank you. I'm sorry, I didn't mean to interrupt. I was -- Josie, we're -- you're speaking exact -- I was going to ask the same question. Is this implementation guide that has already been developed for moving forward with the coexposure models, would -- would presenting that to the full board answer any of these questions so that some of these could come off the table?

MR. BARTON: This is Bob. Could -- can I make a comment here and -- and also a question because I think the question that's really -- really on the table here is, as Tim said, a lot of these questions would be answered on a -- on a site-by-site basis when developing the coexposure models based on the implementation guide. However, there's, I'm sure, many sites where that factor of -- for example, what is the science behind a 1.4 correction factor, that's going to apply to sites that don't necessarily have a traditional coexposure model. I guess my question is, for you, Tim. I mean, that factor will still be used at other sites that won't necessarily have the new coexposure methods based on ID 6, which is the implementation guide that we're talking about.

DR. TAULBEE: That is correct. I -- I -- I guess, though, from a long-term goal type of standpoint is I was hoping to get more of these coexposure models under our belts and then revisit things like the factor of 1.4. I mean, we can -- we can tell you what the science is behind it right now. The problem is that we've changed our methodology on how we handle missed dose and how we do some of those. So that factor may --

will likely decrease from that standpoint, which is why we're comfortable using it right now. But if we apply those newer methods to it -- you know, I mean, we can answer how we came up with that at this point, exactly, from that standpoint. But if there's questions and -- and disagreement with it, well, that's not necessarily how we're going to be using it going forward once we get these -- you know, more of these coexposure models under our belts and fully developed and vetted. So it's kind of a developing science thing here that we're working on.

And, back to your question, Kathy, yes, we could answer some of these, like, you know, do you apply the correction factor to every job title in the construction industry? All of them that we identified to my knowledge, yes, unless there's evidence that, you know, this worker, you know, never entered radiological areas, that type of a thing, then we don't even apply a coexposure to that person. So, there -- there's different factors, and that's handled through the dose reconstruction review.

Your third bullet there, what kind of evaluation quantitatively needs to be done when applying and determining whether to apply this to a particular site, that really falls under the new coexposure implementation guide. So, that's the answer to that. That type of quantitative evaluation -- quantitative and qualitative from that standpoint. So yes, we could answer a few of these or possibly most of them in short order, but I'm not sure those answers are going to be really satisfactory, you know, to close them out, if that makes any sense.

CHAIR BEACH: Yeah, and, you know, there's two schools of thought

on that is, if you can move forward with the ones and close them out with a brief explanation, otherwise, they just get hung out and in five years we're looking at that going well, that never got answered. I think more on a closed -- closer -- closure factor is what we're thinking, too. I don't know. What does the rest of the subcommittee think?

MEMBER ZIEMER: Well, some of these seem to be less important than others. Like who made the decision we were going to put construction workers in a category using coworker data. I -- I'm not sure it's important to know who made the decision. You might say why, but that -- that's sort of kind of a superfluous item, I think.

The last one, how is OTIB-0052 being used? Kind of a bottom-line question right now, and that might be an important one, just to sort of provide an overview, a brief overview, of how it's being used now, or how it's applied now.

CHAIR BEACH: Yeah.

MEMBER ZIEMER: I don't know to what extent that might satisfy people on an interim basis, because that's really kind of a bottom-line thing. Some of the others look like they were -- would be fairly simple. But not the ratio -- how are the ratios established, but, again, the idea of taking a lot of time working on these, I -- I'm not comfortable with that at all. If there were some simple things that we can put a few aside going forward, that will be fine. Otherwise, we can carry them forward the way that Kathy suggested and see how they played out as the new document becomes available -- until the new guides become available.

CHAIR BEACH: Yeah. This is Josie. Paul, you kind of said do it, but don't do it. So, Tim, if you could --

MEMBER ZIEMER: Yeah, that's a -- yeah.

CHAIR BEACH: Yeah, I know. So, Tim, if you could, briefly answer or have someone answer to the best of your ability now with brief answers, and we can just move those forward in -- and capture them. Some of them are not going to be answered because of the new implementation you're working on. Some of them you can probably dispatch fairly reason -- easily.

DR. TAULBEE: We can certainly do that. We can -- we can look at all eight of these here and look at those that are really going to be changing due to the new implementation guide and those that we can address quickly. And those that we can address quickly, we can come back to the committee with those answers at the next meeting.

CHAIR BEACH: Okay. That would be great.

And, Kathy, that doesn't stop you from go ahead and adding these into your tracking system, and then we'll move this as a carry-forward for the next meeting, and just a brief topic, if that's satisfactory with everyone.

MS. BEHLING: Okay. The only question I have --

MEMBER ZIEMER: This is Ziemer. That sounds good to -- sounds good to me.

MS. BEHLING: This is Kathy. The only question that I have, Josie, is would you like to list these in the detailed summary or in the detailed discussion on other BRS as in abeyance? in progress? how would you like to categorize them?

CHAIR BEACH: I would say in progress at this point, and then after the next meeting, that may change.

MS. BEHLING: Okay, thank you.

CHAIR BEACH: Some of them, we should be able to close, I'm assuming with a brief discussion, and some will not close, obviously, and they'll be carried forward probably for years to come. Maybe one or two of them.

Paul, Loretta, you agree with the path forward here?

MEMBER VALERIO: I agree, --

MEMBER ZIEMER: This is --

MEMBER VALERIO: -- Josie. I just --

MEMBER ZIEMER: -- Paul.

MEMBER VALERIO: Go ahead, Paul.

MEMBER ZIEMER: No, go ahead.

MEMBER VALERIO: So, I just wanted a clarification a clarification from Tim. And you mentioned something about combining -- sometimes they separate out the construction trade workers from the operations workers and sometimes they combine them, and I'm just wondering, you know, what is the -- the -- who makes that distinction to separate them and if they're combined with the operations workers, I just need clarification, are they still using the 1.4 correction factor in the dose reconstruction?

DR. TAULBEE: Yes, the -- well, it's complicated for a -- for an answer there. It's not a one size fits all. It depends on the site as to whether we apply that or not. And so, I'm sorry, I can't give you a -- you know, a real

straight answer there.

With regards to the -- you know, the separation and, you know, how we make that decision, it's on a site-by-site basis, and it depends upon how they were doing the monitoring for that site. So, again, that's -- that's something that's followed in the new implementation guide and discussed. Under the current TBDs, it's actually specified in most of the -- especially for the larger sites -- as to how this gets applied, whether it's already incorporated into the coexposure model, where they took the operations one and multiplied by 1.4 and that's in the TBD or whether it's -- they take the single table and multiply it. It's varied by site by site. Does that help?

MEMBER VALERIO: It does, thank you.

MEMBER ZIEMER: And Josie, this is Paul, again. I -- in terms of going forward, I agree with what you described as a path forward.

CHAIR BEACH: Okay. And Bob, you did chime in earlier, Bob Barton. This is Josie again. Any -- you okay with this path forward -- path forward as well?

MR. BARTON: Certainly, it was really just a question about -- and part -- partly Tim answered by just saying they went and revisited that factor of 1.4, it would likely decrease.

CHAIR BEACH: Yeah.

MR. BARTON: The question was, you know, the -- as it's been said, these coexposure models, you know, will probably take years to complete for all the sites that need them, and in the interim, this factor is going to be used. And if it's claimant favorable and conservative as it stands right now,

I don't think there should be any rush to correct it at this stage.

CHAIR BEACH: Right, and I -- I know we talked about this last meeting as well, so agreed. Okay.

So Kathy, you good with that? Ready to move forward?

UNIDENTIFIED SPEAKER: You're muted, Kathy.

MS. BEHLING: Okay. I'm sorry. I was muted. I am ready to move on if everyone else is.

CHAIR BEACH: Okay. So, that is documented as a NIOSH and just a brief discussion.

Sites with Template DR Methodologies

CHAIR BEACH: The next topic we're going to move on to is the templates. And I -- I -- you-all remember we did have a discussion about these templates. While we've had them for the last several meetings, Tim gave a pretty good example of the templates with slides. Hopefully everybody got a chance to go back and review that. But Kathy has a handout. And Kathy, I think you can go ahead and put that up whenever you're ready.

MS. BEHLING: Okay.

CHAIR BEACH: Hopefully the subcommittee members all had a chance to think about what their thoughts are on this -- the templates and how to move forward.

MS. BEHLING: Okay. Are you seeing my screen?

CHAIR BEACH: Yes. All right. I think someone asked earlier on the

chat if you could expand your screen to as big as possible. It may already be there, but.

MS. BEHLING: Does that help?

CHAIR BEACH: Yeah. I actually have it up on my other computer, too, so.

MS. BEHLING: All right. Okay. I just wanted to present to the subcommittee again, this discussion, as -- as Josie has said, regarding these -- what has been termed as these templates. And I sent something to the subcommittee members that is -- is in the ECP -- on the virtual volume, that you can look at. But I wanted to -- I wanted to point out to you that there are two separate documents that are used here.

And when we had the discussion in the last meeting between Tim and Doug regarding the Peek Street facility, there was a lot of discussion on the fact that there is a template that is actually used by the dose reconstructor to create the dose reconstruction report, but there's also a second document that's the DR methodology for these -- these sites.

So, I -- I don't think many people have probably even seen these templates. They're color coded. And I just wanted to make you aware that there is a distinction between these two -- two documents.

I also wanted to point out that the list that we have here, this was supposed to be discussed during our last meeting, so this was a carryover item. I did get a message from Lori Marion-Moss this morning indicating that she's working on updating this list. So, but I think for today's discussions, I -- and I think she indicated she would have it after this

meeting. But I think for today's discussions, we -- we can use the list that exists.

And if we scroll down here, we can see there's a lot of sites, and most of this dose reconstruction methodology, as I've been saying for years, has not been reviewed. And the only avenue typically that we have to review these documents is when a PER is issued. We have reviewed -- I think there's three on this list, the Norton facility, Peek Street facility, and Westinghouse Nuclear Fuels, which we -- we have reviewed at this point. I think -- I think Peek Street, we were actually asked to review that separately. It wasn't just a PER issue.

And so if this is something that the subcommittee feels that we should be looking at, I -- this is our list. And I realized that during the last present -- or during the last meeting, Tim did give you an indication that there are some documents -- some of these documents on this list that they are considering making into a site profile.

When I was thinking about how we should move forward or suggestions that I might have for the subcommittee, if they -- they think that SC&A should look into this dose reconstruction methodology, I was initially thinking -- and I had mentioned this at --during our Peek Street discussion -- that in years past, when we looked at dose reconstructions through the PER process that had a template, NIOSH would send me an old template with -- from the dose reconstruction report and then they would send me the new template from the dose reconstruction report.

However, in giving that some thought -- and I know Tim -- Tim seems

to support that that would be a good method for reviewing this documentation.

The only thing that came to my mind is unless we get a full -- a full dose reconstruction report, one that has all of the exposure pathways, the internal, the external, the environmental, and the medical, we're not going to really be able to assess the methodology for all those pathways if we don't find a case where all of those are put together.

So, I'm suggesting that if the subcommittee wants us to review these, maybe we do two things. We do a review of a case, but we also review this dose reconstruction methodology. And you can see the various versions that are up on the screen here.

But do the dose reconstruction methodology so we can see all of the pathway exposures, and then also look at maybe a case that was done to ensure that that template that's created from this report, from this DR methodology report, is actually correct and it's being implemented correctly. It's almost the same concept that we have when we do our PERs and we do our subtasks four case review to say was this implemented appropriately.

I guess the other question that I had is in selecting which -- which sites we may want to look at, if the subcommittee decides that we're going to review these, is there are case -- there are sites, as Tim mentioned, that are going to become perhaps site profiles. It seemed like that may not be in the very near future. But one of the questions that I did have for Tim, just so that I could give the subcommittee a better understanding of this, is that conversion between these templates and these DR methodologies --

documents and converting it into a site profile, I'm wondering what that's really going to entail. Because if it's simply going to be assigning a number to that document, going through a -- a more thorough review process that -- that is implement -- that is established right now for -- for control documents and -- or are you going to be delving into data and trying to find more data associated with that site?

Because if -- if the first option is that it's going to get a number, it's going to get, you know, maybe a couple layers of review to make sure that all the numbers in the document are correct and that type of thing, it seems to me, we could still review that because not a whole lot is going to change between documents that exist now and when it becomes a site profile. So if the substance behind the dose reconstruction methodology is not going to change between those two processes, it doesn't seem to me that we would be wasting our time to go into, maybe, those -- those sites that are the larger sites, the sites with -- the -- more -- more claims, which is what I assume NIOSH will be, you know, focusing on first if they're going to make a site profile out of some of these documents.

So those were my thoughts. And so Josie, I'll let you take -- take over from here if you have any --

CHAIR BEACH: Okay, thanks. And -- and I'll let Tim go. I know in Tim's slide, presentation slides 16 and 17 listed all the sites and the top four, Metals and Control, BWXT, General Electric, and Wah Chang. Those were the four listed to be developed into TBDs, and then the next three, and -- and check -- and Amchitka Island, Westinghouse Nuclear Fuels, and

Albuquerque Operations Office were on, like, phase two. Tim, is that still the path?

DR. TAULBEE: That is correct. And -- and I will say that the work is currently underway for the top four. Those who have been tasked to our contractor ORAU to develop.

And to answer one of the -- Kathy's questions there, you know, are we just, you know, adding a document number to this, and no, that's not the case. It is more on the part two and three that you were talking about where we are going through and fully developing a site profile TBD, just like we did with all the other sites. And in that process, in some cases, we go out and we do look at new data and collect new data, capture new data, and we are in the process of doing that right now for some of these.

Remember, the original origin of the dose construction methodologies was to process small numbers of claims. And so, you know, some of these DRs -- DR methodologies might only apply to one or two claims. And, Kathy, when you're talking about, you know, looking at both claims and the methodology to look at all of these potential exposure pathways, if we don't have any claims that are, you know, exposed to all those pathways, the DR methodology might be silent on it. It's not that we don't know that there, but there may be nothing there listed and, you know, that would be something you'd come back with a finding of oh, like, this site did this, but we don't have any claims of anybody who did that. So the DR methodology wouldn't have that information in it.

So I really think you need to look at the claim first, in my opinion,

because that's how these things are used. The claims are designed to be standalone. And then, kind of, as a second approach, look at what we've got in the -- in the particular templates and -- and the methodologies.

So but I would -- I would not recommend going for the four that we have currently underway. I mean, you can. They're probably going to result in a lot of -- or not a lot, but some, you know, observations and findings possibly. And our, you know, response is going to be look at the new TBD, you know, site profile that we put out where we've addressed this. So, you know, it's up to the -- to the subcommittee here, but I -- I would actually focus on -- you've got, what is it, 20 or so here, and we have four currently being worked on. The others are not yet, so.

CHAIR BEACH: So, can -- can -- Tim, I agree with you on not going to the top four. I think that would be a waste of efforts. Like you said, we would find findings, and you're already working on it. What about the next three, the -- the phase two, can you give us a time line on those, like the first four and then the last -- the second three?

DR. TAULBEE: I know the next three have not been tasked yet. So I mean, we haven't even started working on them. We're kind of, you know, approaching this, like you mentioned, in a phase type of approach.

Once we get the first four done, then we'll start adding on to the others. So I would -- I would expect it's going to be over a year before we get to the next ones. But I don't have a hard schedule here in front of me.

I guess I could go -- we can look into that as to what the project plan currently says of what those due dates are. I don't have that information off

the top of my head, but I'm 99 percent sure it's a year out.

CHAIR BEACH: Okay. So the first four would -- those are going to be within, say, a year -- a year-ish. And then the other one's not scheduled yet?

DR. TAULBEE: That's correct.

CHAIR BEACH: Other subcommittee members. Have you given any thought to this, or...?

MEMBER ZIEMER: This is Ziemer. I have a couple underlying questions not dealing directly with that part of the review process.

Number one, and I guess, this is probably directed to Tim. It has to do with the origin of the documents themselves. They're -- actually, origin of the templates. Are they -- do they originate out of your office, or does the contractor original -- develop them and your guys review them? What -- what's the starting point for -- for who -- who makes the template or -- the first version, how -- how does it start?

DR. TAULBEE: It actually starts in both places. There are some claims we start in-house and there are some that our contractor starts. So it actually can originate from either place, but the actual origin is an individual claim that needs a dose reconstruction.

MEMBER ZIEMER: Okay. So then -- sorry, I got my -- my clock is chiming behind me here, but I'll ask the question anyway.

The second part is, for example, if I look at Metals and Controls, I see a lot of -- a lot of revisions. What -- what initiates that many revisions?

DR. TAULBEE: That I'm going to actually ask Mutty or Scott to chime

in on as to what -- what are all of the things that can cause a revision. They're much better versed on that. Scott or Mutty, can either of you answer Dr. Ziemer's question?

MR. SHARFI: Sure. This is Mutty Sharfi. I'd be happy to answer that. So, Dr. Ziemer, over time as we issue a template and we update the tools, there's a lot of the DR templates that have links to various tools. So as we either update tools or references, those templates might not change the actual methodology, but they'll change small either -- like the medical X-ray, there was a revision to that OTIB, and so we'd have to go and revise the template in order to capture new references, or we update the external tools, but the links have to get updated. So we issue a new template even though the methodology itself doesn't change.

MEMBER ZIEMER: Yeah. Yeah, and I -- I understand what you're saying. It's -- it's other -- other documents may be changing that require a change in the template or, you know -- so then, it -- it looks like all of them frequently change, and one of the questions I have as we think about reviewing something -- these things are changing more rapidly than our regular documents it looks like to me.

That's why I'm -- I'm wondering about the review process, Josie. We -- let's say you review something like Metals and Controls. Okay. It has been changed in four years, but then as I look at all these changes, that -- that might be an issue, particularly for the one, was it, for another year or two before anything is done in terms of the updating to a TBD or something?

But yeah, what -- what do we gain by taking on the next three? We

know they're going to be revised, too. So at this point, are we trying to get a feel for whether these documents are -- are way out in left field? I mean, it -- it looks like there's an ongoing effort to keep them updated anyway.

CHAIR BEACH: Yeah, I think --

MEMBER ZIEMER: What --

CHAIR BEACH: -- the effort --

MEMBER ZIEMER: What are we looking for in a review process? That's what I'm getting at.

CHAIR BEACH: Yeah, and I'm sure Kathy and Bob could answer that better than I can, but I think, just to get a feel of what's being done, how it's being done, and any questions about that process. That would be my thought. And I agree, Paul, I don't think I would touch the first four and maybe not even the first -- this is a second set of three, just simply because we know that those are going to be changed. However, I am thinking the second set might not be -- might not be bad to look at those since those -- those are still a couple of years out, most likely.

Kathy any -- can you answer Paul's question?

MS. BEHLING: Well, we haven't looked at any of this methodology. And I think, even though they change, we just heard not -- or I'll say that they're changing, not necessarily because of the dose reconstruction methodology changes, but maybe a tool changed or something else prompted that change. So I don't think there's any harm in -- this is simply our -- our TBDs and our site profiles, they change also -- sometimes just one section or another -- but if you have the opportunity to look at that dose

reconstruction methodology that's being employed right now -- and if that changes, we'll be notified of it and it's something that you can do a focus review thereafter. But we have not looked at any of our -- or we haven't looked at many of these sites and any of the calculations for the various exposure pathways, and so I think that's worthwhile.

CHAIR BEACH: Okay. And what did --

MEMBER ZIEMER: In -- in that case, in -- this is Paul again. I -- I think in that case, there is a value in work. The next three I -- I think they're looking at, the -- the size of the sites becomes pretty important. You've got a lot of these that are, it sounds like, templates for a few cases, but I -- I think there's -- that next three, maybe as a starting point, we ought to pick out at least one or two of those and maybe try it. I don't know.

CHAIR BEACH: Yeah, I --

MEMBER ZIEMER: I think these three --

CHAIR BEACH: -- Josie, I agree.

I have a follow-up question. Tim said that maybe it's better to start with the case. We were originally talking about starting with the methodology. Kathy, what's your thoughts on -- I mean, I think they're going to go hand in hand, but if you have the case... MS. BEHLING: Yeah.

CHAIR BEACH: Any comments?

MS. BEHLING: Oh, sorry. Well, I think -- I do think Tim also said, maybe look at both of them. He's just saying put your focus on the dose reconstruction report to determine the methodology. But when we're

looking Amchitka -- Amchitka Island, there's 177 claims there. And so, I think looking at the dose reconstruction methodology, it's likely that all of the pathways have been assessed, and then picking one or two claims just to ensure that the template that was created for that dose reconstruction methodology does -- it is incorporating all of the pathways and their exposure -- exposure pathways correctly. And I think there's benefit to doing both, at least for some of the bigger sites.

Now when we get to sites, like Tim said, where maybe they haven't developed any dose -- doses for certain pathways because it wasn't warranted. It didn't -- they didn't need to do that because of the case involved, then we can rethink that. But we should -- we could still do -- we could still look at a site then, and by looking at that site, we know we have captured everything that's in that dose reconstruction methodology. Does that make sense?

CHAIR BEACH: Yeah. Loretta? Thanks, Kathy. Loretta, any comments or questions? Thoughts?

MEMBER VALERIO: No, not right now. But Tim -- Tim wanted to say something.

DR. TAULBEE: Yes. And thank you, Kathy. The only thing that I would add to what it was -- what you just said -- and I think you're absolutely right, when it comes to like Amchitka where we have a lot of claims that we probably have assessed all of the exposure pathways.

And I know when you in the past have done, you know, PERs, you tend to, you know -- you look at the document and then you look and see if

we're doing dose reconstructions appropriately. When it comes to the DR methodologies and the DR templates, I would ask that you consider it in reverse, that you look at the dose reconstruction of, you know, whether they covered all of those pathways and then look at the methodologies and templates. Because there could be more in that dose reconstruction than what's in the template from that standpoint.

So, we know the templates are not complete. They weren't designed to be complete from that standpoint. They will be complete when we convert them to TBDs, if that makes sense.

MS. BEHLING: That makes sense to me, and I agree with you.

CHAIR BEACH: Hey, this is Josie again. So I say we should pick out four. What -- is that too ambitious?

That would -- that would be an SC&A question.

MS. BEHLING: Oh, I -- I'm sorry. I wasn't sure. Four is -- is fine. I do have -- because the second part of my discussion here is, I have quite a list of new documents that we haven't -- not necessarily always new documents -- but things that I -- I realize we haven't reviewed. Four -- I think we could handle four. We may want to cut back on some of the PERs that I have listed on table two. We can -- which we'll discuss after this topic. Now, the only --

CHAIR BEACH: Okay. So -- and -- and -- oh, go ahead, Kathy.

MS. GOGLIOTTI: Sorry, this is Rose, actually. I have a crazy idea. Would it make sense to pair this with the dose reconstruction, because some of -- like Amchitka Island, we've been trained to review cases from that site.

We just haven't had one tasked yet. Would that make sense to -- to pair them together so both committees could look at these cases simultaneously for the different aspects that we're interested in?

MS. BEHLING: We had -- I think that we had discussed that once before, and, I guess, there was a little bit of reluctance to lose track of things. I don't know how the subcommittee feels, but I have a little bit of reluctance to do that just so that everything stays under this subcommittee. I don't -- I don't know how Josie and the subcommittee feel about that.

CHAIR BEACH: Yeah, I think we had that discussion at our last subcommittee meet -- meeting and felt that we should keep it within this committee.

MS. GOGLIOTTI: Okay, that's fine. I'm sorry. I just wanted to throw out a suggestion.

CHAIR BEACH: Yeah, and Rose, I'm not sure why you -- yeah, through the -- the other subcommittee, why you couldn't look at these as well. I mean, that's, I guess, a topic for that -- for that meeting.

MS. BEHLING: And I think we --

CHAIR BEACH: (Indiscernible), yeah.

MS. BEHLING: And that --

CHAIR BEACH: Okay. Go ahead.

MS. BEHLING: And that --

CHAIR BEACH: Yeah, go ahead, Kathy. Sorry.

MS. BEHLING: Yeah, no, I'm sorry. In looking at Tim's list here, Westinghouse Nuclear Fuels, we have reviewed under PER-52 and that's --

that one is already taken care of. And Norton, I believe we've already looked at Norton -- yes. Norton, we reviewed under PER-59. So I just want to make mention of that.

CHAIR BEACH: Okay. And this is Josie again. I was just gonna say, let's fin -- go through the rest of our meeting and then determine whether we should shoot for two of these or four based on the other workload. And we can -- we can certainly do that before the end of the meeting.

MS. BEHLING: Okay. Would you like me to move on then so that we can just get -- I -- I -- table two is the list of the various PERs I went back through and tried to determine, are there PERs out there that we haven't reviewed. I have to say, not having access to the BRS -- for everybody, you know, is -- is experiencing how much more difficult it all is to determine what's been reviewed and what hasn't been reviewed.

But I have in table two made a list of -- I think there's like eight -- there's seven PERs and one report.

Now, perhaps we could cut back on the number of PERs we reviewed.

But one -- two items that are not on this list that I was going to discuss when we come to the board's presentations of -- presentation of subcommittee approved documents -- when I went through that list to prepare for the board presentation, I realized there were two PERs, PER-47 and PER-5. PER-47 is the Grand Junction and PER-5 is an old PER, but it was misinterpretation -- misinterpreted application of external dose factors for Hanford dose reconstructions. We didn't -- we looked at the PERS, but we did not do the subtask four reviews. So to close those out, we may want

to also add those two to our list. That was PER-47 subtask four and PER-5 subtask four. I don't know if that's something you still want to do or if you -- PER-47 is a --

CHAIR BEACH: (Indiscernible) --

MS. BEHLING: -- more recent --

CHAIR BEACH: Yeah, no. Kathy, this is Josie. I think we should do them. I'm sitting here trying to find the second part to your -- your -- your handout here, but I don't seem to have it. So I didn't know if anybody else had that same issue. The ones you sent out, I only have part one of the tables.

MS. BEHLING: There's not any -- a page 4?

MEMBER ZIEMER: There's a tab -- table two is part of the same document, I believe.

CHAIR BEACH: -- is it on page 4?

MS. BEHLING: Yes.

CHAIR BEACH: Okay. Oh, I see it. I apologize. Yes. Okay. No, I think we should finish up the past subtask fours. Paul and Loretta, agree with that?

MEMBER ZIEMER: Yeah, those two she mentioned --

MEMBER VALERIO: I --

MS. BEHLING: Yeah, PER-47 and PER-5.

MEMBER ZIEMER: Yeah, yeah. Those -- those are --

MEMBER VALERIO: (Indiscernible) --

MEMBER ZIEMER: Yeah. Those are unfinished jobs. Yeah.

MS. BEHLING: Perhaps, if I could suggest, maybe we do four -- the first four PERS on this list and the two subtask four PERS, and then you can determine how many of the templates you would like us to do.

CHAIR BEACH: Okay. So we're talking -- can you get -- I've got PER-047. What was the second one?

MS. BEHLING: PER --

CHAIR BEACH: For the subtask --

MS. BEHLING: Yeah. 005. That's an old --

CHAIR BEACH: Okay, thank you.

MS. BEHLING: -- one, but if we're gonna follow through, we can do that --

CHAIR BEACH: Okay. So, 047 and 005 and then 40, 51, 67, and 68; is that correct?

MS. BEHLING: Yes, that's what I'm thinking.

CHAIR BEACH: Okay. All right. So other subcommittee members agree with that -- that strategy?

MEMBER ZIEMER: This is Ziemer. Just a question for Kathy. Did you, sort of, list these in your priority order? They look like they're just in numerical order, so there's -- you -- you're basically saying all of these eventually should be tasks, but they'll take the first four in -- in the order given?

MS. BEHLING: That's correct.

MEMBER ZIEMER: Then --

MS. BEHLING: It really --

MEMBER ZIEMER: -- there's not --

MS. BEHLING: -- is a prior --

MEMBER ZIEMER: -- there's no particular priority to that than just the --

MS. BEHLING: No, there's not.

MEMBER ZIEMER: -- arbitrary numbers? Okay. I'm okay with that as long as there's no urgency on any of the others.

MS. BEHLING: No, not that -- I can go back over these, but I don't think so. There was nothing urgent.

MS. BEHLING: The only thing I am --

CHAIR BEACH: I'm wondering -- oh, go ahead.

MS. BEHLING: The only thing -- as I'm looking down this list, maybe it would make more sense to do PER-51 and PER-83 together because they're both Weldon Springs (sic). (Indiscernible) --

CHAIR BEACH: That was just gonna be my question is if we should combine those. So yes, let's -- let's -- let's drop 68 off and add 83; is that --

MS. BEHLING: Okay.

CHAIR BEACH: -- acceptable?

MEMBER ZIEMER: 83.

MS. BEHLING: Yeah, that's a good idea.

CHAIR BEACH: Okay. Now, in looking at that workload, how many of the others do you think you can handle, the templates?

MS. BEHLING: Perhaps as we start out here, maybe we should take

two of the templates, I would suggest, because I also think, to some extent, we should write up a little bit of, like, protocol as to how we're going to go about doing them.

CHAIR BEACH: Okay.

MS. BEHLING: If that makes sense. Although Doug has already done the Peek Street, and we can sort of follow that. But since we're doing this as a two-step, I want to do it combined. I don't want to necessarily do one portion -- and then because we're going to look at the cases and we're going to look at the methodology, but maybe we need to give some thought as to the protocol that we're going to be using. So maybe just two to start?

CHAIR BEACH: Yes, I would agree with that. And then will you list the protocol in your report or separately?

MS. BEHLING: Perhaps --

CHAIR BEACH: So we --

MS. BEHLING: -- we should do this separately. We -- do you agree?

CHAIR BEACH: I think I would be okay either way. But yeah. I'm sure Doug can be at help of where he started with the other one.

MS. BEHLING: Yes. Yes. Yes.

CHAIR BEACH: Paul, Loretta, what do you think on protocol?

MEMBER ZIEMER: Well, it seemed to me, your report's gonna tell you -- gonna give us the protocol anyway --

CHAIR BEACH: Yes.

MEMBER ZIEMER: -- whether you did it separately or not, right?

CHAIR BEACH: Yes.

MEMBER ZIEMER: I mean, --

MS. BEHLING: We'll incorporate it. Thank you.

MEMBER ZIEMER: I mean, most of your other reports, you -- you have some boilerplate that repeats every -- for every report how you're doing it. You basically give the protocols every time anyway, so.

CHAIR BEACH: Right. Okay.

MEMBER ZIEMER: So, what -- what are the top two on this? Is Amchitka one?

CHAIR BEACH: Yes, and Albuquerque Operations, since Westinghouse has already been done.

MS. BEHLING: Okay.

MEMBER VALERIO: And these are the templates, correct, Josie?

CHAIR BEACH: Correct. Yes. Amchitka and Albuquerque would be a template.

MEMBER VALERIO: Okay.

CHAIR BEACH: Everybody comfortable with that and in agreement?

MEMBER ZIEMER: Yes. Is this an official tasking or will Rashaun do the official tasking then on these?

CHAIR BEACH: That -- I guess that will come from Rashaun, yeah.

DR. ROBERTS: Yes, it can move forward as a tasking.

CHAIR BEACH: Okay. So just to recap, we're tasking the two templates and two subtask fours and four full reviews, correct?

MS. BEHLING: Yes.

MEMBER ZIEMER: We have -- I think we have six PERs, four plus the

original two.

CHAIR BEACH: Correct. Okay. Any -- any -- any more discussion on this? And you'll have to work with NIOSH for the documentation, the case reviews, all -- all of that as normal.

MS. BEHLING: Yes.

MS. MARION-MOSS: Yeah, Josie, Lori.

CHAIR BEACH: Hi.

MS. MARION-MOSS: Can you repeat -- hi. Can you repeat those templates again?

CHAIR BEACH: Yeah. It'll be the am -- Amchitka Island and Albuquerque Operations Office.

MS. MARION-MOSS: Thank you.

CHAIR BEACH: You're welcome. Anything else you need?

MS. MARION-MOSS: Not today, thank you.

CHAIR BEACH: Okay. Any other discussion? If not, I think Ron's gonna be on, correct, for Grand Junction observation three, or will NIOSH start with -- with discussion on that?

UNIDENTIFIED SPEAKER: I think Ron (indiscernible) presentation.

DR. BUCHANAN: Yes.

MS. BEHLING: I can pull that up, if you'd like.

CHAIR BEACH: Yep, I see the slides. Okay.

MS. BEHLING: Hey, is everybody seeing my screen?

CHAIR BEACH: We do.

DR. BUCHANAN: Yes, I can see it.

MS. BEHLING: Thank you.

DR. BUCHANAN: Okay.

CHAIR BEACH: Ron, I think you can go ahead, if you're ready. Thank you.

ORAUT-TKBS-0060, Rev. 00 Grand Junction Facilities,
Observation 3, Radon Chamber

DR. BUCHANAN: Okay. Can you hear me okay?

CHAIR BEACH: Yes.

DR. BUCHANAN: Okay. And this is Ron Buchanan, and today I'll be presenting SC&A's view observation three, the potential radon calibration chamber exposure at the Grand Junction facility.

Okay. I -- just said a little bit of history of the Grand Junction facility TBD that we saw an observation three was that the TBD was issued as revision 00 in May of 2018. That was TKBS-0060. I'll refer to it -- that's the environmental TBD, and I'll refer to that as TBD-4 today.

Then in August 2021, they issued a revised TBD for the Grand Junction facility, and SC&A review of that TBD -- excuse me. That was a total site TBD, not the environmental, but the total site. My next talk is on the environment.

So, this was a total site TBD for Grand Junction facility in Grand Junction, Colorado. And in that review in 2021, they identified five observations. And those were discussed by the subcommittee, and all closed except for observation three, which was concerned with the lack of

consideration for potential exposure from the radon calibration chamber. And that is still outstanding.

So next slide.

Okay. Now, the history of addressing this observation was in February of 2020, just about exactly a year ago today, this subcommittee met and it was discussed at that meeting. And the action item from that meeting was that NIOSH would provide relevant documents for SC&A to review. And in May of 2022, we reviewed five related RCC documents provided by NIOSH. RCC stands for the radon calibration chamber. Now, the document -- these five documents gave us several snapshots in time of personnel monitoring and resulting intake and doses, which we'll cover in a little more detail in each document.

Our first document we'll start with is number 160585. And this was a Geotech 1991 document. Geotech operated the RCC for the Grand Junction facility, and addresses the radon dose for two years during which the Geotech personnel operate the RCC. And it used the log entries of stay time and chamber radon concentration measurements to determine the intakes and resulting doses. Now, unlike external radiation or other internal exposures, you can't -- weren't allowed to take a bioassay for radon exposure. What you have to do is -- to monitor air concentration in the facility that the worker is at and then the stay time, record that, and then calculate -- which is how we do that and know that -- calculate the resulting intake doses.

And so in this case, it was a large chamber -- and we'll get to that in a

little bit -- that the person could walk in that had -- that radon monitors and they had a person that records log time, and then this was able -- enabled them to determine and assign a dose. Now, to do that, you have to assume an equilibrium between the radon and the (indiscernible) products, and in this case, it was 50 percent equilibrium, which is conservative, and one rem per working level mock -- or the ICRP-32, I believe it is.

And any individual event in this particular document that was less than 1 millirem was entered as zero and any total for a two-year period that -- there was less than 10 millirem was entered zero. So all resulting doses for the two-year period for all the workers who entered were entered as zero.

Next slide.

Now, the next document, 100192, once again, a Geotech 1991 document, and incidentally summarized the previous document results into a 1990 exposure report for reporting purposes. And so the document didn't contain any new information, and so we won't discuss that further.

Next slide.

Okay. The next document was number 166851. And this was a NIOSH 2017 interview with a senior health physicist at the facility in March of 2017 about health physics monitoring in general at the site. An EE did work at the site during the period the RCC was operational, and a summary of some of the material that was obtained during the interview is more or less summarized, while we get down into the details when we look at the operation manuals and some of the other documents.

And this was that the RCC was -- mentioned as an airborne

radioactivity area and that the -- this large chamber had two doors, had an interlock system and one on outside and then an inner door. And one door would relock at greater than 30 pCi/l and both would relock at great than 100 pCi/l.

The radon concentrates and multiplied by the stay times to derive intakes and resulting doses as the detailed in Geotech 1995 -- and which we'll get to in a little bit -- and several other workers made routine entries during that year and were monitored per the logbook. And this logbook contained all the times and dates and the person's name and the radon concentrations.

So next slide.

Okay. The document 093732 was a DOE 1985 RCC operating manual issued in January of 1985. And a few highlights -- of course, it's a very detailed manual, but I just put a few highlights on this slide -- was that the exposure chamber was a steel cylinder 11 feet in diameter by nine feet in height. So it's large enough for a person to walk in, had tables, and you could put the instruments in it, and then remotely fill it with radon gas, and monitor the concentration and the reading on the instruments. And so the radon generator that created radon in the chamber consisted of a 5 millicuries of Radium-226 source, and there was five live-time radon monitors and four live-time radon decay product detectors with the results recorded on computer.

So, there was a recording of the concentration as consumption of time. And of course, no entry can be made into the chamber when the radon

concentration was greater than 100 pCi/l. And as far as external exposure goes, right outside the -- the facility -- or the chamber, the external exposure's less than 1.1 millirem per hour outside the containment. And so external exposure was not an issue.

Okay. Now for this document 098093, this was a Geotech document of 1995. It's an internal memorandum, really, summarizing individual doses and working level values for EEs who entered the RCC periodically during one year of operation. And so this gets down to some of the detail of how the doses were calculated. And so actually, Attachment A.7 contained the radon chamber entry chamber logs for the year, just as I was previously talking about. And then Attachment A.1 through A.6 provided details of the calculation of the intake or the working level months, committed effective dose, and a lung dose for year -- for each of the EEs.

Next slide.

So we analyzed that document, the internal dose assessment methodology, the equations used in the calculations, and the calculated intake and working level month values, the committed effective does, lung dose, and all of it was in Attachment A.1 through A.6 for the year that -- facility operation. And we found the methods and calculations to be correct in that.

Next slide.

Now, we analyzed the results that were listed in that document, and we found that the largest recorded acute equilibrium equivalent radon concentration for that year of operation of 22 pCi/l with a stay time of four

minutes. And so this worker -- several workers in and out through the years periodically, and the highest concentration was 22 pCi/l when the worker was in there, and the maximum for that stay time was four minutes.

The largest dose for the year for any EE who entered this facility was 3 millirem, the largest derived working level concentration from the logbook entry for that year for any EE was .0022 working level months, and the maximum recorded number of the entries made by any individual during the year was recorded in their documents, and there's more detail on that in the control documents, which we issued to work group.

And I say all that, but back on slide -- back one. Yeah, back one more. Okay, okay. Okay. Go forward. Okay, one more. Okay, now go forward again. All right, go forward again. Go forward again. Are you going forward or backwards?

MS. BEHLING: I am --

DR. BUCHANAN: Go to the next --

MS. BEHLING: -- (indiscernible) sorry.

DR. BUCHANAN: Right. Next slide.

MS. BEHLING: Okay. I'm sorry.

DR. BUCHANAN: Okay, here. So that's the slide I want. Okay. Now the reason we put these numbers up there is we want to compare them later on with the dose will be assigned according to the TBD. And so you see the working level months, .0022 working level months, and the concentration is 22 pCi/l for four minutes, and the maximum dose was 3 millirem that year for any individual. And so those are the numbers you kind of want to keep

in mind as we go forward.

Okay, now we can go forward.

Okay. So what does this information we have in these five documents for these three years of operation tell us. It says that the RCC is likely operated during the period 1985 to 1994 because that's when the manual was issued, and then that was when our last data was, was '94, but could have been operated during other years.

The RCC was established at a facility with control of who could be present and who could operate it. In other words, it wasn't a shack out back that somebody just took a source out and exposed instruments to it. It's very well controlled. The operating and history information was recorded and logged, as I previously described. Exposure was controlling-personnel limited. There's real-time radon monitors and results recorded on the computer. Internal radon doses for the two-year period addressed in document 160585 were all less than 10 mrem total for each of the workers, and their largest dose in 098093 document for any EE who enter the RCC was 3 mrem and the largest working level months in log was .0022 working level months.

And so just to reiterate what we previously discussed -- and so next slide.

What is still uncertain, okay. The information did not provide exact years the RCC was operational. The RCC manual dated 1985 and building 32 where the facility was located was remediated starting in 1999. So it was probably -- there's a note here, it says it was operated or (indiscernible)

here and intake and doses during the operational years other than '89, '90, '94, which is the three documents that we had that listed the exact -- the entry and concentration levels. We don't know outside of that. And the number of chamber entries that one can make in a year, we see in our document that we circulated, it tells the maximum recorded for those three years. We don't know other years what the maximum number of entries were.

Okay, next slide.

So, the question on observation three was that the 5.7 picocuries per liter used from building 30 bound the radon exposure at the RCC. So this number comes from the TBD, which they assign according to table 5-7 of the TBD, they will assign every worker at the -- at the whole site, not just the RCC, but the whole site, between 1975 and 1998, 5.7 pCi/l radon at 50 percent equilibrium, and go through the math, that equals 2.85 in the minus two working level, which equals .340 working level months per year, and at one milli -- 1 rem per working level month. This results in a dose of 340 mrem per year assigned to each worker at the site during those 20-some years.

Additionally, thoron dose is assigned for table 5-7 of the TBD at 5.7 pCi/l in addition to the radon.

Okay, next -- next slide, please.

Okay. Now, the summary of that is assigning a .340 working level months per year radon intake which would result in 340 mrem per year to all employees during that 20-some-year period would bound the ones that

we've seen recorded of individual events of less than 1 mrem, maximum annual dose of less than 10 mrem, maximum 3 mrem recorded for one year of operation in that document, and an intake of .0022 working level months for one year of operation as in the -- that document.

So, the next slide.

So, what's the current status of it? You know, currently our radon dose information for the periods outside the three years of monitoring has not been made available. However, indications are that the RCC was a controlled facilities with monitoring in place, 5.7 pCi/l would bound exposures but these conclusions are somewhat subjective outside the three years of monitoring data currently available. However, exceeding the .340 working level amounts per year would require substantial deviation from the operating -- standard operating at the facility.

So with that, observation three remains open until resolved to the satisfaction of the subcommittee.

Next slide.

Discuss -- open for discussion and questions.

CHAIR BEACH: Thank you, Paul (sic). That was very thorough. And I think it answered the question, although it -- not the outside period, time period. Paul or Loretta, any questions for Paul -- or for Ron?

MEMBER ZIEMER: Yeah, that was Ron that made the presentation.

CHAIR BEACH: Yes.

MEMBER ZIEMER: You said Paul, but yeah. Thank you, Ron. This is Paul. Good -- good presentation. You often end with a -- or SC&A often

ends with a recommendation. Do you have a recommendation in closing?

DR. BUCHANAN: Well, from what I've gathered and having worked at facilities as such, I think that this is a very well-controlled facility and that probably the assignment of 5.7 pCi/l is quite claimant favorable. It's not an over-estimate. So I don't have -- one of the years is '89 and then there's '90 and then there's '94, so a span about five years, and I didn't see any, you know, break from procedure, standard operating procedure, and stuff. So I don't -- I don't see a problem, personally.

CHAIR BEACH: Yeah, Paul, this is Josie again. That's kind of what I took out of the summary and status. NIOSH, any -- anything to input?

DR. TAULBEE: This is Tim. No, I think it was a very good presentation there by -- by Ron and good work from that standpoint. You know, if you look at these years, they're kind of spaced in between, as Ron indicated that he didn't notice any difference, you know, in operations between those years. There's really just no evidence that it would be higher than what, you know, we got from these years. So I'm hoping the subcommittee will -- will close this out.

CHAIR BEACH: Thank you. Loretta, anything?

MEMBER VALERIO: No, I think it was a really thorough presentation. And I would say that we close it out.

CHAIR BEACH: Thanks, Loretta. Yeah, this is Josie. I'm --

MEMBER ZIEMER: There is --

CHAIR BEACH: -- as well. Paul, you had a --

MEMBER ZIEMER: I agree with that. Yes, I agree.

CHAIR BEACH: Okay. I also agree, so I don't think we need to take a vote or anything, but it sounds like we can officially close this item. I think it's number three -- for observation three. And if, --

MS. BEHLING: Yes.

CHAIR BEACH: -- Kathy, you'll make a note of that.

MS. BEHLING: Yes, I will.

CHAIR BEACH: Do we need to do anything officially, Rashaun?

DR. ROBERTS: Well, it sounds like everybody was in agreement, I think.

CHAIR BEACH: Correct.

Well, good work Ron, and NIOSH for providing the documents and Ron for going through them. We'll go ahead and consider this closed.

And are we ready to move on to PER-049, or do people need a break?

MEMBER VALERIO: Josie, I have one quick question. So this was the remaining observation that was still open, so at this point, all observations are closed; is that correct?

CHAIR BEACH: That is correct.

MEMBER VALERIO: All right. I just wanted to double-check. Thank you.

CHAIR BEACH: Thank you for that clarification. Okay. Hearing no comment on break, let's go ahead and go through PER-049, the subtask four case review. And I see Kathy has that up. Kathy, are you going to lead us in this?

MS. BEHLING: Yes, yes, I am. And I do want to apologize. I -- this was posted at the September meeting, and it didn't get reposted under today's meeting as a carryover item, but this -- what you're looking at is the TA cleared version, and so I'll work from this.

PER-49 is Paducah Gaseous Diffusion Plant. It was a change in their technical-basis document. And at the August board meeting, the subcommittee -- we presented our review of PER-49 subtask four for one dose reconstruction case that was reviewed. And as part of that discussion, SC&A identified that although our review only included external dose, it was noted that there -- the internal dose for the case had significantly increased. And we just made note of that in -- in that report.

And that increase in dose was unexpected and somewhat questionable because the -- the original dose reconstruction calculated the dose based on a hypothetical internal dose -- dose model while the rework actually used the EE's bioassay data. So at that meeting, the board requested that the procedure subcommittee look into this issue further.

So that's what I've done, and so I prepared this memo and I -- which provides a chronology of the PER-49 subtask four and also follow-up discussions as well as a summary of -- I want to give you a summary of the actual hypothetical model, internal model, that was used and then NIOSH's calculation of the internal dose so that you have a full understanding of what was done here.

So to start with the chronology, NIOSH issued PER-49 in August of 2006, and SC&A submitted its review of one case under subtask four for

PER-49. On March 2, 2018. We presented our report of no findings to the subcommittee on October 31, 2018. And so that was the chronology for this PER-49.

Now follow-up discussions -- on March 6, 2018, after we submitted our report to the subcommittee and to NIOSH, the designated federal official contacted SC&A to inquire as to -- excuse me -- as to why the hypothetical intakes were only half of the actual bioassay dose estimates and if there was anything that can be learned in order to reduce the likelihood of this happening at other sites or at -- for other cases. And again, it should be noted that it -- SC&A was not tasked under the subtask four report to look at the internal dose; we only looked at the external. However, because of this request, we went on to respond to the DFO's question.

And our response indicated that most of the EE's bioassay results were less than LOD values and that it appears NIOSH felt that since the hypothetical model assumes an exposure to 28 radionuclides, some of which would not even be found at a single site, that this would result in an overestimate of dose. In the rework, NIOSH actually -- and I'll -- I'll go into more detail about this little later -- NIOSH used the positive and less than LOD values to calculate it both -- both in fitted and missed dose and find a higher for each year, and this resulted in a higher dose than the hypothetical model, which was -- was surprising.

Thereafter, the DEO -- DFO asked NIOSH to look into this issue. SC&A was -- is not aware of the outcome of -- of that request or whether NIOSH did respond to the DFO.

So just to give you an understanding, I'm going to start with -- OTIB-0002 is the hypothetical internal dose model that was used. It's the maximum internal dose estimates for certain DOE sites. And that is what NIOSH used in original dose reconstruction. Now, it should be noted that this OTIB has since been cancelled. However, SC&A -- I could not determine the cancellation date of this OTIB.

So just to go through the OTIB application. The background section states that based on implementation guide 2, which is their internal implement -- dose implementation guide, internal dose is assigned to EEs who are monitored and had no positive results and to EEs who are not included in a bioassay program. If the EE had a positive bioassay result, the dose reconstructor should evaluate those results to ensure that this OTIB intakes will result in a greater POC than the actual bioassay data. To expedite those reconstructions, OTIB-2 should be evaluated first, if cases meet these criteria, but it should not be used to compensate cases.

So assumptions under section 3.1 of OTIB-2, it basically states that the approach should be used as an efficiency measure. And this approach is considered a worst-case estimate that assesses significant radionuclides assuming an acute intake on the first day of employment. Very conservative.

I'll also mention just a few additional assumptions that are pertinent to this case. When assessing internal dose, the most claimant favorable solubility type is assumed and doses are based on 10 percent of the maximum permissible body burden. And for sites without reactors, there

are -- where is it -- let me see here where I'm at -- okay, I'm sorry. I'm right here. There. For sites without reactors, they -- they consider 12 radionuclides, and for sites with reactors the dose is calculated using 28 radionuclides. And this OTIB should only be used for 22 organs that are listed in table 3.1.1-4.

Now limitations of OTIB-2. OTIB-02 should be used for EEs that are hired after 1969. If -- if they're hired prior to 1969, the dose reconstruction report must include an explanation that demonstrates that the OTIB dose overestimates the actual or potential doses received by the EE. It also states that only organs that are listed in table 3.1.1-4 -- only organs of interest should be used for this OTIB.

Additional limitations are that the EE should have had no significant exposure to uranium and sites -- and sites should have an active radiological protection program. I should also point out that for this case, the EE actually started employment prior to 1969, and the cancer was not listed in table 3.1.1-4.

I also thought it was important to just provide an understanding of how NIOSH calculated dose in the rework -- the rework dose estimate. I'll give you a little bit more detail rather than just a summary. In the reworked, they use the EE's actual bioassay data. And NIOSH calculated, as I mentioned, both a fitted dose to account for the positive results and a missed dose to account for any of the less-than-MDA results. And uranium results were normalized assuming 1.4 liter urine volume and 2 percent enrichment. And for the fitted uranium, IMBA was used and the bioassay

results were fit, using a chronic and acute intakes that represented a reasonable overestimate. Positive data were assumed to have a 30 percent uncertainty and acute intake dates were estimated to be the midpoint of the previous negative sample. They also assumed -- they also compared solubility type F, M, and S and determined that type S was the highest.

For the missed uranium dose, it was based on one-half of the MDA values. Again, solubility types F, M, and S were compared with S being the highest. Also, recycled uranium components were assessed based on guidance in the Paducah TBD-5. And total uranium dose was then assigned by comparing the fitted dose and the missed dose for -- on a year-by-year basis and assigning the highest dose.

So hopefully this gives you an understanding of the sequence of events and an overview of how the two internal doses were calculated. And I will open up discussion for questions.

CHAIR BEACH: Thanks, Kathy. I know this is a bit unusual, how we got to this memorandum, and I -- I'll note that you didn't make a recommendation. There were no findings associated with this review, correct?

MS. BEHLING: No. Again, we only looked at the external dose, and we had no findings. What -- what is surprising, and, like I said, unexpected, is that the individual's actual bioassay data exceeded the dose calculated by the hypothetical internal exposure model, considering all the conservatism that was in that model, and I realize this OTIB is no longer being used, but it does raise some questions as to how that happened, could it happen in other

cases, and I'm not sure if NIOSH has any under -- has anything in addition, if they've looked into this any further.

CHAIR BEACH: Yeah, any word --

MS. BEHLING: (Indiscernible) --

CHAIR BEACH: No, go ahead, Kathy.

MS. BEHLING: No, I'm sorry. And as I mentioned early on, there were exchanges of memos or -- or emails back and forth where the DFO did ask NIOSH, I guess, to address this issue, and I'm not sure if that ever happened. Perhaps, like I said, maybe NIOSH can give us an answer on that.

CHAIR BEACH: Yeah, I was gonna -- I was gonna ask the other subcommittee members if they have any questions before moving on to NIOSH. So, Paul? Loretta?

MEMBER ZIEMER: This is Paul. I -- I don't have any specific questions, other than what -- what are we supposed to do with this?

CHAIR BEACH: Yeah, that's my -- that's my big question. I know we were asked when it was presented to the board, so that's how we got to this point. So, I guess, we should allow NIOSH to interject and then --

MEMBER ZIEMER: Well, --

CHAIR BEACH: -- go from there. Go ahead, Tim.

DR. TAULBEE: Actually, I'm gonna defer to Scott Seibert on this one.

CHAIR BEACH: Okay. Thank you, Scott?

MR. SEIBERT: Well, I would be happy to address it. This is Scott Seibert with the ORAU team. Yeah, it is an interesting situation, but it's, in

my mind, it's not a concerning situation because we can explain it. As was mentioned earlier -- and I'll try not to get into too many specifics. Feel free to, you know, intercept me if I do.

The original claim was done with OTIB-2, which is a -- an overestimating assumption and the case was below 50 percent with the -- with the dose being, I believe it wasn't blacked out for TA purposes, about 18 rem. When we did the rework, it -- the original was done in 2005. As was mentioned, OTIB-2 was cancelled from, you know, before the PER rework was looked at. So the dose reconstructor did not have that -- that tool available to them. So, they used the -- the actual bioassay information.

And what's questionable -- what's being asked here is why did the dose go up when you're compared to a -- another overestimating assumption. And the dose did go up appreciably as to what was assigned. I want to be very clear on that, because it was also overestimated in the PER version in 2016. It used the bioassay data, but it also overestimated that bioassay data.

When we go back -- and I spent some time looking at this, and if you look at the rework, in 2016 that used the actual bioassay, it overpredicts 105 out of 135 samples that the individual has. Significant number of samples that are overpredicted by a significant margin. If you look at last five years -- that's about, what, 80 percent of things are being overestimated. If you look at the last five years of the person's data, when you start getting lower detection limits and we're -- you know, we're able to see lower numbers, that actually increased to 90 percent of them were

overestimated and significantly so.

So, what comes down to it is, the original assessment was an overestimate. The PER version was also an overestimate, because there was no reason to pull it further down from where it was assessed. And I looked at it as -- I looked at the data as if it was going to be -- fit more -- I'm not going to say it's the best estimate because I didn't spend the time into that -- but if we were to do it to fit the later bio -- especially the later bioassay information rather than overestimating 80 or 90 percent of it, and when I do that, the internal dose actually drops down to less than either of the previous assessments.

So, what it really comes down to when we look at the data involved with the claim itself, both of the original assessments are clearly overestimates. And, you know, it -- that's an acceptable way for us to do things from an efficiency point of view. It probably -- I will go back and say it probably could have been better explained in the PER, but, you know, I can't go back in time and change that, but I can't explain it now. And that's where we are.

CHAIR BEACH: Okay. Thanks, Scott. How about the -- the memo that the designated federal official sent, a memo -- an email, I'm assuming, to NIOSH, was that ever answered? Is that something we need to take up?

MR. SEIBERT: I can't speak to whether that individual got a response or not. All I can personally say is I know I looked at this information in 2018. I don't know if there was a miscommunication. I don't know if it, maybe, got to him and didn't get -- didn't get noted. I don't know if it didn't

get over to him. I -- I can't speak to that. But I do -- I do know that we, on our side, did look into the situation back at that time frame. I can't speak to communications at that point, though.

CHAIR BEACH: Okay, thanks, Scott. Yeah, this is a tough one and, back to Paul, what do we do with it. So we submitted this to the full board. The question came up. And I guess that's the question back to Rashaun, maybe the subcommittee, how do we answer? I mean, we could, obviously, write something up and submit it to the board and then officially add this to our close-out list, unless somebody has a better idea. I don't think we need to take up whether the -- the DFO was answered or not.

MEMBER ZIEMER: Well, the DFO was asking this in a sense on behalf of the board. So, we -- the answer -- if there's any answer, it doesn't -- we don't owe the past DFO. It was a -- the former DFO. We don't owe that person an individual answer. We would only need to answer it on behalf of the board since it was raised.

And I -- I'm -- I'm personally satisfied with the explanation that we got, and I think that, you know, for -- for the board's purpose, Josie, in my mind, you could simply report to the board that this -- the issue has been examined and that subcommittee -- at least this is what I'm thinking -- the subcommittee is satisfied with the response or something to that effect.

CHAIR BEACH: Yeah, I -- I agree. And so, this would come in our -- our closeout reviews. I think, Kathy, that would need to be written up, and then it would need to be reported for our April meeting.

MS. BEHLING: Okay. I agree.

CHAIR BEACH: Okay. Do you need anything more, something in writing from Scott, or are you -- are you okay with the verbal explanation we just got?

MS. BEHLING: If Scott wants to send me an email, a few notes, that would be helpful. I understand what he said. I agree with everything that he's saying, but I don't want to misrepresent anything in this write up.

CHAIR BEACH: Okay.

MR. SEIBERT: And just to -- this is okay, just to be clear from Scott, I can only take tasking from DCAS, but I'm sure that I will be shortly getting something, and it will be coming through once -- once I get that. I just want to be really clear on that.

CHAIR BEACH: Yeah, that's understandable. Is -- is that something, Tim, that can be tasked and sent to Kathy so that we can prepare to close that out at the April meeting, or is that going to take longer, you think?

MR. CALHOUN: I'll get it -- I'll get it to you today, Scott, on that. Grady.

CHAIR BEACH: Oh, Grady, hi. Thank you.

MR. CALHOUN: This is Grady.

CHAIR BEACH: So we can consider that closed, and then we'll move it to our close outs for the full board. Anything else for that? Loretta, you okay with what we just went through?

MEMBER VALERIO: I am. I was just making my notes that it'll be part of the April presentation. And so the entire board will vote to close this out completely; is that correct?

CHAIR BEACH: Yes, that's correct.

MEMBER VALERIO: Okay. Sounds good.

CHAIR BEACH: So as a subcommittee, we have already closed it out, and we're all in agreement to continue with that, so I think we can move on.

Are we ready for a break? We've been at this a little over two hours. Do we need a full half hour or 15 minutes or five? I'm on the west -- west coast, so I'm good with 15 minutes. If you guys need more time let me know.

MEMBER VALERIO: I'm good with 15.

CHAIR BEACH: Paul? Are you on mute, Paul?

MEMBER ZIEMER: Oh, yes, thank you. Yeah, I'm -- I'm gonna have to take a lunch break, but I can -- I can probably do it in 20 minutes.

CHAIR BEACH: Okay. Well, we -- you know, we can go ahead and take a 30 minute -- because I know the east coast folks, it's lunchtime -- past lunchtime for you. Rashaun, can we go ahead and just go offline for 30 minutes for lunch break?

DR. ROBERTS: Sure. Do we want to come back at about 1:40 Eastern?

CHAIR BEACH: Yes, please.

DR. ROBERTS: Okay, sure.

CHAIR BEACH: Okay. So we'll -- we'll resume at 1:40 Eastern. Thanks, everyone. Good -- good session this morning.

MEMBER VALERIO: Thank you.

(Whereupon, a break was taken from 1:07 p.m. until 1:40 p.m.)

DR. ROBERTS: Okay. It is 1:40. I'm not sure if everyone's returned, but let me take a quick roll -- so Josie, I heard that you're back on. So first of all, is the court reporter back on the line?

The Court Reporter: Yes, I am.

DR. ROBERTS: Thank you. So Beach? I'm sorry? So, we've got Beach. Cassano? Okay. Valerio?

MEMBER VALERIO: I'm back on.

DR. ROBERTS: Okay, great. And Ziemer?

MEMBER ZIEMER: Yes, I'm here.

DR. ROBERTS: Okay, thank you. Over to you, Josie.

CHAIR BEACH: Okay, thank you. And for this second half, before we get started, Paul, I know last -- or the last meeting, you handled the Peek Street templates because of some conflict there for me. Is that something that you can do again today?

MEMBER ZIEMER: Yeah, I -- I can do that. Let's see, those -- those are the case reviews. And yeah, I'm not sure --

CHAIR BEACH: Correct.

MEMBER ZIEMER: -- how do they overlap with Hanford?

CHAIR BEACH: Well, they use some of Hanford data, and it was more apparent in the last meeting than it is in -- in these subs or --

MEMBER ZIEMER: Yeah.

CHAIR BEACH: -- and -- and Kathy, we'll have to ask you to kind of keep Paul -- I know there's some discussion that needs to be had on those -- on the case reviews. So anyway, I'll stay out of it, but just so you're aware

that Paul will take that on.

MS. BEHLING: Okay, thank you.

CHAIR BEACH: Okay. And so, this afternoon, we'll go through -- these are new -- newly issued cases, the 092 Weldon Springs (sic) we'll start with, and Kathy -- nope, I'm sorry, Ron will be presenting this one. So, if Ron is on -- well, Kathy, are you going to run the screen for us, the Zoom?

MS. BEHLING: Yes, I will.

CHAIR BEACH: Okay. So we'll give you a few minutes to get that up.

DR. BUCHANAN: Yes, this is Ron. Can you hear me?

CHAIR BEACH: Yeah, we sure can. Hi, Ron. This is Josie. We just have a few minutes waiting for the slides to be put up.

DR. BUCHANAN: Okay.

MS. BEHLING: Can you see my screen?

CHAIR BEACH: Yes.

DR. BUCHANAN: Yes, we can see it.

CHAIR BEACH: Yes, thank you.

DCAS-PER-092

Weldon Spring Plant Subtask 4 Case Review

DR. BUCHANAN: Okay. This is Ron Buchanan again with SC&A, and I'll be discussing PER-092 subtask 4. It's a review of two reworked cases with evaluation of this PER.

Next slide.

Now, just to recap, since it's been a while since we've talked about the

Weldon Spring facility, the city of the Weldon Spring facility had three main sites, which was -- was the Weldon Spring Plant, the Weldon Spring Quarry, and the Weldon Spring Raffinate Pit. It's all located west of St. Louis, Missouri, and we refer to it sometimes as the Weldon Spring Plant, just in general, all three of the sites within the area.

And it was operated by the AEC as a feed materials plant to process uranium and thorium by the uranium division of the Mallinckrodt Chemical Works, which is located in St. Louis.

Next slide.

Now, there were four periods of operation. There was first a site acquisition and development '54 to '57. And the actual plant itself processed ore and operated '57 to '66. Then it was closed down in '66.

It had a post-operational period then, which was actually most of the facility was under the Department of Defense, not the Department of Energy, from '67 to '85. And the plant itself, the main plant, was under the DOD, here in the post-operational period '67 to '85. The pit and the quarry was under them during '67 to '74.

And remediation of all three of the facilities took place between 1985 and 2002. And presently, it's just a ground with a hump burial under it.

Now the Act covers the plant during the operational period of '57 to '66, and during the remediation period between '85 and 2002. And the quarry and pit is covered during the operational period also and during remediation period, but also during the post-operational period '75 to '84. So it depends on which you're talking about, the plant, the quarry, or the

pit, exactly whether it falls under DOD or DOE, as I -- as we indicated.

Next slide.

Now, this radionuclide of significance was natural uranium process at the main plant '57 to 62. After '62, it's assumed to be enriched to 1 percent uranium. They processed natural thorium ore and they processed recycled uranium beginning in 1961. And then, because of the ore, the raw ore and stuff that they processed, Radon-222 and Radium-228 was considered to be a potential significance for dose reconstruction, and that's one thing that prompted this PER, and that was added in.

Next slide.

Now this is in the -- a TBD-4 review, and this was the environmental on-site profile and this was TKBS-0028-4, revision 00 was issued in June of 2005. And then you see they had a number revisions there, and the latest one was revision 4 issued in March of 2020. And this is what the -- prompted the PER-92. I'll just refer to this as TBD-4 for the rest of presentation.

Now, the Weldon Spring environmental dose program environmental -- evaluation report, PER-92, is what -- present one we're talking about, however, we had a PER-51 in 2015 to address TBD changes in TBD-4 there and one in 80 -- one, 083 in 2019 and then the present one, PER-92, issued in '21 to address the latest revision 4. So that's what we were -- will be concerned with today.

Slide.

Now the three main areas that the revisions taken place that result in

a revision 4 that could increase dose. There was other changes, but necessarily didn't increase dose. (Indiscernible) depending on the case. And that was the environmental intake of radar -- Radon-222 and Radium-228 was added for 1963 through 1966 and the U-234 intake was added for the quarry for the 1990s and into the early 2000s, which it had been added before. And the third item was onsite ambient gamma doses during the operational period of '57 to '66 previously applied as constant value, but rev. 4 included a geometric standard deviation values and to be applied as lognormal distribution, which is a refinement of the previous TBD's recommended ambient gamma doses.

Next slide.

Now as you know, when we review -- a PER we review -- we have 4 tasks. That's 1 through 3 was review of the PER itself, and that was passed by the -- this committee a year ago in February, to review the PER, and in June of 2022, we issued our review fulfilling tasking of 1 through 3.

Next slide.

So this is the final task 4. Subtask 4 we conduct an audit of representatives and DRs that might be impacted by this PER. And so they said -- this committee tasked the SC&A with review of the representative cases in November of '22. NIOSH provided with two cases. In December 28th of 2022, we provided a written report of the result of our audit under task 4. This PER to -- was sent to the subcommittee.

Now, the selection of cases for this PER, the criterion for the selection was, of course, the three things that could increase dose and that was

comparing criterion one, which is environmental intake of Radon-222 and Radon-228 here in all parts '66 to -- '63 to '66 period. Criterion two was the environmental intake of Uranium-234 at the quarry during the 1990s and into 2000, and criterion three was onsite external ambient gamma doses during all or part of the operational period '57 to '66.

So, we received two cases from NIOSH. And case A met criterion one and three. Now, case B did not meet criterion one or three because the employee was not employed during operational period of '76 to '6 (sic). And criterion two didn't apply because he -- directly because the maximum Uranium-234 intakes for the employment period, which was later on, was greater for the plant than it was for the quarry. So indirectly, it applied then that they had to determine the new values for the quarry and compare them to the plant and assign the highest of the intake because this worker worked all over the plant and didn't know for sure which location exactly so they had to apply the largest, and in this case, it was at the plant and not the quarry. And so, we went ahead and processed the claim as -- as we usually do.

And I -- and NIOSH stated that there was no claims for the environmental U-234 intakes were assigned from the quarry because you'd have to have a worker that just worked at the quarry and wasn't over the other sites. So that put -- would be very unusual to find a claim like that.

Okay, next.

Now, in a case A, dose reconstruction, we'll go into a detail on each of these two cases. This EE worked throughout the site during one covered

year, so he could have been around any of the three areas. And the initial DRs performed in 2006 for several cancers, redone in 2018 because he was diagnosed with additional cancer and was redone again in November of 2020 as a result of the issuance of this revision for TBD-4.

Next slide.

So first of all, we'll assess the external ambient dose and in 2018 DR, we see that dose -- external ambient dose is assigned with median gas -- gamma dose of .123 rem per year from table 4-4 of revision 3. And the dose is assigned using the const -- using with no uncertainty. Now, a few years later in 2020, used the same value from table 4-5 this time of revision 4, same years, and assigned as lognormal distribution with a GSD of 3.16. And so that was a difference mainly was -- was assigned the distribution.

Next slide.

Now, we evaluated external ambient dose, we concur with NIOSH's dose assignments for most of the cancers. However, we did have one observation. Okay. This observation was that it appeared that they did not use the dose conversion factor for the nonskin cancer. Most of them were skin cancer, however, there was one that wasn't a skin cancer. And so in the latest DR, the dose conversion factor of 1 was used for nonskin cancer according to TBD-4 revision 4, section 4.3.3, the iso exposure geometries we us here in this period and exposure to organ DCF used. And so an overestimate of 57 millirem was assigned and the DCF would have been less than 1 for this nonskin cancer organ. So slight overestimate.

And then we'll move on to the internal environmental dose. The 2018

DR used the predicted environmental intake values listed in table 4.3. Have these nuclides that's listed there, and I'd like to say that, that last one RA-222 should read Rn-20 -- 222 radon, not radium. That A should be an N. And they assign a total internal dose using lognormal distribution with a GDS (sic) of 3.

Now, this is reworked in 2020, and they calculated environmental intake from table 4-4 with the same radionuclides except that they added the -- the rade -- Radon-228 and -- Radium-228 and the Radon-220 as we discussed earlier was added in. So this resulted in a silent -- slightly larger internal dose using a lognormal distribution with a GDS of 3. So, it's essentially the same except they added in -- the dose is a little larger because of the additional radionuclides.

Next slide.

So, we evaluated that, and we compared the data in the CADs and the recommended values in table 4-4, and we found that they're entered correctly and the right distribution, etc. We did have one observation about several cancer dose assignments.

The observation two, it did not appear that they're always incorporated the date of cancer diagnosis. For earlier cancers, the DR used the CAD dose information from the last cancer. So we got a string of skin cancers, and you calculate the cancer, the dose to the last cancer, and then you just back up that list and find out the dose to the earlier cancers. And this is fine as long as you prorate the period within that year. Say a -- a cancer appeared in June of 2010. Well, instead of using the whole month -- the whole year of

2010 though, he would half it or whatever the prorated amount is. And this resulted in a very slight overestimate of one millirem for each of the skin cancer sites, other than the last cancer because that was entered incorrectly in the calculations when it was performed.

Okay. Next.

So, our next case B dose reconstruction. This EE, again, work throughout the site for several years. However, it was in later years, and the initial DR was performed October 2010, revised in December 2010 because of additional cancers, and the DR was revised again in November of 2020 as a result of the rev. 4 of TBD-4 being issued.

Okay. Now we'll go through the external and internal dose for that case. So, case B, external ambient dose. This was calculated as an overestimate using external ambient dose of, again, .123 rem per year from table 4-12 of revision 00. Because this is way back in 2010, so the current edition of TBD-4 was rev. 00, and it was a very large overestimate in that they used 80 hours per week prorated for the year of employment and was assigned as a constant with no uncertainty.

Now ten years later, in 2020, they calculated the ambient dose using the maxim of average value from the gamma dose that's listed in table 4-7 and revision 4 and assumed a more reasonable 50 hours a week, 2,500 hours of exposure per year as more detailed information and the last page of the CATI was considered and prorated for years of employment. It was assigned as a constant distribution with no uncertainty in the IREP input tables.

Next slide.

Okay. We evaluated that. We concur with the numerical value they assigned, however, we had one observation and one finding about this dose assignment.

Next slide.

Okay. Observation number three was it -- and NIOSH did incorporate the diagnosis -- diagnostic date for one of the cancers for external ambient dose. It appears that they assigned it for the full year as we previously found, and it was in the middle of a year, and so this resulted in an additional 18 millirems being assigned.

Okay. Now, our evaluation did identify what we think is a finding. We found that they assigned the ambient external dose as a constant distribution and with no uncertainly in IREP input table. However, our understanding of section 4.4 of rev. 4 records managed for the post-operational external dose the onsite ambient dose be represented as a normal distribution with a GSD of 30 percent. And this worker worked post operation.

The annual dose values in table 4-7 of rev. 4 are the maximum of the average dose values for the different facilities at the site, not the 95th percentile. So we believe that it should have been assigned as a normal distribution. So, we looked to see if this would have made much difference. And we reworked the case using a normal distribution or the GSD of 30 percent and derived a very slightly greater combined POC value.

Next slide.

So that's the external. Now we'll move on to case -- case B, the internal environmental. See the 2010 DR calculated the environment intakes on table 4-7 of rev. 00, and this was assigned as Uranium-234 and recycled uranium components assigned as log distribution with a GDS of 3. Ten years later, it was reworked using the environmental intake values in table 4-4 of rev. 4 of those radionuclides. And again, that last one should be Rn-222 and add -- and should be added in Radium-228 and Radon-220. So that, of course, it resulted in a greater internal dose to each of the cancer sites using a lognormal distribution with a GSD of 3, which was -- was correct for that case.

Okay. We compare the parameters and NIOSH using the CADs in table 4-4 and found them to be correct. They're entered correctly in the tables and the right side GSD and we had one observation on one of the cancers.

Observation four, again, did not appear to incorporate the date of the diagnosis for one of the cancers for the internal dose and the CAD for that cancer was -- in the column where you enter the diagnosis stage is 12/31 instead it should have been somewhere in the middle of the year. And so that resulted in a very slight overestimate of 1 millirem.

Okay. So the summary of our evaluation and rework of the two cases SC&A concludes that doses for cases A and B were -- were reevaluated important -- in accordance with PER-92, which addressed the changes in TBD-4 rev. 4. We did adapt by one finding in which to DR appeared to derive a slight underestimate of POC value, and we identified four

observations that indicated slight overestimates of the dose. And since the combined POC value was very low for each case, none of the observations or findings would impact the outcome of the cases.

Okay. So that's my presentation. Open for questions.

CHAIR BEACH: Thank you, Ron. That was thorough. One question I had, was the criterion met for all three of these? Did these two cases completely meet our -- our criterion one, two, and three?

DR. BUCHANAN: Indirectly. Number one, it indicated that they're -- NIOSH indicated there was no cases that did meet criteria two because, like I say, that somebody had to work at the quarry full time and -- to have environmental intake just from that. And so that -- but that value was compared to the plan. So in the rev., we did use all three criteria. However, there was no case that actually incorporated the quarry's U-234 intake in it, and NIOSH stated there was none available and that's -- that's understandable. That wouldn't be expected.

CHAIR BEACH: I just -- I just wanted to make sure that we covered all our bases, and we didn't need to select any other cases. And apparently it sounds like we wouldn't be able to find one for two. But thank you for going ahead and -- and taking care of that case B. I think that was helpful.

Questions, Loretta or Paul?

MEMBER ZIEMER: This is Paul. I have a question. So the impact on -- on this case was very -- or these two cases, really, very low. Is there a possibility that there would be more substantial impact on any other cases if these same -- well, let's -- let's talk about the finding, not the observations,

I guess. Is there -- are we confident that the impact would still be very low regardless of the parameters of other cases that would have been reevaluated?

DR. BUCHANAN: Well, I can't say for certain on that without looking at all -- all the cases, of course, but the environmental intake by nature is low. And then whether you --

MEMBER ZIEMER: I mean, we -- we --

DR. BUCHANAN: -- (indiscernible) --

MEMBER ZIEMER: -- that same -- we'd just be adding that same amount to each other case, right? Or no, we --

DR. BUCHANAN: Yes.

MEMBER ZIEMER: -- wouldn't necessarily because the time -- the -- the work times might be very different.

DR. BUCHANAN: Right. It depends on the employment time. The POC changed. The only one that the POC would have increased on was a finding. And it hadn't increased very much, but it was a slight increase. So, I couldn't make a blanket statement, but it would appear it'd be a low magnitude for most cases. Now I don't know if this was a problem -- you know, would be a universal problem or not. Maybe NIOSH could address that.

MR. SEIBERT: This is --

MEMBER ZIEMER: -- related question before NIOSH answers that, so aside from the individual parameters of -- now, let me hold off on that. Let's see what NIOSH says first.

MR. SEIBERT: Yes, this is Scott Seibert from the ORAU team. Yeah, I -- Ron, I appreciate the fact that you couldn't speculate on the other cases. I, on the other hand, could look at all of them, which is what I have done. Let me -- let me address both the observations and the findings really quick.

The observations are straightforward because they are all common overestimating assumptions used in noncompensable claims. So using a DCF that's overestimated at one or not prorating years, as long as you're under 45 percent, which this claim is -- or both of these claims are, that's a common overestimating assumption. So those are -- those are all easy to -- to address.

The finding, I went back and dug into it, and I will agree that although it's the maximum of the averages, it still is not necessarily maximizing to use a constant distribution. So, I've looked back and our direction to dose reconstructors does say to use the distribution. There are -- when I dug into it, there were nine total claims that were done under the PER that had this error in it that was specifically done by two dose reconstructors. All of them are less than one P -- 1 percent POC, so there is no impact whatsoever. Those --

MEMBER ZIEMER: (Indiscernible) --

MR. SEIBERT: -- individuals have been -- have been talked to, and we're actually updating the tool to give a warning about that for clarification. So, I think that's pretty much -- should be able to put that to bed pretty easy.

MEMBER ZIEMER: Well, that's very helpful. In fact, it's sort of

answered what my follow-up question was going to be, and that was, does the same dose reconstructor do all these cases or are they spread out like other cases, so that this was just an error on one DR's part, but you're saying a couple of them both made the same errors and handled a number of the cases, so.

MR. SEIBERT: That is -- that happens to be an interesting situation. Normally we have a subset of dose reconstructors doing PERs so they're done consistently, which is a benefit when they're done consistently correctly. They --

MEMBER ZIEMER: Right.

MR. SEIBERT: -- consistently done incorrectly, so we've -- we've addressed that situation. So yeah, it's a smaller subset, but it has no impact.

MEMBER ZIEMER: Yeah. Well, I appreciate that you looked back at that and identified that. That's helpful.

MR. SEIBERT: Absolutely.

CHAIR BEACH: This is Josie. That is very helpful. Loretta, anything? Comments?

MEMBER VALERIO: No, I don't have any, not on this one. I think I -- Paul had the same question that I had, so I'm good for now. Thank you though.

CHAIR BEACH: Okay, thank you. So moving forward, can we just get these answered and out to the subcommittee before we have them on our next meeting, or is that too soon?

DR. TAULBEE: This is, Tim. I guess I'm asking -- I mean, we just addressed these, you know, from this standpoint. I mean, do we need this in writing? I mean, we can, but --

CHAIR BEACH: I think it's -- yeah, I think it's helpful to have it in writing.

MEMBER ZIEMER: Well, it certainly will be in the --

DR. TAULBEE: (Indiscernible) --

MEMBER ZIEMER: -- it's in the transcript. I -- I'm -- I think we can close these in my own opinion, but I -- I leave it to the chair.

CHAIR BEACH: Okay. Thanks, Paul. I'll -- I'll go back to Ron with that explanation. Are you comfortable recommending closure?

DR. BUCHANAN: Yes, I have no problem with it since they looked back at all possible cases and there wasn't any change in output -- in the final outcome. I have no problem with any of that.

CHAIR BEACH: Okay, thanks, Ron. And then, Kathy, since you're the one that documents for us, are you comfortable with using the transcript?

MS. BEHLING: Yes, that's not a problem.

CHAIR BEACH: Okay. Well, then, it looks like we have -- help me out here. We have one finding and then three --

MR. BARTON: Josie, if I might, I think -- I think we don't need a formal writeup from NIOSH. But I think how we handled these in the past was through the old BRS system. So, if we're tracking them that way, then it would have this discussion, and it's just a quick blurb, but at least there's a record of it so people don't have to go digging through to see how we

closed these things out. I mean, it's just a suggestion, but I think that might be the best way to handle it, especially --

CHAIR BEACH: So, you're --

MR. BARTON: -- we have --

CHAIR BEACH: You're suggesting that we do have a blurb or a brief write up on all -- each one of these?

MR. BARTON: Well, I don't think it would take very much, but I think in the past that's what would have happened is that the BRS would have been --

CHAIR BEACH: Correct.

MR. BARTON: -- updated with a couple of sentences, really, just what we had for that discussion. I think it's a -- it's a better way to track it, in my opinion, but that's, again, just a -- just a suggestion.

CHAIR BEACH: No, and (indiscernible) --

DR. BUCHANAN: Will Kathy do that?

CHAIR BEACH: Well, Kathy will do it, and that's why I asked if she was comfortable with just using the transcript. So, I am -- I am -- I'm okay with NIOSH giving you an answer for each one of these in a short sentence or two, but I'll leave that up to Kathy since you're documenting.

MS. BEHLING: Yeah, I -- I do agree with Bob. I probably -- like I said, it's best -- we don't get a transcript for a while, so it's best to -- to have NIOSH, maybe, just put down a few words and then -- and like Bob said, that's what we used to do in the BRS system. So yes, I'll retract my comfort.

CHAIR BEACH: Thank you. We have three observations and a finding. And Scott, you very briefly -- excuse me -- four observations -- you very briefly explained each one of those, and if you could just do that in writing. I know Grady has to task you with that. So, Grady, if you could do that so that we can keep these

consistent?

MR. CALHOUN: Yeah, I'll get -- I'll get on that.

CHAIR BEACH: Is -- okay. So anything formal we need to do, Rashaun, on -- on those? If not, we're -- we're considering -- considering them, what is that, in abeyance until the write-up, and then you document them; is that correct, Kathy?

MS. BEHLING: Yes. That's the way I'll handle it.

CHAIR BEACH: That's --

MS. BEHLING: Yes, in abeyance until we document and then we'll close.

CHAIR BEACH: Okay. Everyone in agreement on the subcommittee, Paul and Loretta, --

MEMBER ZIEMER: -- fine.

CHAIR BEACH: -- okay with that?

MEMBER ZIEMER: That's fine.

UNIDENTIFIED SPEAKER: Okay.

MEMBER VALERIO: That's fine with me, Josie. This is Loretta.

CHAIR BEACH: Okay, thank you, Loretta.

All right. If we're done with that, we can move on to --

MS. MARION-MOSS: -- one thing --

CHAIR BEACH: Oh, go ahead.

MS. MARION-MOSS: This is Lori. I will --

CHAIR BEACH: Hi, Lori.

MS. MARION-MOSS: -- provide Kathy the responses for those observations and that one finding.

CHAIR BEACH: Oh, perfect. Okay, thank you very much.

MS. BEHLING: Thank you.

CHAIR BEACH: I appreciate you. I don't know how you guys do things, so I appreciate you letting us know. Thanks, Lori.

DCAS-PER-093

Texas City Chemicals Subtask 4 Case Review

CHAIR BEACH: And it looks like, Rose, you're up for Texas City Chemical. DCAS-093.

MS. GOGLIOTTI: Yes, that was me. Can everyone see my screen?

CHAIR BEACH: Yes.

MS. GOGLIOTTI: And it doesn't have a black box around it.

CHAIR BEACH: Okay, thank you.

MS. GOGLIOTTI: Great. Okay. So back in September, we discussed our review of DCAS-PER-93, which was a PER issued for Texas City Chemicals. And there we discussed subtasks 1 through 3. But since then, we had -- were tasked with reviewing one case, so I'll quickly go over this (indiscernible) to compare, okay?

The PER was issued because there was a change made, revision 1 of the TBD was issued, and that impacted of the doses on previously completed cases.

Now, for Texas City Chemicals, the covered period lasts from '53 through 1977, as you'll see here, with AWE operations as well as SEC covered period from October 5, 1953, through September 30th of 1955. After that is all residual period.

And when revision 1 was issued, there were changes made to residual ingestion intake rates assumed. And that increased the ingestion intake rate from 1955 through 1977, so only during the residual period. No other doses changed or intake values change between rev. 0 and rev. 1, so this PER was limited to just that time frame. And for the PER selection criteria, NIOSH targeted everything, cases that were done, that had employment during the residual periods, which makes sense, and they limited it to cases that weren't compensated. So, they targeted claims that had those things in common.

So that filtered down to just 14 cases in total. And of those 14 cases, 13 of them had POCs less than 45 percent. And NIOSH specifically called out one claim that had a POC change that was between 45 and 50 percent. But none of the cases had an increased above 50 percent, and because of that, NIOSH did not request any of the cases back formally from the Department of Labor.

After our review of subtasks 1 through 3, we recommended selecting a single case within the 14 impacted cases reviewed. And we did recommend

the one case that NIOSH had specifically called out with the POC between 45 and 50 percent. And in the September meeting, the subcommittee agreed and recommended we be tasked with that one case.

And so, we did review that case, and this particular case, I apologize if this is a little awkward, but protecting privacy of protected information. It is what it is. The EE was employed during both operational and residual years, and they had a fairly short employment period. But they did work throughout the plant, and they had no monitoring history. The case had multiple cancers. And from our review, we identified four findings and one observation.

I'm going to jump ahead here and just do a comparison of our original and reworked case. Here you'll see that external dose changed from less than 10 percent. Medical dose had no change at all. And internal dose also changed by less than 10 percent with the total dose changing by less than 10 percent. But the cancers did have a change between 10 and 25 percent in their POCs, but the final POC was about a 10 percent change. It did not affect the case though.

And now I'll go back, but I want to highlight that external dose has changed, and that was not expected. And typically, we would not look at things that are not covered under the PER. But because it was so different, this case did not have any changes in employment history or DOL verified employment or any changes in cancer that you would expect there to be a change in dose. So what it came down to was the original case was done using ER revision 1 because it was issued before the TBD, and there was not

a change in dose. But specifically, the residual period doses, the dates changed. The actual residual period did not change between revisions, but the doses -- or the dates changed in just this one table. So, the original -- original case was done and it assumed the residual period started April 1, 1955, and the TBD changed it to October 1, 1955.

This brings us kind of to finding one. Because there were longer operations periods it resulted in a larger dose. And most cases that would be impacted by this change were likely caught under the PER anyway because the PER is such broad selection criteria. But if there was a case that was completed before the issuance of the TBD and it had employment that ended between April 1, 1955, and October 1, 1955, this little change would have been missed by the PER selection criteria. I think it's very unlikely that six months of external dose would have a significant impact on any cases, but I do think NIOSH should go back in and explore this to verify that that's true just to make sure we're not missing any cases that should have been covered by this.

Okay. And then we'll go on to the internal dose, which was what we expected to change. The original dose reconstruction used inhalation and ingestion values in table 7-7 of ER, revision 1, and that was defined using the chronic annual dose tool. The reworked used inhalation and ingestion intake from table 7, 8, and 9 from the Texas City Chemical TBD, revision 1, and they also use the CAD to assign doses. And internal doses did increase by less than 10 percent.

Which brings us to finding two. Looking at table 7 and the doses that

were assigned in the CAD, we did come across an inconsistency. Specifically, one line in the table advises that Uranium-238, Thorium-230, Radium-234, Radium-226, Lead-210, and Polonium-210 from April 1, 1954, through September 30, 1955, should assign an intake rate of 39.4 pCi/day. But in this case, they actually assigned an intake rate of 34.9 pCi/day. I believe this is likely a typo, but it did result in a reduced intake and dose assigned to the target organ. I don't think (indiscernible) substantial, and I don't believe it would have an impact on the outcome of the case, but that was a discrepancy.

From that same table, we noticed that NIOSH did not assign intake and ingestion rate of .021 pCi/day for Thorium-232, Radium-228, and Thorium-228 from the period April 1, 1954, through September 30th of 1955. And I believe that would be a small underestimate in dose, likely less than a millirem. And while it's okay to not assign doses, they do need to justify that the dose is lower than that before it's not assigned. It was not modeled in the CAD. Similarly, the ingested intake rate of .307 pCi/day of Radium-226 from the same table from October 1, 1955 through December 31st of 1955, was not assigned, and I believe that this underestimated dose by slightly under a millirem again. It's a small dose, but it should have at least been modeled in the CAD.

And finally, that brings me to observation one. I reviewed the WebCAD output, and I didn't see any default values for Texas City Chemicals in the CAD. And normally there would be a drop-down window where you would select from the default values. And I don't see that there. So that

means the dose reconstructor would have to manually assign each of these doses in the CAD, which is fine, and I don't believe that there's anything that requires NIOSH to have this automated, but once things are automated, it reduces the chances of human error, which is what I think we saw here. I would recommend that get added.

That was it for this review. Are there any questions?

CHAIR BEACH: Hi, Rose. Good -- good report. No, I don't have any follow up. Paul? Loretta?

MEMBER ZIEMER: This is Paul. I -- I do want to ask one question. On finding two, was that -- let's see, let me see. Yeah, on the 39.4 versus the 34.9, it -- this is sort of like the question I asked in -- in our previous item on the agenda and that is, is this an error that one dose reconstructor made in doing this, or would this have been -- would this effect the other -- I think there were 14 other cases that were up or, you know, up towards 40 percent --

MS. GOGLIOTTI: Because --

MEMBER ZIEMER: -- an error --

MS. GOGLIOTTI: -- involved in the CAD, I think this was a one-off error. That's what I'm speculating because it is not a default value that they could have selected, so this would have to be manually entered in the CAD for each line.

MEMBER ZIEMER: Yeah. I was just wondering if --

MS. GOGLIOTTI: So, I think this is an isolated --

MEMBER ZIEMER: -- even if it was one --

MS. GOGLIOTTI: -- (indiscernible) --

MEMBER ZIEMER: -- even if it was the same person doing multiple ones, not likely to make the same mistake --

MS. GOGLIOTTI: No, I think --

MEMBER ZIEMER: -- over and over again.

MS. GOGLIOTTI: -- typographical error if I had to speculate.

MEMBER ZIEMER: Gotcha. Okay. That's helpful. Thanks.

CHAIR BEACH: This is Josie. No other questions?

MEMBER VALERIO: This is Loretta. I don't have any.

CHAIR BEACH: Okay, thanks, Loretta. NIOSH, any comments?

DR. TAULBEE: This is Tim. We are working up responses to these and will provide feedback to the work -- or to the subcommittee.

CHAIR BEACH: Okay. Is that something we can carry over to the next meeting, or do you think it'll take longer, Tim?

DR. TAULBEE: At this time, I'm unsure from that standpoint, so I would keep it off of the agenda for the next -- well, it depends on when your next meeting is, but give us a little bit of time to look into this a little more, and we'll get back to you on whether we'd be ready for the next meeting or the meeting after.

CHAIR BEACH: Okay, that sounds great. Thank you.

MEMBER ZIEMER: This is Paul. One more question. I or -- is the main issue I'm finding one with that -- that gap in the time frame 'cause -- 'cause finding two is basically already solved, right?

CHAIR BEACH: Right.

MS. GOGLIOTTI: Finding --

DR. TAULBEE: Well, --

MS. GOGLIOTTI: It's just a change in the time frame and because of that change, it's possible that there might be one case that slipped through the cracks. I don't think that there are -- there is, but it's possible and I'd like NIOSH to look into that and verify that to be true.

MEMBER ZIEMER: Yeah. I was kind of asking what -- what would take much time. I don't think anything beyond that issue is -- is a -- is a problem, is it, as far as NIOSH is concerned?

DR. TAULBEE: I -- I'm not sure. I don't think so, but I'm hesitant to say that --

MEMBER ZIEMER: Oh. Okay.

DR. TAULBEE: -- at this time.

MEMBER ZIEMER: Okay. Okay. I'm not trying to twist your arm, Tim. Thanks.

MS. BEHLING: And Josie, this is Kathy. Should I put these --

CHAIR BEACH: Yes.

MS. BEHLING: -- findings and observations in progress?

CHAIR BEACH: Yeah, yep.

MS. BEHLING: Okay.

CHAIR BEACH: Thank you. I was gonna just mention that. Okay.

When you're ready, we will move on to Peek Street, and Paul, I will go ahead and -- I'm not gonna go offline, but I won't comment and -- I'll turn that --

MS. BEHLING: Okay.

CHAIR BEACH: -- to you.

MS. BEHLING: And Doug Farver, are you on the line?

MR. FARVER: I am.

MS. BEHLING: Doug, Let me ask a question is anything you're presenting today have any anything specific to Hanford?

MR. FARVER: I don't --

MS. BEHLING: Like --

MR. FARVER: -- believe so. It's --

MS. BEHLING: I don't --

MR. FARVER: -- as in like in the Hanford processes or anything, no.

MS. BEHLING: That's what -- I didn't think so. I just wanted to verify that, so then Josie can make the decision of -- as to how she wants to handle this discussion.

CHAIR BEACH: I think I can handle it as long as Rashaun is okay with that.

DR. ROBERTS: Yes, that sounds fine if there's nothing specific thing to Hanford.

CHAIR BEACH: That's what I thought. I know or -- the last one was, but this is -- the subpart two, so it's different.

MEMBER ZIEMER: What was the -- this -- let me ask this -- this is Paul again. Was it an issue of -- and I can't remember what was -- was some of the Hanford data used as kind of a surrogate for Peek Street or what was -- I don't remember what the issue was exactly.

CHAIR BEACH: I believe that's what the issue was, yeah.

DR. TAULBEE: This is Tim. Let me clarify quickly. Within Peek Street we referenced Hanford TBD for some of the dosimetry because the -- the dosimeters were quite similar along those lines, and some of the bioassay methods were similar, so we referenced the Hanford TBD. That's all.

MEMBER ZIEMER: Oh, okay. Well, that -- that typically wouldn't be a conflict of Interest anyway, I wouldn't think.

DR. TAULBEE: Yeah, I --

MEMBER ZIEMER: (Indiscernible) --

DR. TAULBEE: -- don't think so either, but that's not my call.

MEMBER ZIEMER: Yeah, gotcha.

MS. HABIGHURST: Yeah. This is Ashton. I just want to clarify. Dr. Ziemer is correct. The conflict would only be about specific priority matters, and this is more of a general applicability, like a process. So Josie should be able to -- to talk about this.

CHAIR BEACH: Thank you. I appreciate you stepping in and letting us know.

MS. BEHLING: Okay. Doug, are you gonna share your screen?

MR. FARVER: Can you put it up Kathy?

MS. BEHLING: I will try.

MR. FARVER: Okay. Because I'm just on audio right now.

MS. BEHLING: Okay. One second. Oh, we cannot pull this up. I don't -- this is not TA cleared, because we're going to be talking about the cases. So, we have to be careful. Yes. No, we cannot pull this -- this

information up.

CHAIR BEACH: I was wondering about that because I didn't see it on my list, but I know I reviewed it, so.

MS. BEHLING: Yeah, yeah, yeah. I sent it to -- to everyone in the EPC, but yeah, this is not a document that can be shown on the screen. So, we'll just have to everyone look for their copy and then we'll have to just talk about it and talk cautiously.

DR. ROBERTS: Kathy?

MS. BEHLING: Yes?

DR. ROBERTS: Can you pull it up on -- the public doesn't have access to Zoom. They're -- just the bridge line.

MS. BEHLING: Okay.

CHAIR BEACH: And we're looking at the June 14, 2022, paper; is that correct? Oh, no, that's -- that's NIOSH's. Sorry, I got the wrong one.

MR. FARVER: The copy I have is dated January 27, 2023.

CHAIR BEACH: Okay. Thank you.

MS. BEHLING: Okay. Why don't I see this on my list. Sorry, let me do this. And what was the date again? I apologize.

MR. FARVER: January 27, 2023.

MEMBER CASSANO: I have January 30, 2023, on what I have. This is Dr. Cassano. I'm brand new here, so I'm not saying much.

CHAIR BEACH: Oh, welcome. We're glad to have you online.

MEMBER CASSANO: Thanks. Thank you.

MS. BEHLING: All right. Let me go to my email. I apologize.

CHAIR BEACH: My copy also -- I found it -- is January 27, 2023.

MS. BEHLING: Let's see if I can find it. Oh, can you send it to me? I'll just keep looking. I may be getting there.

DR. TAULBEE: I just sent it to you, Kathy.

MS. BEHLING: Okay. Thank you, Tim. Okay. I apologize for this.

Are you seeing that?

MR. FARVER: Yes.

MS. BEHLING: Okay, very good. So I'm so sorry about the delay. Okay, Doug.

UNIDENTIFIED SPEAKER: Got it.

Peek Street Template Case Reviews

MR. FARVER: So, a little bit of history here. Back in 2018, SC&A was tasked to review the DR template for Peek Street facilities. We issued a report in 2019. In May, I believe, of '22, NIOSH provided responses to their review of our report, and in September of 2022, we provided comments on NIOSH's responses. So that's a little bit of the history. And also at the meeting in September, we were tasked to review two of the DR cases from the Peek Street facility, so this is a result of that review.

The review was limited to findings one, three, and four and observation two from our response to NIOSH's comments. And the finding one has to do with the assumption of 100 percent asserting that 250 keV photon energy distribution. Finding three has to do with a neutron -- using a neutron-to-photon ratio of 1.2. And finding four had to do with the

dosimeter limit of detection that was used in the template. And observation two had to do with the PSLs that were used to calculate the internal dose.

And these findings and observations come originally from the 2019 review of the DR template. So if you go back to the 2019 report, you can probably -- it'll provide you a better explanation than just the one line finding. But they all go back to that original document.

So anyway, we were provided with two cases to review. And it's gonna refer to them with case A and case B, and now I'll just start and go through each one. So case A, the employee worked at Peek Street for about four months. The records didn't have any internal or external monitoring data. And the DR was completed in 2014.

On top of page two, the DR states that no information was available regarding the external dose at Peek Street. And the records indicate that the employee was not monitored for external dose, therefore, only ambient external dose was assigned. And since there was no external monitoring data available, findings one, three, and four were not really relevant to the case review.

So, we move on to the internal exposure. Regarding the internal exposure, the dose records were reviewed and determined that the employee was not monitored for internal dose during employment at Peek Street. So what they did is -- you know, what they would typically do, they -- they assume that a single hypothetical urine sample is assumed to be collected on the employee's last day of employment. And that was analyzed for fission products, plutonium, and enriched uranium. And then you would

back calculate what the missed intake was.

So, you would take one half of the physically significant level of PSL and calculate the fission products and enriched uranium. The PSL value for fission products was -- they use 20 disintegrations per day and fission products was -- for fission products, a .5 dpm per day for enriched uranium. And then I'll just provide a quote from the DR, Based on the available documentation, the PSL, slash, MBA for a urine sample was analyzed for fission products with 20, and then similarly it was .5 dpm per day for enriched uranium.

This goes to our first observation. NIOSH used the bioassay sensitivity levels instead of the PSLs when calculating the internal dose. Now, if you go back to reference theories GE 1997, it is -- I believe it excerpts from the history of the PSF. But anyway, there's table 522 on page 136, and it lists the bioassay sensitivity levels. The PSLs are listed in 523, which is on page 120 of that document. The PSLs are 50 dpm per day for fission products and five dpm per day for enriched uranium. So the PSL values -- the values used in the class A -- case A internal dose calculations results in underestimates of the EE's internal dose because they use sensitivity levels and not the PSL. So, for example, for the enriched uranium, when they use .5 dpm per day and the PSL is 50, so that would increase the enriched uranium doses by about a factor of 10.

CHAIR BEACH: Doug, this is Josie. Do you mind if I ask a question on that?

MR. FARVER: No.

CHAIR BEACH: Should that be listed as a finding and not as an observation?

MR. FARVER: I don't know.

CHAIR BEACH: I'm not the expert, but it seems like that should be a finding. So anyway, that's my question to SC&A.

MS. BEHLING: I guess, if I can interject -- this is Kathy. We talked a little bit about that, and the goal of this level in looking at these cases was for a different purpose. However, when we came across this, we even questioned how we should raise this to the subcommittee. But I do agree with you. It appears that incorrect values were used, and that could be changed to a finding if -- if you so desire.

CHAIR BEACH: Well, I feel like it meets that criteria. Paul, Loretta, any comments on that?

MEMBER ZIEMER: I guess the point that Kathy was making is that this -- this is -- was tangential to the purpose of the review. Is that -- was that correct, Kathy? Did I understand that correctly?

MS. BEHLING: Yes. Although we are still reviewing a dose reconstructions, so I felt it was important to point this out. I just wasn't sure we should address --

MEMBER ZIEMER: Yeah.

MS. BEHLING: -- or an observation.

MEMBER ZIEMER: Yeah. Typically observations are something that it's -- it's sort of a preference toward doing it one way versus another, as opposed to a finding where it's a specific, sort of, an error. And I think

that's -- I think that's -- this is more like that is -- is what, I think, perhaps we're -- we're saying in this case, right?

MS. BEHLING: Agreed. We have --

MEMBER ZIEMER: That -- that -- that's what you were saying, Josie, right?

CHAIR BEACH: Yeah, that's correct, Paul. That was my understanding.

MEMBER CASSANO: I have -- I have a question about this. A finding needs to be addressed.

CHAIR BEACH: Wait, wait --

MEMBER CASSANO: And a -- oh, this is Dr. Cassano. I'm sorry. A finding --

CHAIR BEACH: Thank you.

MEMBER CASSANO: -- needs to be addressed; an observation does not necessarily need to be addressed by NIOSH, correct?

CHAIR BEACH: No, they will address -- they would address both.

MEMBER CASSANO: They would, okay.

CHAIR BEACH: It's the level. It's the level. There's a criteria of whether it's a finding or an observation, --

MEMBER CASSANO: Okay.

CHAIR BEACH: -- more than whether it gets addressed or not.

MR. BARTON: This is Bob Barton. If I may just interject a little bit here because we've had, as I recall, significant discussion on this very point internally. This is more akin -- as Kathy pointed out, this report is sort of for

a different purpose. So we were unsure how to handle it. Now, this had been possibly in the dose reconstruction subcommittee, maybe we would have taken a different tack. But our -- our real position here was that different numbers were used, and we were confused by that, and they were possibly the wrong values to use. However, oftentimes in the dose reconstruction subcommittee we'll still just mark this as an observation because they're very well maybe a reason why different methods were used, and as was just pointed out, NIOSH would address it in any case. So we left it as an observation because we weren't quite sure if it was actually a deficiency and also, again, as Kathy pointed out, the purpose of these reports is rather different than an actual DR audit. So I --

CHAIR BEACH: Okay.

MR. BARTON: -- add that.

CHAIR BEACH: Thanks, Bob. And not to -- not to spend too much more time on this. I think we can leave it and move on and not belabor it, so.

MS. BEHLING: That's a good point, Josie. Thank you.

CHAIR BEACH: Okay, so let's go ahead and move on. Sorry Doug. You're on.

MR. FARVER: Top of page three, we'll go on to case B. So once again, the employee worked at PSF for about three months, did not have any external or internal monitoring records, and the DR was completed in 2017. So the DR states that the DOL records and information provided in the telephone interview indicated that the employee was a research assistant, a

physicist at PSF, and then I list some of the duties they were there for specified in the DR report.

And the -- the employee, while employed at Peek Street, the EE's primary source of radiation exposure was likely ambient photon radiation. So once again they just -- they calculated the ambient external dose. So as with case A, there's no external monitoring data, so findings one, three, and four are not really relevant to the review of case B.

So on to the internal exposure. So the dosimetry records were reviewed and determined that the employee was not monitored for internal dose. And that's just a statement -- a quote from the dose reconstruction. Unmonitored intake rates were calculated using the available Peek Street facility coworker bioassay data and the approach described above. So they used (break in audio feed) and table 2 in the dose reconstruction provides a summary of the unmonitored intakes.

And then down here in table 1 of the report, those are the unmonitored intake rates that are -- are from the coworker data analysis. Now, the coworker bioassay data, I believe, was compiled in 2016. So that's why -- one of the differences between case A and case B. Case A, I believe, was before they had the coworker data, and case B was performed after they had the coworker data. So instead of using a hypothetical bioassay result and calculating the missed dose intake, they just use the unmonitored intake rates that were determined from looking at, I believe it was, 29 cases, and they came up with these unmonitored intake rates.

I went back and looked at the 2016 coworker study, verified that the

intake rates used in the DR were the same ones that were listed in the coworker study. And the unmonitored intake rates are based on PSL values of 50 dpm per day, 5 dpm per day, and .33 for fission products, enriched uranium, and plutonium. And those were the same values that would be listed in figure 523 on page 120 of the reference document.

So then we get down so summary and conclusion. Ba-ba-ba. These are cases that contained external or internal dosimetry data. Because there was no external data for either case, we could really evaluate findings 1, 3, or 4. Neither case addressed potential intakes to natural uranium, therefore, we're not -- really unable to address the specific issue in observation two, PSL that was used for natural uranium. So we basically just reviewed the approach that they used to determine the missed internal/external dose for internal doses and the PSL used to calculate it.

They (indiscernible) assumed a hypothetical urine sample collected on the employee's last day of employment and calculated chronic intake of fission products and enriched uranium using one-half of the PSL. But the values they used for bioassay sensitivity levels and not PSLs.

Case B was performed differently, and they assumed the employee had received unmonitored intake fission products, enriched uranium, and plutonium. And based on the unmonitored intake that were determined from the coworker bioassay information, they applied the unmonitored intake rating. And the values they used in -- for the PSLs were the same values that were used in the PSL values on figure 523.

So SC&A believes that the use of the bioassay sensitivity levels in case

A instead of the PSL values, illustrates the need to having some more detailed technical basis documentation. And SC&A also recommended NIOSH select alternative cases where the EE was monitored for external and internal doses to review for findings one, three, and four and observation two.

Any questions?

CHAIR BEACH: Thanks. Question subcommittee members?

MEMBER VALERIO: Jose, this is Loretta. It's not a question, but I -- I do feel -- feel very strongly that, you know, SC&A should be allowed to review additional cases, even if it's just one or two. And, you know, for NIOSH to ensure that the -- the employee was monitored, both internally and externally. So, I think it's important that they -- you know, they do a coup -- at least, again, one or two more reviews of -- of case files and DRs.

CHAIR BEACH: Okay, thank you. I agree with that. Paul, thoughts? Comments? Are you on mute, Paul?

MEMBER ZIEMER: Sorry, I was on mute. So what is SC&A recommending on this?

CHAIR BEACH: Well, it looks like the third -- the second to the last bullet -- anyway, they're recommending that there be a -- it's put into a TBD, which I think this one's way down the list. And then it looks like they need to do some more case studies because what they were given didn't meet the criteria in a way that they couldn't overcome. Is that correct, Doug?

MR. FARVER: That's correct. There was no internal or external

dosimetry data, so we really couldn't review a whole lot.

CHAIR BEACH: So our subtask 4 criteria hasn't been met with this.

MEMBER ZIEMER: No, no.

MS. BEHLING: And this is Kathy. And this is actually different. This is not a PER. We're looking at one of these DR templates and DR methodologies. And as I discussed earlier today, this is the problem with selecting cases to review that methodology. This gives you an example of what happened when we reviewed a case that was supposed to try to resolve some of the findings that were discussed during our last discussion of the Peek Street facility. And the cases we were given didn't have the exposure pathways that we needed to look at. And that's the -- I made that comment this morning when I said that we need to do both when we're looking at these templates. We need to look at the methodology and look at some cases.

CHAIR BEACH: Correct, yes. I overstated what that was. So Dr. Cassano, any questions or -- is it -- is it Tori? Is that your first name?

MEMBER CASSANO: Oh, sorry. I'm on mute. Yes. Hi, this is Tori Cassano. And it's Cassano. And I don't think I have any questions at this point. I know so little that (indiscernible) here that it's hard for me to even ask an intelligent question. But I -- I would agree with what Kathy says that if you don't get cases that actually allow you to do what you're supposed to do, then somebody needs to find the cases that -- that do allow you to -- to do your job.

CHAIR BEACH: Right, thank you. And, and I don't mean to put you

on the spot or anything, but I don't want to ignore you either. So appreciate your comment. NIOSH any comments or recommendations?

MS. MARION-MOSS: This is Lori Moss.

CHAIR BEACH: Yes. Hi, Lori.

MS. MARION-MOSS: Hi. The one thing that I would say regarding this, I'm glad you clarified, Kathy, for us that this is not a subtask 4 --

CHAIR BEACH: Yes.

MS. MARION-MOSS: -- process with these DR methodologies. And so I selected those two cases for this review. And unfortunately, I did not have access to the transcripts nor was my note taking efficient at the time of the last meeting. So therefore, we can -- can two additional cases that meet the exposure pathways to SC&A.

CHAIR BEACH: Lori, thank you. And thanks for clarifying that this is not subtask 4. I definitely misspoke. It -- would it be helpful on these and the ones we talked about earlier today if -- if we -- if Kathy or SC&A sends you what criteria they're looking at, that way you don't have to rely on your notes? Is that something that would be helpful, because you'll have the same issue -- I -- I'm assuming we'll have it with the other templates moving forward.

MS. MARION-MOSS: Josie, that would be helpful.

MS. BEHLING: Yeah, and I should have done that, Lori, I apologize. I should have given you more detail when I asked for those two cases for Peek Street. But we, you know -- unfortunately, we no longer have access to NOCTS. We could also go out and maybe do some case selections, but

that's not an option anymore.

CHAIR BEACH: Right. Okay, so if it would -- if it would be helpful, it sounds like, if you would send Lori, since she'll be doing this, what -- what you need to see ahead of time.

MS. BEHLING: Okay.

MR. BARTON: Well, I mean -- this is Bob Barton. I mean, the criteria is pretty simple. I mean, it's all pathways that the template addresses.

MS. BEHLING: Yeah.

MR. BARTON: You know, I mean, that is -- that is the -- it's very similar to a subtask 4 in a lot of ways. But if we're evaluating a template, then we just need to see cases that use those pathways. Now, the only caveat there is how do we know that if there's a missing pathway, whatever it may be, you know, environmental ambient intakes, that there isn't a case there that should be evaluated for that but isn't in the template but should have been. You know, it's sort of a -- that's why I do certainly agree with Kathy's sentiment that we need to do these in tandem. But really, our criteria would simply be if we can get cases that cover all the pathways. And if there are situations where a pathway just simply doesn't exist for a claimant at a certain site, that's -- that's a specific situation. But otherwise, we'd be looking at all the standard pathways environmental, internal, external, medical, and that's --

MS. BEHLING: As many as we can get.

MR. BARTON: -- really the --

MS. BEHLING: Yep. As many as we can get, and that's why we also

need to look at the DR methodology document.

CHAIR BEACH: Okay. And then if we find that -- this is Josie again. If we find that something is missing or has been overlooked, is that something in real time you can let Lori know so that you don't have to wait for a meeting if one of the -- one of the criteria is not met and maybe another case can be selected?

MS. BEHLING: Well, to me, we don't necessarily need another case if we have the DR methodology, and if there's no methodology for a certain pathway, I will inquire as to I have to assume there are no cases out there where this was a pathway you needed to calculate doses for. That's why we need to look both at cases and the DR methodology. And because there's this interim document that's this template where the dose reconstructor is taking that template, pulling information out of there, we want to be sure that what's in that DR methodology and in that template gets into that final dose reconstruction report appropriately. So there has to be some cross-checking there, cross-walking.

CHAIR BEACH: Okay.

MS. BEHLING: That's my way of thinking.

CHAIR BEACH: Okay. Sounds --

MEMBER ZIEMER: Do a --

CHAIR BEACH: -- reasonable.

MEMBER ZIEMER: And Josie, this is Paul. And I -- I think I have a -- kind of, suggestion here as we look at possible other cases. Since -- since these are template reviews and we need at least a couple more, it sounds

like, for Peek Street, I wonder if we shouldn't make the additional reviews the kind of an extension of this particular review and just carry these other findings forward and add the -- the next part of the reviews to it in some way and get the -- get the whole bigger picture. Is that a possibility, or do you feel more comfortable in just handling this as it is right now, which is a -- some findings on some cases that don't meet our -- our needs?

CHAIR BEACH: Yes, no, I -- I -- I agree with you, Paul, that we should go ahead and -- and put these all together as long as Kathy's in agreement with that --with the other two that we're doing. I -- I see no reason not to.

MS. BEHLING: Yeah, that's fine. We can do that.

DR. TAULBEE: This is Tim. Can I make a comment here?

CHAIR BEACH: Yes, please, Tim. Go ahead.

DR. TAULBEE: Okay. You know, I think we should provide a couple more cases here for you-all to look at, and that just makes perfect sense here in this scenario. I just want to caution you on one of the things I heard from SC&A a second ago was, you know, to select cases that have all the pathways in them. And it really -- you -- you -- that's kind of thinking from the TBD side of things, and that's not how these DR methodologies are designed. Remember, the focus is on the dose reconstruction, and these are supplementing those dose reconstructions in a sense. So many of the cases might not have any monitoring data because they were a -- a clerk and, you know, did not enter any radiological areas along those types of lines. So it's kind of opposite of what you're used to dealing with. And I just want to caution you on that, that you might end up going through some of these

iterations. I hope we don't a lot from that standpoint, but to just, you know, try and say, well, all pathways that are covered in the methodology, there may not be a single case that does that, you know, the methodology is then put together in -- you know, in different pieces as we process certain claims. I just wanted to caution you. That's all.

MS. BEHLING: This is Kathy, I --

MR. BARTON: This is Bob.

MS. BEHLING: -- agree.

MR. BARTON: Can I ask you a question? Because you -- you said earlier that the templates are put together basically on an as-needed basis, so why would there be a methodology in the template for a case you haven't received yet?

DR. TAULBEE: Some of the guidelines -- you're right on the template side of that, but some of the guidelines go into more detail than what may be for a particular site that we actually have cases for. I don't know if --

MS. BEHLING: This is Kathy.

DR. TAULBEE: -- makes sense to you. Go ahead.

MS. BEHLING: Yeah. This is Kathy. I'm going to go back to the same theme. This is why we need to look at both. I am not necessarily, just like in this particular case, anticipating getting a case that has every pathway, but if there are other cases out there that the pathway needs to be addressed, we can find that out and we can look at that methodology in the DR temp -- guidance document, the DR methodology guide document. So that's important that we do both. I'm not necessarily anticipating that the

case -- one case is going to have all exposure pathways, but we can at least make something of a crosswalk, and we still have the opportunity to review all exposure pathways where NIOSH has calculated doses and see if those are -- if we agree with their methodology. I think that's important.

Boy, I got people quiet.

MR. BARTON: (Indiscernible) -- this is Bob again. I -- I think the -- I think the --

UNIDENTIFIED SPEAKER: I agree with that.

MR. BARTON: -- earlier with that. We might be looking at a case or -- looking at a template, rather, and saying well, you know, there's no established method for exposure to plutonium. And Tim's concern is that well, you know, we don't have any cases that needed a plutonium dose reconstruction for reasons A, B, and C, and I completely understand that. And so I think what we're really talking about is the order in which we do these things. And I think, to Kathy's point, that they should really be just tied together.

And it comes to a point where, you know, we say well, you know -- we look at the template and say hey, there's no plutonium methodology, you know, it's an observation and then it's five minutes for NIOSH to say that's because we don't have a case that needed it. And it's really quite that simple, I think. It's -- it seems more complicated than, I think, it really is, but maybe I'm sort of missing the point here.

DR. TAULBEE: No, I think you described the point correctly, there, Bob. Looking at both of them, just be careful of -- of what -- when things

appear to be missing, whether they are really missing for any active cases or cases we've done, that's all.

MR. BARTON: Yeah, I'm with you, Tim. I'm with you.

MS. BEHLING: And right now, because we don't have NOCTS, we're not going to be able to take that extra step to try to determine if there were other cases. Even if we had access to NOCTS, I'm not sure that would be an easy task for SC&A to do anyway. So it, like Bob said, may just have to be an observation that has to be resolved by saying there were no cases for that pathway or that radionuclide or whatever.

CHAIR BEACH: Okay. So I think we can just see how this plays out moving forward, as we go through these and it's -- it's a learning curve, I think, on both parts. So any other questions, comments, before we move on?

Preparation for April 2023 ABRWH Board Meeting

Okay, I think we're at our last prepping for the full-board meeting. Kathy, do you have a document for that?

MS. BEHLING: I do. I think I can -- yeah, there's no reason why I can't pull this up. Hold on a second. Okay. Are you seeing my handout?

CHAIR BEACH: Yes.

MS. BEHLING: Okay. Okay. Here is our typical document that lists all the documents that -- that you-all have reviewed and approved and that we now need to take to the full board. Now, as I mentioned earlier, I am going to make some corrections to this, and I should have done this in this

particular table, but somehow I -- I missed that.

As I indicated this PER-47, which is a Grand Junction Operations Office, and PER-5, when I started going through transcripts and looking at this and making preparation to talk about it during the last board meeting, I realized that SC&A had not done the subtask 4 work. So you have tasked us to do that as of this meeting, so those two items will come off this list.

The -- the other thing I'm going to suggest that underneath here, we literally have only five documents remaining that you see here, PER-45, which is Aliquippa Forge; PER-4 -- 76, same -- same facility; PER-77, Simonds Saw; PER 43, which has to do with the ICD codes; PER-59, which is Norton. Those are the last three that I felt would lend themselves to the approach we've been using, which is this matrix-type approach that we could present to the board, and so those are the ones that I am suggesting that we may want to prepare for the April meeting.

CHAIR BEACH: Okay. And then can you add 52 to that also? Or no was it 50? Where is my notes? We finished one up today. 49, excuse me.

MS. BEHLING: Oh, okay. Okay, we could add 49 to that.

CHAIR BEACH: Okay.

MS. BEHLING: I --

CHAIR BEACH: -- have been doing, so I -- I'm okay with that. Other members?

MEMBER VALERIO: Josie, this is Loretta. If I can get Kathy to give me the list of those again.

CHAIR BEACH: I can give them to you. It's 45, 76, 77, 43, 59, and

then from today's meeting, 49.

MEMBER VALERIO: Okay, thank you.

Review of Technical Guidance Documents

MS. BEHLING: And I also want to make one other -- well, two other things. This OTIB-6 -- and I did talk about this last time -- although when we wrote up a report -- and as I mentioned, I will not do this again -- we sort of casually put in there that there are three -- there were three editorial changes. They were errors in the -- in the -- or they were just things that were not referenced appropriately, tables -- I think table, footnotes, and that type of thing that we included in our OTIB-6 report, but they weren't really given an observation number. I have now given them a number. I think there were three of them. And I've added those to the updated BRS tracking system, which I'll just briefly show you next. So I hope that -- this one will also come off that list.

The only other thing that I did want to make mention of -- and I didn't think we would have enough time to really discuss it during this meeting, so I didn't follow through. We're now on to these -- these PERs that I had written down under the comments that may not be suitable for a matrix. And so I was going to go in and try to see why I came to that conclusion back some time ago and also come up with some, maybe, new design as to how we go about handling these. I think a lot of times there was just lots of discussions about them in the transcript. And for these particular documents, we may need to only do less -- present not as many to the board because they may take a little bit longer to talk through and to -- to

get an understanding of everything that went on to resolve these. But I --

CHAIR BEACH: Okay. Yeah, I -- it -- my suggestion is not to put too many together, so.

MS. BEHLING: Right. But what I was going to ask is would you be interested for the next meeting for me to give you an example of one of these to -- to sort of say okay, maybe this is an approach that we can take for some of these that are considered not suitable for the matrix? Would you like me to do that for the next

meeting?

CHAIR BEACH: Yes. I think you'll need to because we'll need to discuss that moving forward if we finish these other ones up in April. So yes, I would agree with that suggestion. Paul, Tori, Loretta, you guys agree with that also?

MEMBER VALERIO: Yeah, this Loretta. I --

MEMBER CASSANO: This is Tori. Yes.

MEMBER VALERIO: -- agree.

MEMBER CASSANO: This is Tori. I agree.

CHAIR BEACH: Okay. And your list, this is very helpful, Kathy. I can't thank you enough for keeping this all straight and together.

MS. BEHLING: Not a problem.

CHAIR BEACH: Yeah. So we'll put that down as a -- as a next meeting -- and we'll talk about that briefly before we get off the phone, so.

MS. BEHLING: Okay. And so I had one last --

MEMBER ZIEMER: I got cut off here a minute. I'm back on. Yeah, I

agree. I agree with that going forward. I couldn't respond to you. I lost my connection.

CHAIR BEACH: Oh, no. Perfect. Thanks, Paul, for chiming in.

MEMBER ZIEMER: Yeah.

MS. BEHLING: And Josie, if I can just be sure that I just confirm that everyone on this subcommittee, you are all in agreement that we're going to do PER-45, 76, 77, 43, 59, and today's for -- which one was it?

CHAIR BEACH: 49. 49.

MS. BEHLING: 49. Yes, yes. Okay, yes.

CHAIR BEACH: Everybody in agreement with that? Any reservations?

MEMBER ZIEMER: I agree. Ziemer.

CHAIR BEACH: Thank you.

MEMBER CASSANO: This is Tori.

MEMBER VALERIO: Loretta, I agree.

MEMBER CASSANO: I agree.

CHAIR BEACH: Thanks. Sorry, I'm jumping ahead. Rashaun will -- will our schedule support that? I think that's about, what, 90 minutes, Kathy, you think?

MS. BEHLING: That's usually what it takes.

CHAIR BEACH: Yeah. yeah. Yeah.

DR. ROBERTS: Yes. I have a placeholder in the agenda for 90 minutes if that's sufficient.

CHAIR BEACH: Great, okay, that sounds like that's -- anything else, Kathy, for that?

MS. BEHLING: No, I don't believe so.

CHAIR BEACH: Okay. So moving forward, I think that satisfies where we're at today.

Newly Issued Guidance Documents and Supplemental Topics

CHAIR BEACH: We -- you've already been tasked the newly issued guidance documents and supplemental topics, that is what we tasked earlier, correct?

MS. BEHLING: Yes. The only other thing --

CHAIR BEACH: So -- oh, go ahead.

MS. BEHLING: No, I --

CHAIR BEACH: (Indiscernible) --

MS. BEHLING: I'm sorry. I pulled up on the screen, if you can see, that I just wanted to just quickly point out to you --

CHAIR BEACH: Oh, yeah.

MS. BEHLING: -- had earlier that this, again, is our temporary BRS tracking system. I have added two columns to this that you didn't see in the previous one on the summary sheet -- summary table. And that is, we had some findings that were transferred. I added a column for that. And I also added a column for the advisory board action. And so now we may have this -- we're going to have to expand on that to say that there were some open issues from that -- my OTIB-52 discussion. So, we're going to expand this a little bit. And as I mentioned, that's already incorporated into the BRS that we previously had access to. I -- I don't know if that's going to change, or if we're going to ultimately get access to the same system. But that will

be added.

And then I will as -- as you know, this is getting to be a large document, 447-page range, I give details then as -- underneath this so that you can see exactly what went on. So hopefully when we have access to BRS, again we can just cut and paste this information right in there and we're -- we're tracking everything and don't lose things.

CHAIR BEACH: Very carefully cut and paste.

MS. BEHLING: Oh, yes.

CHAIR BEACH: This is gonna be a huge help if we if we ever get access. And if we don't, this will be some other form of keeping track of what we've done and where we are at, so.

MS. BEHLING: Right.

CHAIR BEACH: Much appreciate the work you're doing on that.

MS. BEHLING: Okay. Great.

CHAIR BEACH: Any comments on that, committee members, on the -- the temporary BRS tracking that Kathy has up right now?

MEMBER ZIEMER: That looks really good to me, Kathy. Very, very nicely done.

MS. BEHLING: Great. Thank you.

CHAIR BEACH: Yeah, they're very helpful.

So, the one thing we didn't talk about, and I know Lori sent out Birdsboro -- Birdsboro PER-073, so that can move forward. I believe SC&A should have time to go through that, am I correct, and move that forward to the next meeting?

MS. BEHLING: Yes, I have already forward that information to Bob Anestein (ph) who is working on that, so we will have that for the next meeting.

CHAIR BEACH: Okay, and then I have listed the OTIB-052 discussion or for follow up, and that is dependent on whether NIOSH gets that info or not. So that's the question mark. And then the example. So that's all I have moving forward. Do you have -- is that something we can do at a later time for -- when you see what your schedule looks like and what you get done?

MS. BEHLING: Is that a question for me? I'm sorry.

CHAIR BEACH: You know, I think it's just a question in general, because we're kind of getting to the end of our carryover list, too, other than waiting for responses. So maybe that's something we can do offline is -- as far as a -- another meeting, an agenda.

MEMBER ZIEMER: Josie, --

MEMBER VALERIO: Jo -- Josie, --

DR. TAULBEE: I think --

MEMBER VALERIO: Go ahead, Tim.

DR. TAULBEE: -- for an agenda for the next meeting, is there are going to be short responses on PER-92, the Weldon Spring, those observations and the one finding that Scott described. I mean, Lori is going to be providing that to you-all, but then you-all can vote and close that out.

CHAIR BEACH: Okay, perfect. That is on my list. I missed it. It was -- okay. Sounds great. Thank you.

MS. BEHLING: The other thing -- this is Kathy, again, I'm sorry. The

other thing that we want to add to the next meeting is also follow up on Battelle TIB 5000. Again, Bobby Anestein (ph) is looking into -- we had -- we closed to several of the observations, but there's still documents that he is reviewing to determine if that addresses the -- some additional findings. And I think he's writing something up. So that should be something we're also going to include in the next meeting.

CHAIR BEACH: Okay. That -- that seems reasonable. And Peek Street may or may not -- depend on when you get the additional cases, so you can kind of keep that in the back of your mind. I am.

MS. BEHLING: Okay.

MEMBER VALERIO: Josie, this is Loretta. To clarify, these -- these four items Weldon Springs (sic), Birdsboro, 52, and Battelle-5000, these are for the next subcommittee meeting, not for the next full-board meeting, correct?

CHAIR BEACH: Yes, subcommittee. Yep.

MEMBER VALERIO: Okay. Just wanted to verify that because I was making notes on both meetings. Thank you.

CHAIR BEACH: Yes. Okay, thank you.

All right. Looks like we are at the end. Anything that I missed or that we need to discuss moving forward?

DR. ROBERTS: Josie, we do need to identify a rough date for the next meeting.

CHAIR BEACH: Okay.

DR. ROBERTS: And I would say, you know, about three months out.

So maybe looking at May. At least three months. It could be beyond that if you needed --

CHAIR BEACH: Yeah, --

DR. ROBERTS: -- more time.

CHAIR BEACH: -- that's fine. If you don't mind, let's look at June. Otherwise, I'm gonna be -- it's gonna have to be a Friday for me. And I'm gone --

DR. ROBERTS: Okay.

CHAIR BEACH: -- the last week of May. So I'm pretty much wide open after -- after the week of the 6/12. So if we could do something the last -- the -- either the week of the 19th or the week of the 26th. If you want to look at a date there.

DR. ROBERTS: Uh-huh. And we're talking maybe Wednesday or Thursday, something to that effect.

CHAIR BEACH: Yes, either the 21st, 22nd, 28th, or 29th, if there's any preferences.

DR. ROBERTS: Do the board members -- do you all have preferences for either week?

MEMBER ZIEMER: The week of the 19th, my preference would be the Wednesday that -- I think that's the 21st.

CHAIR BEACH: Yes, first day of summer.

MEMBER CASSANO: Well, I -- this is Tori Cassano. Either week -- well, the 14th is the full-board meeting, so that sort of wipes that out. 20 and 21st, I prefer in general, Tuesdays or Wednesdays --

CHAIR BEACH: So, we're looking at -- Tori, we're looking at June. The 14th --

MEMBER CASSANO: Yes.

CHAIR BEACH: -- is a board call, so we won't go that week.

MEMBER CASSANO: Right.

CHAIR BEACH: So, we're looking at the 21st of June. You said Tuesday or Wednesday. Would that --

MEMBER CASSANO: Tuesday or Wednesdays --

CHAIR BEACH: -- 21st work?

MEMBER CASSANO: -- are fine for me, yeah.

CHAIR BEACH: Okay.

MEMBER CASSANO: Wednesday is -- is best.

CHAIR BEACH: Okay, Loretta, what do you think about the 21st?

MEMBER VALERIO: And this is in June, correct?

CHAIR BEACH: Correct.

MEMBER VALERIO: That -- that should be fine. Right now my Wednesday's are a little bit tied up, but school will be out, so that Wednesday should be perfect for me.

CHAIR BEACH: Okay, how about NIOSH, any -- and SC&A?

MS. BEHLING: Fine with me. This is Kathy.

UNIDENTIFIED SPEAKER: Yeah, I don't have any issues --

DR. TAULBEE: Same here with Tim.

UNIDENTIFIED SPEAKER: I'm good for those two weeks.

MR. BARTON: This is Bob. I think the only thing --

UNIDENTIFIED SPEAKER: That's --

MR. BARTON: -- I caution is since we're kind of entering new -- somewhat new territory with these templates, we may run into situations where we need to get things possibly cleared by DOE. I know that would happen with a TBD review or a SEC review. I'm not saying that would happen here, but that might complicate things. At the same time, I think I heard that this would be like a -- a target date. And if situations like that crop up, we might be able to push it back; is that correct?

CHAIR BEACH: Well, it requires, I think, a month in advance --

DR. ROBERTS: Yeah, it --

CHAIR BEACH: -- (indiscernible) --

DR. ROBERTS: Yeah, it -- it does require that, you know, we kind of are pretty firm with this date because we have to do the federal register notice.

DR. TAULBEE: I think what would happen in the case that you're referring to, Bob, is that some agenda items might get pushed to the following meeting.

CHAIR BEACH: Yes.

MR. BARTON: Okay. I just I just wanted to point that out --

DR. ROBERTS: Yeah, that's fine.

MR. BARTON: -- complication. Okay.

DR. ROBERTS: Yeah.

MR. BARTON: Thank you.

CHAIR BEACH: Okay, thanks. So Rashaun, are we okay with that

date, or do --

DR. ROBERTS: So -- yeah.

CHAIR BEACH: -- you want an alternate one?

DR. ROBERTS: Yeah. We could go ahead and identify an alternate as well. We'll go with this for -- for the time being, but let's get an alternate. It sounds like the following week, Tuesday or Wednesday?

CHAIR BEACH: Yes.

DR. ROBERTS: Are people okay with one or the other?

CHAIR BEACH: Yeah, that's --

MEMBER VALERIO: This is Loretta. I'm fine with either one.

MEMBER CASSANO: Wednesday is better for me. This is Tori.

DR. ROBERTS: Okay. So either Wednesday, June 21st, or Wednesday, June 28th.

CHAIR BEACH: Correct.

DR. ROBERTS: Okay. Okay, thank you, everybody. Okay. Appreciate all the hard work. And I think we're done.

(Whereupon, the meeting was adjourned at 3:29 p.m. EST).